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Pre NEET

Obstetrics and Gynaecology

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Pre NEET Obstetrics and Gynaecology

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Dedicated to

SAI BABA

Just sitting here reflecting on where I am and where I started I could not have done it without you Sai baba..

I praise you and love you for all that you have given me...
and thank you for another beautiful day ... to be able to sing and praise you and glorify you ..
you are my amazing god

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Preface

NEET, NEET, NEET !!!!

The entire year was spent debating whether NEET will be there this year or not? And now when it is finally there —it has brought loads of confusion/anger/denial/panic along with it. Everybody is confused what to study, how to study and from where to study.

Dear Juniors, do not panic—you all have slogged and sweated for four and a half years, you all are armed with basic knowledge and concepts—what is required is quickly brushing up those concepts, bringing your concepts from subconscious stage to a conscious stage. Do not go behind blindly mugging up facts and figures just because the sample paper uploaded by NBE was of single liner questions—even if you carefully analyse those questions, they had a clinical bent rather I should say a concept. As I always say—not only is an MCQ important, but the concept on which it is based is more important.

Blindly mugging up takes you nowhere.

As far as Obs and Gynae is concerned, if you have gone through my Self Assessment and Review of Obstetrics and Gynaecology even once—your concepts are already formed, now you just need to brush them up…but due to shortage of time you might be finding difficult to revise the two volumes, so I have come-up with Pre NEET Obstetrics and Gynaecology.

This book contains basic concepts of obs and gynae in a variety of formats—Clinical questions, case discussions, single liner past DNB questions and few last minute revision. I have included gynaecological cancers in a tabular format such that the entire Obstetrics and Gynaecology will not take more than one day to revise. For difficult topics like Rh Negative pregnancy, Diabetes in pregnancy, PIH, Herpes during pregnancy, etc. I have included a summary of the chapter so that you do not have to refer to any textbook at this crucial hour.

This book cannot be a replacement for Self Assessment and Review - Obstetrics and Gynaecology, but is a supplement for quick revision and retention.

Finally—Do not believe what your eyes are telling you. All they show is limitation. Look with your understanding, find out what you already know and you will see the way to fly.

All the Best

Sakshi Arora Hans
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From the Publisher's Desk

We request all the readers to provide us their valuable suggestions/errors (if any) *at:*
jaypeemcqproduction@gmail.com
so as to help us in further improvement of this book in the subsequent edition.

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Special Thanks to

My Dad—Mr Harish Arora and Mr Harish Hans

Who has taught me the valuable lesson of never giving up …

> Courage does not always roar, sometimes courage is the quiet voice at the end of the day saying,
>
> I will try again tomorrow…

My Husband—Dr Pankaj Hans

Who has always been supportive in all my endeavours and for teaching me the valuable lesson of believing in myself-

> Believe in you,
>
> Have faith in your abilities.
>
> Without a humble but reasonable confidence in your powers, you cannot be successful or happy.

My Daughter—Shreya

Who is an epitome of life and verve and for her lively Mantra-

> Stay cool mom

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For their constructive optimism and faith.

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OBSTETRICS

New Clinical Question of Obstetrics

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NEW CLINICAL QUESTION OF OBSTETRICS

QUESTIONS

Question Paper Based on New Pattern

Q.N.	BASED ON
Q. No 1 to 100	*Single Response Questions*
Q. No 101 to 117	*True/False Questions*

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Pre NEET Obstetrics and Gynaecology

QUESTIONS

HEART DIS IN PREGNANCY

1. Which cardiovascular change is not physiological in pregnancy:
a. Split 1st heart sound
b. Middiastolic murmur
c. Shift of apex beat to 4th ICS and outwards
d. Decr peripheral vascular Resistance.

2. Indication for cesarean section in pregnancy is:
a. Mitral stenosis
b. Aorti c aneurysm
c. PDA
d. Transposition of great vessels

3. Surgery for mitral stenosis during pregnancy is done at:
a. 8 wks
b. 10 wks
c. 14 wks
d. 22 wks

4. Which of the following disease has worst prognosis during pregnancy:
a. Pulmonary stenosis
b. Mitral stenosis
c. VSD
d. ASD

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5. All of the following are predictors of cardiac event during pregnancy except:

a. NYHA class>3

b. Obstructive lesion of the heart (mitral valve and aortic valve <1 cm^2

c. Previous H/O heart failure

d. Ejection fraction <40%.

Case Study

- P2L2 patient, on the 3rd postoperative day of caesarean develops sudden cardiac failure.
  - She has weakness, shortness of breath, palpitation, nocturnal dyspnea and cough.
  - O/E- Tachycardia, arrhythmia, peripheral edema, pulmonary rales are present. S3 is present but no murmur is heard.
  - She had been a booked patient with regular antenatal check-ups and with no prior heart problem and uneventful prior obstetric history.

Q. What is the probable diagnosis?

DIABETES IN PREGNANCY

6. A 30-year-old woman with diabetes mellitus presents to her physician at 19 weeks' gestation. She is obese and did not realize that she was pregnant until recently. She also has not been "watching her sugar" lately, but is now motivated to improve her regimen. A dilated ophthalmologic examination shows no retinopathy. An ECG is normal. Urinalysis is negative for proteinuria. Laboratory studies show:

- Hemoglobin A 1c: 10.8%
- Glucose: 222 mg/dL
- Thyroid-stimulating hormone: 1.0 μU/mL
- Free thyroxine: 1.7 ng/dL
- Creatinine: 1.1 mg/dL.

Q. In which of the following condition the risk of developing it is same in diabetics as the general population.

a. Asymptomatic bacteriuria

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b. Preeclampsia
c. Congenital adrenal hyperplasia
d. PPH after delivery
e. Shoulder dystocia

7. 30-yrs-old G3P2 patient visits an antenatal clinic at 20 weeks. She reveals during history that her first baby was 4.6 kg delivered by cesarean section, second baby was 4-8 kg delivered by c/section. Gynaecologists suspects gestational diabetes and orders a GCT. The blood sugar levels after 50 gms of oral glucose are 206 mg/dl and the patient is thus confirmed as a case of gestational diabetes. All of the following are known complications of this condition except:
a. Susceptibility for infection
b. Fetal hyperglycemia
c. Congenital malformations in fetus
d. Neonatal hypoglycemia

8. A 30-year-old G3P2 obese woman at 26 weeks' gestation with no significant past medical history states that diabetes runs in her family. Her other pregnancies were uncomplicated. The results of a 3-hour glucose tolerance test show the following glucose levels:

- 0 (fasting): 90 mg/dL 1 hour: 195 mg/dL
- 2 hours: 155 mg/dL 3 hours: 145 mg/dL

As a result, she is diagnosed with gestational diabetes. She is counselled to start diet modification and exercise to control her glycemic levels. 3 weeks after her diagnosis, she presents her values:

- Fasting: 95 mg/dL 1hr pp: 185 mg/dL

Q. What is the best management:
a. Continue diet modification
b. Start insulin
c. Repeat GTT
d. Start metformin

9. Fasting Blood sugar should be mantained in a pregnant diabetic female as:
a. 70 – 100 mg%
b. 100 – 130 mg%
c. 130 – 160 mg%
d. 160 – 190 mg%

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ANEMIA IN PREGNANCY

10. Total amount of iron needed by the fetus during entire pregnancy is:

a. 500 mg
b. 1000 mg
c. 800 mg
d. 300 mg.

11. Thirty years old G4P3L3 with 32 weeks pregancy with single live fetus in cephalic presentation, Patient complains of easy fatiguability and weakness since last 3 months which has gradually increased over last 15 days to an extent that she gets tired on doing household activities. Patient also complaints of breathlessness on exertion since last 15 days. Patient gets breathless on climbing 2 flight of stairs. It is not associated with palpitations or any chest pain. There is no history of pedal edema, sudden onset breathlessness, cough or decreased urine output. There is no history of asthma or chronic cough. There is no history of chronic fever with chills or rigors. There is no history of passage of worms in stool nor blood loss from any site. There is no history of easy bruisability or petechiae. There is no history of yellow discoloration of urine, skin or eyes. She did not take iron folate prophylaxis throughout her pregnancy.

- She is suspected to be anemic and her blood sample was ordered for examination which showed.
- Hb 7.4 gm % (12–14 gm%)
- Hct 22 % (36–44%)
- MCV 72 fL (80–97 fL)
- MCH 25 pg (27–33 pg)
- MCHC 30 % (32–36%)
- Peripheral smear shows microcytic hypochromic RBCs with anisopoikilocytosis
- Naked eye single tube red cell osmotic fragility test (NESTROFT) is negative.

Q. What is the most probable diagnosis:

a. Thallesemia
b. Iron deficiency anemia
c. Megaloblastic anemia
d. Vit B12 deficiency anemia.

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INFECTIONS IN PREGNANCY

12. A 6 week pregnant lady diagnosed with sputum positive TB. Best management is:

a. Wait for 2nd trimester to start ATT
b. Start category 1 ATT in 1st Trimester
c. Start category 1 1 ATT in 1st Trimester
d. Start category 111 ATT in 2nd Trimester

13. A 32-year-old G2P1 woman at 34 weeks' gestation presents to the labor and delivery floor with the chief complaint of regular contractions, bloody show, and a gush of fluids. A 2.3 kg (5 lb 1 oz) boy is delivered by spontaneous vaginal delivery without further complication 1 hour after presentation. Twenty-four hours later, the infant has developed irritability, fever, and respiratory distress. He is diagnosed with sepsis secondary to pneumonia. The mother has no complaints other than anxiety regarding the condition of her child. She denies rigors, chills, sweats, nausea, or vomiting. The mother's pulse is 60/min, blood pressure is 125/80 mm Hg, and temperature is 37°C (98.6°F). Physical examination reveals lungs that are clear to auscultation bilaterally, and no murmurs, rubs, or gallops are present on cardiac examination. The suprapubic region is not tender to palpation. Vaginal and cervical examination reveals no significant tears or bleeds.

Q. Which prenatal test would have provided the most useful information in preventing this condition:

a. Cervical Chlamydia culture
b. Cervical gonorrhea culture
c. Elisa for HIV
d. Rectovaginal grp B streptococcal culture

14. A 37-year-old G2P1 woman at 38 weeks' gestation presents to the obstetrics clinic for a prenatal visit. The patient had difficulty becoming pregnant but was successful after using in vitro fertilization. She has a history of recurrent herpes outbreaks, and her first pregnancy was complicated by failure to progress, which resulted in a cesarean birth. Routine rectovaginal culture at 36 weeks was positive for Group B streptococci.

Q. Which of the following would be an absolute indication for delivering the child by LSCS:

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a. Current symptoms of genital pain and tingling
b. h/o previous cesarean section
c. IVF
d. Maternal colonization with group B streptococci

15. A 25-year-old G1P0 female at 25 wks of gestation comes to you for antenatal check up. She has had an uncomplicated pregnancy but has 5 years history of Genital Herpes infection. She is usually asymptomatic and has had 3 flares in the past 5 years. She is concerned about exposing her unborn child to infection-What is the most appropriate counsel to offer to this patient.

a. Administer one dose of acyclovir if she has active genital herpes at the time of delivery.
b. Administer prophylaxis with acyclovir from now and uptil delivery whether she has active herpes or not.
c. Perform elective LSCS even if mother is asymptomatic at the time of delivery.
d. Perform elective LSCS only if mother has active herpes at the time of delivery**.**

16. A 26-Year-old woman is 38 weeks pregnant and presents to the labour room in active labour. She had fever for past 2days. Last night she broke out in any itchy rash that has spread over her arms and torso. She is a teacher by profession and 2 weeks earlier one of the children in her class was diagnosed with chicken pox. She didn't have chickenpox as a child.

Q. The patient is worried: Which of the following is the best advice to give her:

a. Nothing needs to be done, chickenpox in children is mild and self limiting.
b. The chance of transmitting the virus of the baby is low and so we treat if symptoms develop.
c. Baby must be treated immediately after birth as chickenpox is serious in newborns
d. Varicella virus is teratogenic and baby might have mild birth defects.

17. A 34-year-old primigravida at 11 weeks gestation presents to her obstetrics clinic with chief complain of exposure to a rash. Her husband is HIV+ve and has broken out on a rash in his left buttock which

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consists of a grouped vesicles on a maculopapular base, 4 days back. She has got her HIV testing done which is negative. Her P/R is 86/min, B/P = 100/60 mm of hg, resp rate 10/min and temp = 98.7F.FHS is heard via Doppler.

Q. What is the next step in the management:

a. Administer high dose acyclovir to the infant at birth.
b. Administer high dose acyclovir to the patient now.
c. Administer varicella immunoglobulin to the infant at birth.
d. Administer varicella immunoglobulin to the patient.

18. A 34 year old multigravida at 32 weeks gestation presents to her obstetrics clinic with reports positive for Hbsag. Which of the following statements concerning hepatitis infection in pregnancy are true:

a. Hepatitis B core antigen status is the most sensitive indicator of positive vertical transmission of disease
b. Hepatitis B is the most common form of hepatitis after blood transfusion
c. The proper treatment of infants born to infected mothers includes the administration of hepatitis B Ig as well as vaccine.
d. Patients who develop chronic active hepatitis should undergo MTP.

19. In an HBsAg+ve Pregnant female,hepatitis Ig to the child should be given: *(AIPG 2012)*

a. Within 12 hours
b. Within 6 hrs
c. Within 24 hrs
d. Within 48 hrs

20. A 19-year-old G2P1 woman at 9 weeks' gestation presents to the obstetrics and gynaecology clinic for her second prenatal visit. She reports no complaints other than occasional nausea. She had her first child by spontaneous vaginal delivery without complications. She is taking no medications and denies ethanol, tobacco, or current drug use. While she does admit to a history of intravenous drug abuse, she denies using them since the birth of her first child. Over the past several months she has had multiple sexual partners and does not use contraception. On physical examination she is in no acute distress. Lungs are clear to auscultation bilaterally. Her heart has a regular rate and rhythm, with no murmurs, rubs, or gallops. She is informed that she will need the

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routine prenatal tests, including an HIV test. The physician informs her of the risks and benefits of the HIV test.

Q. What else should the physician inform the patient before performing the test:

a. Despite the potential for fetal infection , she may opt out from the test
b. Early retroviral therapy will absolutely decrease the chances of transmitting infection to the baby.
c. CDC recommends screening only for patients with high risk factors
d. Risk of the test include potential for fetal loss.

CASE STUDY

A primigravida female of 32 years is 8 weeks pregnant and is a diagnosed case of HIV.She is already on ART and has no problem otherwise. What is the recommended treatment for her.

21. A primigravida delivers a premature infant (35 weeks) with bullous lesions all over the skin. X ray evaluation of bones of extremities shows periostitis. Which of the following investigation is useful in making the diagnosis:

a. VDRL in mother and baby
b. HbS ag
c. Montoux test
d. ELISA for HIV

22. DOC for syphilis in pregnancy = AIPG2012:

a. Erythromycin
b. Azithromycin
c. Penicillin
d. Cephalosporin/ceftriaxone

FIRST TRIMESTER BLEEDING

23. An 18-year-old woman complains of lower abdominal pain and vaginal spotting for several days. She denies sexually transmitted disease although she is sexually active with her boyfriend; they use condoms for protection. Her last menstrual period was 6 weeks ago. Her blood pressure is 124/80 mm Hg, pulse is 90/min, and temperature is 37.2°C (99.0°F). Abdominal examination demonstrates vague left lower quadrant

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tenderness without rebound or guarding. Pelvic examination shows a normal vagina and cervix without cervical motion tenderness. No adnexal masses are appreciated. Results of a complete blood cell count and metabolic panel are within normal limits.

Q. Which of the following is the next best step in mgt:

a. Transvaginal usg
b. Follow up after 3 months
c. Quantitative b hcg measurement
d. Rapid urine b hcg measurement
e. Methotrexate inj.

24. A 29-year-old G1P1 woman presents to the clinic for a prenatal check-up at 10 weeks' gestation with concerns of brown vaginal discharge about 1 week ago. She has noticed that her stomach is no longer increasing in size and that she is no longer as nauseated. On physical examination the cervix is closed and the uterus is impalpable. Ultrasound reveals a normal appearing 6 week fetus, but no fetal heartbeat.

Q. Which of the following is the most likely diagnosis:

a. Incomplete abortion
b. Missed abortion
c. Threatened abortion
d. Complete abortion
e. Inevitable abortion.

25. A woman with H/O recurrent abortions presents with isolated increase in APTT. Most likely cause is:

a. Lupus anticoagulant
b. Factor vii
c. Von willebrands disease
d. Hemophilia.

26. A Patient at 22 weeks gestation is diagnosed as having IUD which occurred at 17 weeks but did not have a miscarriage. This patient is at increased risk for:

a. Septic abortion
b. Recurrent abortion
c. Consumptive coagulopathy with hypofibrinogenemia
d. Future infertility
e. Ectopic pregnancy

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27. A 36-year-old G1P0 woman presents for her first prenatal visit late in her first trimester of pregnancy; she complains of persistent vaginal bleeding, nausea, and pelvic pain. Physical examination is notable for a gravid uterus larger than expected for gestational age. Fetal heart tones are absent. The patient has a medical history significant for herpes and gonorrhea infections.

Q. Which of the following is most likely to be true:

a. B hcg levels will be higher than normal.
b. B hcg levels will be lower than normal
c. uterus will be of normal levels
d. TSH levels will be increased

APH

28. A 34-year-old G1P0 woman at 29 weeks' gestation presents to the emergency department complaining of 2 hours of vaginal bleeding. The bleeding recently stopped, but she was diagnosed earlier with placenta previa by ultrasound. She denies any abdominal pain, cramping, or contractions associated with the bleeding. Her temperature is 36.8°C (98.2°F), blood pressure is 118/72 mm Hg, pulse is 75/min, and respiratory rate is 13/min. She reports she is Rh-positive, her hemoglobin is 11.1 g/dL, and coagulation tests, fibrinogen, and D-dimer levels are all normal. On examination her gravid abdomen is nontender. Fetal heart monitoring is reassuring, with a heart rate of 155/min, variable accelerations, and no decelerations. Two large-bore peripheral intravenous lines are inserted and two units of blood are typed and crossed.

Q. What is the most appropriate next step in management:

a. Admit to antenatal unit for bed rest and betamethasone.
b. Admit to antenatal unit for bed rest and blood transfusion.
c. Induction of labour
d. Perform emergency cesarean section.

29. A 29 year old G3 P2 female at 32 weeks of gestation presents to the emergency dept. with a small amount of vaginal bleeding. She doesn't have any pain.

- On examination
- Her PR : 66/min

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- B/P : 100/70mm of hg
- RR : 10/min

FHS tracings show fetal distress and shows late decelerations.

Q. What is the best course of action:

a. Emergent cesarean section
b. Fetal umbilical blood transfusion
c. Expectant management
d. Induction of labour with prost aglandins

30. A 29-year-old G3P2 woman at 34 weeks' gestation is involved in a serious car accident in which she lost consciousness briefly. In the emergency department she is awake and alert and complains of a severe headache and intense abdominal and pelvic pain. Her blood pressure is 150/90 mm Hg, heart rate is 120/min, temperature is 37.4°C (99.3°F), and respiratory rate is 22/min. Fetal heart rate is 155/min. Physical examination reveals several minor bruises on her abdomen and limbs, and vaginal inspection reveals blood in the vault. Strong, frequent uterine contractions are palpable.

Q. Which of the following is most likely a complication of this pts present condition:

a. DIC
b. IUGR
c. Subarachnoid hemorrhage
d. Vasa previa

31. A 34-year-old G1P0 woman at 30 weeks' gestation with a medical history of hypertension and tobacco use presents to the emergency department because of 3 hours of spontaneous vaginal bleeding. She is lethargic and complains of severe abdominal pain. Her temperature is 37.1°C (98.8°F), blood pressure is 82/44 mm Hg, pulse is 125/min, and respiratory rate is 18/min. Abnormal results of laboratory tests show an International Normalized Ratio of 2.3 and a partial thromboplastin time of 48 seconds. D-dimer levels are elevated, and fibrinogen levels are decreased. Fetal heart monitoring is concerning for an absent fetal heart rate.

Q. Which of the following is the m ost likely cause of this patients abnormal lab tests:

a. Disruption of placenta and release of fetal tissue into circulation

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b. Liver failure
c. Haemorrhagic shock
d. Release of thromboplastin by damaged placenta
e. Ruptured ectopic

32. A 27-year-old G2P1 woman at 34 weeks' gestation presents to the emergency department following a motor vehicle collision. In the trauma bay her heart rate is 130/min and blood pressure is 150/90 mm Hg. She is alert and oriented to person, place, and time. She complains of severe abdominal pain that began immediately after the collision. Physical examination reveals bruising over her abdomen, along with a hypertonic uterus and dark vaginal bleeding. A sonogram reveals a placental abruption, and the fetal heart tracing reveals some decelerations. Emergency laboratory tests reveal an International Normalized Ratio of 2.5, with elevated fibrin degradation products.

Q. Which of the following is the most appropriate first step in management:

a. Administer a tocolytic
b. Administer a corticosteroid.
c. Administer fresh frozen plasma.
d. Deliver the fetus immediately by LSCS
e. Observe closely.

PIH

33. A 31-year-old G2P1 woman at 24 weeks' gestation presents for a routine prenatal visit. She reports an uneventful pregnancy other than early morning nausea and vomiting, which has subsided since her last visit. She denies vaginal bleeding or contractions. Blood pressure and routine laboratory values at previous visits had been normal. Today her temperature is 37°C (98.6°F), pulse is 74/min, blood pressure is 162/114 mm Hg, and respiratory rate is 14/min. Her uterine size is consistent with her dates, and her physical examination is unremarkable. Laboratory tests show:

- WBC count: 9000/mm^3
- Hemoglobin: 13 g/mL
- Hematocrit: 39%
- Platelet count: 240,000/mm^3

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- Blood urea nitrogen: 11 mg/Dl
- Creatinine: 1.0 mg/dL
- Aspartate aminotransferase: 20 U/L Alanine aminotransferase: 12 U/L.
- Urinalysis reveals 3+ protein but no blood, bilirubin, bacteria, leukocyte esterase, or nitrites. The patient is sent directly from the clinic for a nonstress test and an ultrasound. Six hours later her blood pressure is rechecked, and it is 162/110 mm Hg.

Q. Which of the following is the most likely diagnosis-

a. Chronic hypertension
b. Preeclampsia
c. Eclampsia
d. Gestational hypertension
e. Severe preeclampsia

34. A 32-year-old G3P2 woman at 35 weeks' gestation has a past medical history significant for hypertension. She was well-controlled on hydrochlorothiazide and lisinopril as an outpatient, but these drugs were discontinued when she found out that she was pregnant. Her blood pressure has been relatively well controlled in the 120-130 mm Hg systolic range without medication, and urinalysis has consistently been negative for proteinuria at each of her prenatal visits. She presents now to the obstetric clinic with a blood pressure of 142/84 mm Hg. A 24-hour urine specimen yields 0.35 g of proteinuria.

Q. Which of the following is the most appropriate next step?

a. Start iv furosemide
b. Induce labor after doing Bischop score
c. Put her on hydralazine
d. Initial inpatient evaluation followed by restricted activity and outpatient management.
e. Start her prepregnancy regime

35. A 35 years old $G_1 P_0$ women at 28 weeks of pregnancy complaints of severe headache for 4days. She doesn't have any photophobia, vomiting and nausea but had dizzness. Her BP is 155/85mm of hg, R/R-18/min, P/R-120/min.

Urinalysis reveals +1 glycosuria, +3 proteinuria and 24 hours urine collection shows 4g protein.

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P/A Examination: ht of uterus ~ 28 weeks:

- FHS regular
- Fetal parts palpable

She is admitted and monitored after 6hrs her condition is unchanged which of the following is the next best step in management:

a. Emergency cesarean section
b. Oral glucose tolerance test
c. I/V mgso4
d. Stabilisation of vital signs and bed rest
e. Follow up after 2 weeks

36. A 25 Year old femal is 5months pregnant and presents to her obstetrician along with her first child. She has not received any prenatal care. She thinks she has gained adequate weight and her pregnancy has been uncomplicated till date. Her past medical history is notable for hypertension for which she is currently taking enalapril.

- She is 168 cms (5' 6") tall, weight is 59 kg, B/P = 120/84 mm of hg and fundal ht is 17 cms. Fetal movements are appreciated and FHR = 140/min.
- Results of dipstick are negative.
- Which of the following tests should be preformed:

a. CVS
b. Grp B strepto coccal testing
c. Triple test
d. USG of fetal kidneys

AMNIOTIC FLUID DISORDERS

37. A multigravida 32 years old female presents at 30 weeks of pregnancy for routine examination. She has history of type-2 Diabetes Mellitus, Hypercholesteremia and hypertension and has a 5back years smoking history. She is Rh positive and husbands Rh status is unknown.

- USG shows AF I>21
- Modification of which of the following would most likely have helped to prevent this condition:

a. Folate supplementation
b. Hypertension

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c. Rh Isoimmunisation
d. Diabetes
e. Smoking

RH NEGATIVE PREGNANCY

38. A 37 year old primi Rh negative patient is very concerned abt her pregnancy at this age. Her pregnancy is 16 weeks and she is HIV negative, hepatitis b surface ag neg, Rubella non immune and has no complain.Her triple test report is normal but still due to her age she insists on getting an amniocentesis done.

Which of the following is the next best step in management:

a. Advise against amniocentesis as it will increase the risk of isoimmunisation
b. Follow Rh titres carefully and give Anti D if evidence of isoimmunisation is present.
c. Give Anti D at 28 weeks f pregnancy and after delivery if baby is Rh neg
d. Give Anti D prior to her amniocentesis
e. give rubella vaccine as she is Rubella non immune

39. Two weeks later, the results of the patient's prenatal labs come back. Her blood type is A, with an anti D antibody titer of 1:4. What is the most appropriate next step in the management of this patient?

a. Schedule an amniocentesis for amniotic fluid bilirubin at 16 weeks
b. Repeat titer in 4 weeks
c. Repeat titer in 28 weeks
d. Schedule PUBS to determine fetal hematocrit at 20 weeks
e. Schedule PUBS as soon as possible to determine fetal blood type

40. All of the following are scenarios in which it would have been appropriate to administer RhoGam to this patient in the past except:

a. After a spontaneous first trimester abortion
b. After treatment for ectopic pregnancy
c. Within 3 days of delivering an Rh–ve fetus
d. At the time of amniocentesis
e. At the time of external cephalic version

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JAUNDICE IN PREGNANCY

41. A pregnant female developed idiopathic cholestatic jaundice.The following condition is not associated:

a. Intense itching
b. SGOT, SGPT less than 60 IU
c. Serum bilirubin > 5 mg/dl
d. Markedly raised levels of alkaline phosphatase

42. Pregnancy shd be terminated at …..wks in pts of cholestatic jaundice:

a. 34 weeks
b. 36 weeks
c. 38 weks
d. 40 weeks

43. A 36 yr old G1P0 at 35 weeks gest presents with several days H/O generalised malaise, anorexia, nausea and emesis and abd. discomfort. She has loss of apetite and loss of several pounds wt in 1 week. Fetal movements are good. There is no headache, visual changes, no vaginal bleeding, no regular uterine contractions or rupture of membranes. She is on prenatal vitamins. No other medical problem. On exam she is mild jaundiced and little confused. Her temp is 100 degree F, PR- 70, BP- 100/62, no significant edema, appears dehydrated. FHR is 160 and is nonreactive but with good variability. Her WBC- 25000, Hct- 42.0, platelets- 51000, SGOT/SGPT- 287/ 350, GLUCOSE-43, Creatinine- 2.0, fibrinogen- 135, PT/PTT- 16/50, S. Ammonia level- 90 micromol/L. Urine is 3+ Proteins with large amount of ketones.

What is the the recommened treatment for this patient.

a. Immediate delivery
b. Cholecystectomy
c. Intravenous diphenhydramine
d. $MgSO_4$ therapy
e. Bed rest and supportive measures since this condition is self limiting

ASTHMA IN PREGNANCY

44. A 23-year-old G1P0 woman at 10 weeks' gestation presents to the obstetrics clinic for her initial evaluation. She says she has been

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hospitalized several times for asthma exacerbations but has never required intubation or admission to an intensive care unit. She is controlled on daily inhaled corticosteroids and albuterol with adequate relief of her symptoms. She is concerned about taking these medications now that she is pregnant.

Q. Which of the following is true regarding asthma medications in pregnancy:

a. B_2 agonist are contraindicated during pregnancy.
b. Both B_2 agonist and inhaled corticosteroids are both contraindicated in pregnancy.
c. Both B_2 agonist and inhaled corticosteroids are safe in pregnancy
d. B_2 agonist and inhaled corticosteroids are both safe in pregnancy but during 2nd and 3rd trimester only
e. Inhaled corticosteroids are contraindicated in pregnancy.

THYROID DISORDERS IN PREGNANCY

45. Rani a 24 year old woman presents to her gynaecologist as she has chronic hypothyroidism and wants to conceive now. Her hypothyroidism is well controlled at 75 microgram of Thyroxine. She doesn't smoke or drink and doesn't have any other medical ailment. She would like to know if she should keep taking her Thyroxin. Which of the following is the best advice to give to this patient:

a. Stop taking Thyroxine and switch to methimazole as we would like to control your baby's thyroid levels
b. Thyroxine is safe during pregnancy but it is not absolutely necessary during pregnancy to continue thryoxine.
c. Thyroxine is not safe during pregnancy and it is better for your baby to be hypothyroid than hyperthyroid
d. Thyroxine is absolutely safe and necessary for you in pregnancy but we would like to decrease your dose as pregnancy is accompanied by mild physiological hyperthyroidism
e. Thyroxine is safe in pregnancy and the dose of thyroxine would be increased during pregnancy to avoid hypothyroidism, which may affect the baby adversely.

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TWIN/MULTIFETAL PREGNANCY

46. Which of the following statements about twinning is true?

a. The frequencies of monozygosity and dizygosity are the same
b. Division after formation of the embryonic disk result in conjoined twins
c. The incidence of monozygotic twinning varies with race
d. A dichorionic twin pregnancy always denotes dizygosity
e. Twinning causes no appreciable increase in maternal morbidity and mortality over singleton pregnancies

47. The placenta of twins can be:

a. Dichorionic and monoamniotic in dizygotic twins
b. Dichorionic and mooamniotic in monozygotic twins
c. Monochorionic and monoamniotic in dizygotic twins
d. Dichorionic and diamniotic in monozygotic twins

48. A 26 yr old primigravida with a twin gestation at 30 weeks presents for a USG.The sonogram indicates that the fetuses are both male and the placenta appears to be diamniotic and monochorionic.Twin B is noted to have oligohydramnios and to be much smaller than twin A.In this clinical scenario ,all of the following are concerns for twin A except:

a. CHF
b. Anemia
c. Hydramnios
d. widespread thromboses

LABOUR/ABNORMAL LABOR

49. All of the following are appropriate tocolytics for this patient except:

a. indomethacin
b. Nifedipine
c. $MgSO_4$
d. Progesterone

50. Best tocolytic in a cardiac patient is:

a. Atosbian
b. Isoxsuprine
c. Nifedipine
d. $MgSO_4$

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51. Which of the following clinical conditions is not an indication for induction of labour:

a. IUD
b. Severe preeclampsia at 36 weeks
c. complete placenta accreata
d. Chorioamnionitis
e. Postterm pregnancy

52. Active management of third stage of labour includes all except:

a. Uterine massage
b. Delivery of placenta by controlled cord traction
c. Early cord clamping
d. Injection methergin after delivery of shoulder of baby

53. All of the following are indications for early clamping of cord except:

a. Preterm delivery
b. Postdated pregnancy
c. Birth asphyxia
d. Maternal diabetes

54. A 27-year-old G1P0 woman at 39 weeks' gestation presents to the labor and delivery suite and progresses through the stages of labor normally. During delivery of the infant, the head initially progresses beyond the perineum and then retracts. Gentle traction does not facilitate delivery of the infant.

Q. Which of these options is the first step in the management:

a. Abduct mothers thigh and apply suprapubic pressure.
b. Apply fundal pressure.
c. Flex mothers thigh against her abdomen.
d. Push infants head back into the uterus and do cesarean section.
e. Do a symphiosotomy.

55. A 28 year old G_1P_0 woman at 31 weeks gestation presents with 4hours history of abdominal cramping and contraction. She is feeling contractions at regular intervals of 10 mins and are increasing is intensity. She has had a small amount of vaginal discharge but is unsure whether her water bag has broken or not.

She has had no vagina bleeding

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Her temp is 36.8^0 C (98.3^0F), BP-137/84mm of Hg, pulse 87/min and R/R=12/min

On examination:

- Uterus is soft
- Fundal ht $\simeq$ 32weeks
- Contractions present 20-30secs/8mins
- Cephalic presentation
- FHS + Regular

Which of the following is the next best step in management:

a. Cervical culture for group B streptococci
b. Digital cervical examination and assessment of dilation and effacement.
c. Quantification of strength and timing of contraction with external tocometer.
d. Speculum examination to rule out leaking and usually assess cervical dilatation and effacement.
e. USG examination of the fetus.

56. A primigravida at 37th weeks of gestation with loss of engagement, 1 cm effacement of cervix and 10 uterne contractions per hour. She is hemodynamically stable and not in distress. What is the management. *(AI 2011)*

a. Sedate the patient and wait
b. LSCS
c. Amniotomy
d. Induction with membrane rupture

57. A 30 year old primigravida at 39 weeks has been completely dilated and pushing for 3 hrs. She has taken epidural analgesia.She is exhausted and her temp is 37.8 ^ c. FHS is 170/min with decreased variability. Patients membranes are ruptured for over 24 hrs. P/V shows cervix is fully dilated and fetal head is visible in between contractions and fetal bones are at +3 station.What is the most appropriate management:

a. do LSCS
b. encourage the patient to push after a short period of rest.
c. attempt forceps delivery
d. apply fundal pressure

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58. A 32 year old G2P1 at 38 weeks of gestation presents to the labour room with regular intense painful uterine contractions for the past one hour.She belives her water bag has broken and has H/O previous LSCS for fetal distress.

- O/E – P/R = 95/min
- B/P = 135/8 o mmof hg
- R/R – 15/min
- P/A – fetus lie-long,presentation cephalic
- Tocometer detcts contractions every 8 mins
- Fetal heart rate tracing show baseline FHS 140/min,beat to beat variability is present, occasional heart rate acceleration of 160/min for 15–20 secs. There are also decelarations to 115–120/min with the onset of contractions.

What is the most appropriate next step in management?

a. Augment contractions wid oxytocin
b. Monitor and follow labor on partogram
c. Obtain immediate consent for LSCS
d. Send the patient for BPS
e. Perform urgent aminoinfusion

59. A healthy 30 yr old G1P0 at 41 weeks presents to labor and delivery at 11 pm because the baby's movements were less for the past 24 hrs. the pregnancy period was without any complication. Her baseline BP was normal. FHR is 180 bpm with absent variability. Uterine contractions are every 3 min accompanied by FHR deceleration. Physical exam indicates cervix is long/ closed/-2. What is the appropriate plan of mgmt.

a. Emergency CS
b. IV MgSO4 and induce labor with with pitocin
c. Overnight cervix ripening with PGE2 and induction with Pitocin in morning
d. Admission and CS after 12 hrs of NPO
e. Induce labor with misoprostil

60. A healthy 23 yr old G1P0 has an uncomplicated pregnancy to date. She is dissapointed because she is 41 weeks gestational age by good dates and a 1st trimester USG and wants to have her baby. Pt reports good fetal movements, baby's kick count is abt. 8–10 times/hr.

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On exam cervix is firm, posterior, 50% effaced and 1 cm dilated and vertex is at -1 stn. What will be the next advice for the pt.

a. Admission and immidiate CS
b. Admission and Pitocin induction
c. Schedule a CS in one week if she has not undergone spontaneous labor in the mean time
d. She should continue to monitor kick count and return to you after a week to reassess the situation

61. A 24 yr old primi female at term, has been dilated to 9 cms for 3 hrs.The fetal vertex is at Rt occipito posterior position and at +1 station.There have been mild decelerations for the last 10 mins.Twenty mins back fetal scalp Ph was 7.27 and now it is 7.20. Next line of management is:

a. wait and watch
b. repeat scalp ph after 15 mins
c. midforceps rotation
d. LSCS

62. A 27-year-old G2P1 woman at 40 weeks' gestation presents in labor. She has a history of an uncomplicated spontaneous vaginal delivery of a healthy child weighing 3.9 kg (8.6 lb). On examination her blood pressure is 123/89 mm Hg, pulse is 87/min, and temperature is 36.7°C (98°F). The fetal heart rate ranges from 140 to 150/min with good beat-to-beat variability. Tocometry detects regular contractions occurring every 8-10 minutes. The cervix is dilated at 4 cm and the vertex is at the -3 position. Immediately after artificial rupture of membranes, fetal bradycardia of 65-75/min is noted for 2 minutes without recovery.

Which of the following is the next best step in mgt:

a. incr rate of oxytocin infusion
b. Perform sterile vaginal examination
c. perform immediate LSCS
d. Perform mc roberts manouvre
e. stimulate fetal scalp

63. Treatment of cord prolapse is based on all of the following factors except:

a. Fetal viabilty

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b. Fetal maturity
c. Fetal weight
d. Cervical dilatation

64. A 37-year-old G2P1 woman at 38 weeks' gestation, with regular prenatal care, presents to the labor and delivery floor after several hours of increasingly frequent and strong contractions with ruptured amniotic membranes. On examination her cervix is soft, anterior, and completely effaced and dilated. Labor continues for another 3 hours, at which time the fetus has still not been delivered. The fetal mean heart rate is 146/min, with variable accelerations and no appreciable decelerations. Evaluation of the fetus and maternal pelvis indicate that anatomic factors are adequate for vaginal delivery.

Which of the following is an indication for forceps delivery:

a. Fetal distress during active stage of labor.
b. Labor complicated by shoulder dystocia.
c. Prolonged active stage of labor due to inadequate uterine contraction strength.
d. Prolonged latent stage of labor due to inadequate uterine contraction strength.
e. Prolonged second stage of labor due to adequate uterine contraction strength.

65. In the criteria for outlet forceps application all are correct except:

a. Fetus should be vertex prestation or face presentation with mentoanterior
b. The saggital plane should be less than 15 degree from anterioposterior plane
c. There should be no caput saccedenum
d. It should be at station zero *(AIIMS Nov 2011)*

66. Long axis of the forceps lie along which fetal diameter:

a. Mentovertical
b. Suboccipitobregmatic
c. Occipitofrontal
d. Occipitomental

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67. A forceps rotation of 30° from left occipito anterior with extraction of fetus from +2 station is described as which type of forceps application:

a. High forceps
b. Mid cavity forceps
c. Low forceps
d. Outlet forceps

68. An abnormal attitude is illustrated by:

a. Breech presentation
b. Face presentation
c. Transverse position
d. Occiput posterior
e. Occiput anterior

69. A 30 yr old G1P1001 patient comes to see you in office at 37 weeks gestational age for her routine OB visit. Her 1st pregnancy resulted in a vaginal delivery of a 9-lb, 8-oz baby boy after 30 min of pushing. On doing Leopold maneuvers during this office visit, you determine that the fetus is breech. Vaginal exam demonstrate that the cervix is 50% effaced and 1–2 cm dilated. The presenting breech is high out of pelvis. The estimated fetal wt. is about 7 lb. you send the pt. for a USG, which confirms a fetus with a frank breech prestation. There is a normal amount of amniotic fluid present, and the head is well flexed. As the patient's obstetrician, you offer all the following possible mgmt plans except:

a. Allow the pt to undergo a vaginal breech delivery whenever she goes into labor
b. Send the pt to labor and delivery immidiately for an emergent CS
c. Schedule a CS at or after 39 weeks gestation age
d. Schedule an ext cephalic version in next few days

PUERPERIUM

70. Kegels exercise shd begin: *(AIPG2012)*

Version 1:

a. immediately after delivery
b. 24 hrs after delivery
c. 3 weeks after delivery
d. 6 weeks after delivery

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Version 2:

a. Immediately after delivery
b. 3 weeks after delivery
c. Only after LSCS
d. During third trimester of pregnancy

71. A 24-year-old P2+0 woman presents to the emergency department complaining of pain in her right breast. The patient is postpartum day 10 from an uncomplicated spontaneous vaginal delivery at 42 weeks. She reports no difficulty breast-feeding for the first several days postpartum, but states that for the past week her daughter has had difficulty latching on. Three days ago her right nipple became dry and cracked, and since yesterday it has become increasingly swollen and painful. Her temperature is 38.3°C (101°F). Her right nipple and areola are warm, swollen, red, and tender. There is no fluctuance or induration, and no pus can be expressed from the nipple.

a. Continue breast feeding from both the breasts
b. Breastfeed from unaffected breast only
c. Immediately start antibiotics and breastfeed only when antibiotics are discontinued.
d. Pump and discard breastmilk till infection is over and then continue breatfedding
e. Stop breastfeeding immediately.

72. A 27-year-old woman presents to her obstetrician with the complaint of pain and swelling in her left breast. She reports a fever of around 38.3°C (101°F) for the past 2 days. She recently gave birth to a healthy baby girl and has been breastfeeding every 3-4 hours. Examination reveals focal tenderness just medial to the nipple with surrounding warmth and erythema. Her WBC count is 12,000/mm^3

Which of the following is the best treatment:

a. Amoxicillin
b. Diclocloxacillin
c. Penicillin v
d. Erythromycin
e. Levofloxacilin

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73. Sarita, a 30 year old woman develops a deep vein thrombosis in her left calf on fourth post operative day following cesarean section done for fetal distress. The patient is started on heparin and is scheduled to begin a 6 weeks course of warfarin therapy.

The patient is a devoted mother who wants to breast feed her baby.

Q. What is the advice which is given to the patient:

a. Patient may continue breast feeding at her own risk.

b. Patient should breast feed her baby only if her INR is at <2.5

c. Patient can breast feed her baby after 6 weeks course of warfarin is over

d. Warfarin is not a contraindication for lactation.

e. Warfarin is absolutely contraindicated during lactation.

74. You are called to a maternity ward to see a 23 year old primi patient who had delivered a 2.7 kg baby boy 2 days back.She had a normal vaginal delivery and placenta delivered spontaneously.Now she complains of bloody vaginal discharge with no other signs.O/E you notice a sweetish odour bloody discharge on the vaginal walls and introitus.Sterile pelvic examination shoes a soft non tender uterus.Her P/R-78/min, B/P-110/76 mm of hg, temp-37*C,R/R-16/min. Her WBC count =10,000 with predominant granulocytes.What is the most appropriate step:

a. Currettage

b. oral antibiotics

c. Reassurance

d. Order urinalysis

e. vaginal culture

75. A 30-year-old G3P2 woman with a history of hypertension presents to the birthing floor in labor. Following a prolonged labor and delivery with no fetal complications, she continues to bleed vaginally but remains afebrile. On bimanual examination, her uterus is soft, boggy, and enlarged. There are no visible lacerations. Uterine massage only slightly decreases the hemorrhage, and oxytocin is only mildly effective.

Q. Which of the following is the next best step in mgt:

a. Dilatation and curretage

b. PGF2A

c. Methylergometrine

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d. Misoprost
e. Platelet transfusion

PHYSIOLOGICAL CHANGES IN PREGNANCY

76. The clotting factor which is not increased in pregnancy:
a. Factor 2
b. Factor 7
c. Factor 10
d. Factor 11

77. A prosthetic valve patient switches to heparin at what time during preg:
a. 28 wks
b. 32 wks
c. 36 wks
d. Post partum

78. Schwangershaft protein is the other name of APPG 2011:
a. HCG
b. Papp-1
c. Pregnancy specific beta1 glycoprotein
d. Activin

79. The following changes occur in urinary system in pregnancy except:
a. Increased GFR *(APPG 2011)*
b. Increased RBF
c. Hypertrophy of bladder musculature
d. Increased activity of ureters

80. Effect of PIH on GFR is:
a. Incr GFR
b. Decr GFR
c. GFR remains the same
d. GFR can incr or decr

81. Maximum teratogenecity occurs during:
a. First two weeks after conception
b. 3 – 8 weeks after conception

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c. 8 – 12 weeks after conception
d. 13 – 20 weeks after conception

82. Smallest diameter of fetal head:
a. Bimastoid
b. Bitemporal
c. Occito frontal
d. Submento vertical

83. During the delivery it is necessary to cut an episiotomy. The tear extends through the sphincter of the rectum, but rectal mucosa is intact. How would you classify this type of episiotomy?
a. 1st degree
b. 2nd degree
c. 3rd degree
d. 4th degree

DIAGNOSIS IN PREGNANCY

84. Ideal time to perform USG to measure nuchal translucency is…..wks of gestation
a. 8-10 weeks
b. 11-13 weeks
c. 14-16 weeks
d. 18-20 weeks

85. A 32 year old woman is 9 weeks pregnant and has a 10 yr old Downs syndrome child. W hat test would you recommend for the mother so that she can know abt her chances of getting Downs syndr baby in this present pregnancy.How will you assure her abt chances of Downs syndrome in the present pregnancy.
a. Blood test
b. USG
c. Chorionic villi sampling
d. Assure her that there is no chance since she is less than 35 years.

86. All of the following can be diagnosed by chorionic week sampling except:
a. Trisomy 21

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b. Cleft palate
c. Gauchers disease
d. Phenylketonuria

87. Most common complication of chorionic villi sampling done at 4 weeks is:
a. Fetal loss
b. Infections
c. Limb reduction defects
d. Bleeding

88. Minimum hcg level at which gestational sac can be detected by TVS is …..milli IU/ml
a. 500
b. 1000
c. 2000
d. 4000

89. A 17 year old comes to an adolescent clinic with complain of nausea and vomiting.She did a home urine pregnancy test which was positive.She does not remember her date of last menstrual period.USG shows a viable pregnancy of 8 weeks gestation.

Q. Which of the following statements regarding first trimester ultrasound is correct:
a. A gestational sac can be first seen 2 weeks after LMP.
b. The accuracy of determining gestational age using ultrasound begins to decrease after first trimester.
c. Yolk sac is the first sign of pregnancy on USG
d. USG can be used to determine the sex of the baby

90. A patient present for her first initial OB visit after performing a home pregnancy test and gives a last menstrual period of about 8 weeks ago. She says she is not entirely sure of her dates, however because she has a long history of irregular menses. Which of the following is the most accurate of way of dating the pregnancy
a. Determination of uterine size on pelvic examination
b. Quantitave serum HCG levels
c. Crown rump length on abdominal or vaginal examination
d. Determination of progesterone level along with serum HCG level

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91. Increased AFP is seen in:

a. Downs syndrome

b. Molar pregnancy

c. Overestimated gestational age

d. Congenital nephrotic syndrome

92. The finding of a single umblical artery on examination of the cord after delivery is:

a. insignificant

b. Occurs in 10% of newborn

c. An indicator of considerably increased incidence of major malformations of the fetus.

d. E qually common in newborn of dibetic and non diabetic mothers

93. The use of the following drug during pregnancy can lead to mobius syndrome:

a. Warfarin

b. Phenytoin *(AIPG2012)*

c. Mifepristone

d. Misoprostol

94. A syndrome of multiple congenital anomalies including microcephaly, cardiac anomalies and growth retardation has been described in children of women who are heavy users of:

a. Amphetamines

b. Barbiturates

c. Heroin

d. Methadone

e. Ethyl alcohol

95. A 28 yr female G2P1 presents to antenatal clinic at 24 weeks for routine check up. USG shows a normal for gestational age fetus at 24 weeks of gestation in frank breech position, with no other abnormalities. What is the most appropriate next step in mgt:

a. Glucose challenge test with 50 gms of glucose

b. culture for Neisseria gonorhhea and Chlamydia trachomatis (normally done at initial visit and in certain high risk grps at 32–36 weeks along wid grp B streptococcal screening)

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c. ECV

d. immediate LSCS

e. immediate induction and vaginal delivery

96. A 27-year-old G1P0 woman at 37 weeks' gestation comes to the clinic because she is worried that she has not felt her baby moving for 2 days. She denies any recent trauma or abdominal pain. There has been no leaking of fluid, vaginal bleeding, or contractions. The woman underwent a non-stress test (NST) to test for fetal activity and was found to have a baseline rate of 115 bpm.

Q. Which of the following results would make one concerned about hypoxemia?

a. decelerations at the beginning of contractions

b. FHR incr to 140 bom several times during 5 mins

c. FHR incr to 170 bpm on 2 occasions and returning to baseline in a pd of 20 mins

d. FHR ranging from 110-120 bpm over a period of 40 mins

97. Fetal anemia leads to:

a. early decelerations

b. variable decelerations

c. sinusoidal heart rate pattern

d. accelerations.

98. A 27 yr old G3P2002 who is 34 weeks gest. age feeling the decreased fetal movements (once/hr) for past several hrs. She is healthy, has had regular prenatal care, and denies any complications till date. 1. How will you counsel the patient.

a. Instruct the patient to go to labor and delivery for a contraction stress test

b. Reassure the patient that one fetal movement per hr is within normal limits and she does not need to worry

c. Counsel the patient that the baby is probably sleeping and that she should continue to monitor fetal kicks. If she continues to experience <5 kicks/hr by morning, she should call you back.

e. Instruct the patient to go to labor and delivery for a nonstress test.

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99. The patient recieves a score of 8 on her biophysical profile. How should an obstetrician now counsel her

a. The results are equivocal, and should have a repeat BPP within 24 hr
b. The results are abnormal and she should be induced
c. The results are normal and she can go home
d. The results are abnormal, and she should undergo emergent CS
e. The results are abnormal, she should undergo umbilical artery doppler velocimetry

100. A 26 yaer old primi patient presents to the prenatal clinic for the first time at 26 weeks of gestation.S he reveals she has been taking cigratte daily and has habit of taking marijuana almost once in 2–3 days. Her past medical history is significant of chlamydia infection-USG (shown below Fig. 1) herniation of cerebellum thru foramen magnum and frontal bossing and lumbosacral kyphosis-Which of the following steps cud have prevented this condition

a. Cessation of marijuana
b. Cessation of smoking
c. Taking vitamins before conceiving and continuing them after conceiving
d. Early t/t of chlamydia



Fig. 1

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TRUE /FALSE TYPE OF QUESTION

101. SLE can be managed during pregnancy using prednisolone, sulphsalazine and methotrexate.

102. I nternal podalic version is done under GA

103. A 31 year old pregnant female with twin gestation has more chances of Downs syndrome than general population

104. Hayman and Cho square sutures are used for managing PPH.

105. Placenta previa mostly needs cesarean section if placental edge lies within 2cms of the os...

106. PPH has a tendency to recur in subsequent pregnancy…

107. Direct coombs test detects maternal Ig M on fetal red cells…

108. Listeria infection may be suspected if meconium is present in amniotic fluid in < 34 weeks gestation…

109. DOC for pneumocystis carinii in pregnancy is pentamidine…

110. Peak systolic velocity is increases in middle cerebral artery with fetal anemia..

111. A 30 year old female with BMI 28kg/m2 should gain 14-16 kg weight during pregnancy….

112. Montevideo unit is contraction in mm of H_2O per 10 mins…

113. M/c cause for second trimester recurrent abortions is cervical incompetence …

114. Trial of labour is C/I in previous LSCS pts….

115. Pelvis with AP diam more than transverse diam is Android pelvis…

116. Loss of knee jerks occurs when Mg SO4 conc->8 meq…

117. First episode of asymptomatic bacteriuria.The risk of having pyelonephritis is 15%....

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Pre NEET Obstetrics and Gynaecology

ANSWERS

1. **The answer is (b) i.e Middiastolic murmur**
2. **The answer is (c) i.e Aorti c aneurysm**
3. **The answer is (c) i.e 14 wks**
4. **The answer is (b) i.e Mitral stenosis**
5. **The answer is (a) i.e NYHA class > 3**

Heart Disease in Pregnancy

Normal findings in CVS during pregnancy:

- Pulse Rate increases
- Diastolic B.P decreases
- First heart sound is prominent and split
- Second heart sound–normal
- Third heart sound–normally not heard but in pregnancy it is prominent
- Murmurs-ejection systolic murmur heard normally in aortic or pulmonary area at 10–12 weeks due to expanded intravenous volume.
- Continous murmur heard normally over the tricuspid area in left 2–3rd intercostal space.
- Apex beat is heard in the fourth ICS 2.5 cms left to midclavicular line
- Slight cardiomegaly
- Ecg- left axis deviation

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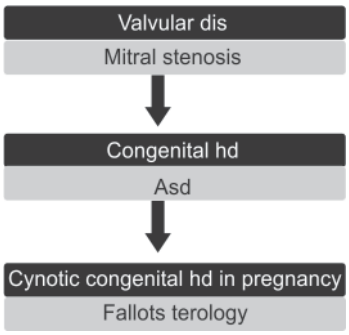
Indicators of Heart Disease during Pregnancy:

- Systolic murmur greater than grade 3
- Diastolic murmur
- Marked Cardiomegaly
- Sustained arrhythmia
- Persistent split second heart sound

Most Common Heart Disease



Clarkes Classification of Heart Disease in Pregnancy

Group I–Minimal risk (Mortality 0-1%)	Group III (Mortality 25-50%)
• ASD, VSD, PDA (congenital heart diseases) • Fallot tetralogy (corrected) • Any disease involving Pulmonary and tricuspid valve • Bioprosthetic valve replacement • Mital Stenosis belonging to class I, II according to NYHA	• Pulmonary hypertension – primary or secondary, an example of secondary being- Eisenmenger syndrome • Marfan syndrome with aorta involvement (> 40 mm) • Coarctation of aorta

NOTE: There is no need to remember Class 2 of the Clarkes classification.

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Predictors of Cardiac Event during Pregnancy

Potential for an adverse cardiac event in a pregnant female as pulmonary edema, sustained arrhythmia, stroke, cardiac arrest or cardiac death can be estimated by following parameters.

N New York Heart Association (NYHA) class >2

O Obstructive lesions of the left heart (Mitral valve or aortic valve area <1 cm^2).

P Prior cardiac event before pregnancy—Heart failure, arrhythmia, transient ischemic attack, stroke

E Ejection fraction <40%

The risk of cardiac complications is 3%, 30% and 60% when none, one or more than one of these complications are present.

NYHA classification (revised 1979)

- **Class I:** No limitation of physical activity
- **Class II:** Slight limitation of physical activity
- **Class III:** Marked limitation of physical activity

Important Points to Remember in Heart Disease in Pregnancy

- Time of hospitalisation in:
  - Class I of NYHA – 36 weeks
  - Class II 28 weeks.
  - Class III and IV – If seen in the first trimester.

MTP should be advised ideally but if patient wants to continue pregnancy, then the women are hospitalized for the remainder of the pregnancy.

Remember: In India MTP is normally legal uptil 20 weeks but in heart disease patients MTP should not be done beyond 12 weeks as after 12 weeks the risk involved with delivery and abortion are the same.

- Intrapartum Management:
  - Patients should be allowed to go into spontaneous labour, if required induction with vaginal PGE2 may be done **(Induction is safe in case of heart** disease).

    Ref. Williams Obs. 22/e, p 1021-1022, 23/e, p 962
  - Trial of labour is contraindicated in patients of heart disease.

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- Vaginal delivery is preferred with the use of outlet forceps. **Note** in heart disease patients-even if there is no fetal distress, maternal distress or prolonge second stage of labour still we use forceps , this is called as prophylactic use of forceps.
- **Heart disease where vaginal delivery is contraindicated /Ceasrean section should be done** are all those diseases where Aorta is involved (because in a patient with involved aorta, bearing down can lead to aortic rupture).
- Coarctation of aorta
- Aortic Aneurysm
- Marfans syndrome with aortic involvement.
- A patient who is fully anticoagulated with warfarin at the time of labor needs to be counseled for cesarean section because the baby is also anticoagulated and vaginal delivery carries increase risk to the fetus of intracranial hemorrhage.

  Anaesthesia given for LSCS due to heart disese: Epidural anaesthesia.
- If cesarean is being done for intracardiac shunts or aortic stenosis, GA is given to prevent hypotension.

  Antibiotic prophylaxis is given for prevention against infective endocarditis:

Recommendation of American College of Cardiology/American Heart Association for endocarditis prophylaxis regimens. *(AHA 2007)*

- The American Heart Association recently updated its guidelines regarding which patients should take a precautionary antibiotic to prevent infective endocarditis (IE).
- Prophylactic antibiotics are no longer recommended for gastrointestinal or genitourinary tract procedures. This recommendation follows from the observation that most cases of IE result from bacteremia caused by routine activities such as chewing food, brushing teeth, and flossing.

It is recommended that IE prophylaxis may be given during labor in the following subgroups of patients:

- Prosthetic cardiac valve
- Previous IE
- Unrepaired congenital heart disease (including palliative shunts and

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conduits)

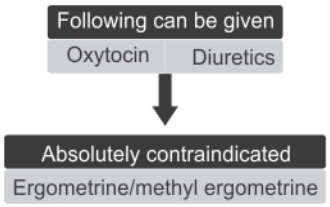
- Completely repaired congenital heart defect with prosthetic material or device, during th first 6 months after the procedure.
- Repaired congenital heart disease with residual defects at the site or adjacent to the site of aprosthetic patch or device.
- Cardiac transplantation recipients who develop cardiac valvulopathy.

Antibiotic Regimen for IE Prophylaxis:

- Only a few regimens are recommended by the American College of Obstetricians and Gynecologists (2008) 10 for prophylaxis which is given preferably 30-60 minutes before the procedure. Either I.ampicillin, 2 gm, or cefazolin or ceftriaxone, 1 gm, is given intravenously.
- For penicillin sensitive patients, one of the later regimen is given, or if there is history of anaphylaxis, then clindamycin, 600 mg is given intravenously. The recommended oral regimen is 2 gm of amoxicillin.If Enterococcus infection is of concern, vancomycin is also given.

Adequate pain relief (best by epidural anaesthesia).The

Immediately After the Baby is Born



Conditions where Methyl Ergometrine is Contraindicated.

Ref. Dutta Obs. 6/e, p 503

- **Twin pregnancy:** If given after the delivery of first baby, the second baby will be compromised.
- **Organic cardiac disease:** Can cause overloading of right heart and precipitate heart failure
- **Severe preeclampsia and eclampsia:** Can cause sudden rise in BP
- **Rh negative mother:** Increased chances of feto maternal transfusion

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Contraception in Heart Disease:

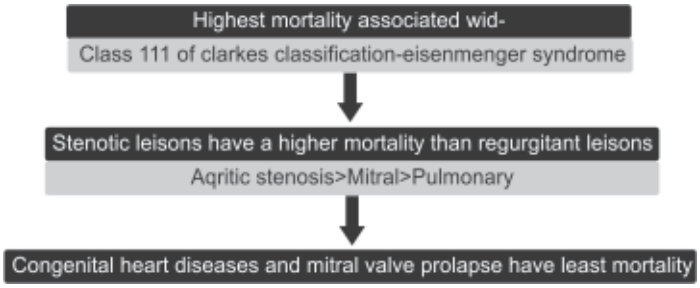
- **Contraception of choice: Temporary**–Barrier contraceptives (condoms)
- **Contraception to be avoided:**
  i. OCPs(can precipiatate thromboembolic event)
  ii. Intrauterine devices (can lead to infection)

Contraception of Choice: Permanent:

- If the heart is not well compensated, the patient's husband is advised for vasectomy.[Q]
- If heart is well compensated–tubal sterilisdation can be carried out:
  Sterilisation should be considered with the completion of the family **at the end of first week in the puerperium** under local anaesthesia ***through abdominal route by minilap technique.***

Prognosis of Heart Disease in Pregnancy

General fundae



Important Points:

- Best time for cardiac surgery in Mitral Stenosis 14–18 wks
- Surgery of choice Balloon valvuloplasty
- Septic abortion m/c valve affected is tricuspid valve
- M/C fetal complication in heart dis IUGR
- M/C time of heart failure
  Immediate post partum > at the time of delivery > at 30–32 weeks of gestation.

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Case Study

The diagnosis of peripartum cardiomyopathy should be kept in mind in all such cases.

The criteria for diagnosis are:

1. Cardiac failure within last month of pregnancy or within 5 month postpartum.
2. No determinable cause for failure (may be immunological or nutritional).
3. No previous heart disease.
4. Left ventricular dysfunction (Echocardiography) as evidenced by ejection fraction < 45%
5. Left ventricular end-diastolic dimension > 2.7 cm/m^2.

Predisposing Factors:

- Multiparous
- Young 20-35 years
- Twins pregnancy
- Chronic hypertension pre-eclampsia
- Prolonged tocolytic therapy.

Investigation:

- **Chest X-ray:** Enlarged heart and pulmonary vascular redistribution.
- **Echo:** Enlargement of all chambers of the heart (predominantly left heart) with decreased ejection fraction in left ventricle.

DIABETES IN PREGNANCY

6. The answer is (c) i.e congenital adrenal hyperplasia

7. The answer is (c) i.e Congenital malformations in fetus

8. The answer is (b) i.e start insulin.

9. The answer is (a) i.e 70-100 mg%

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Diabetes in pregnancy can be

Gestational Diabetes	Over Diabetes
• Normoglycemic female develops diabetes in pregnancy due to insulin resistance (insulin resistance in pregnancy is maximum at 24-28 weeks and is mainly due to the effect of hormone Human placental lactogen) • These females will thus have high sugar levels at or after approx. 24 weeks • In diabetic patients high blood sugar levels lead to formation of free radicals which in turn lead to fetal malformations, now in gestational diabetic patients free radicals will be formed approx. after 24 weeks (i.e when blood sugar levels will rise) • By 24 weeks almost the organogenesis is complete in the fetus so it does not lead to congenital malformation in fetus.	• Hyperglycemic female becomes pregnant • Switch them from oral hypogly cemic to insulin as oral hypogly-cemic can cross the placenta • These females have high sugar levels from Day 1 of pregnancy so free radicals are formed from Day 1 and thus it can lead to congenital malformations in fetus

Thus answer to Q7 is (c) i.e Congenital malformations in fetus as the question itself is saying patient is a confirmed as a case of gestational diabetes.

In Overt diabetic patients –the test which can predict the chances of congenital malformations in the fetus is Hb A1C.

It is a product of nonenzymatic glycosylation of hemoglobin. It reflects average blood sugar in preceding 6 to 8 weeks. HbA1c should be <6 gm% during pregnancy for good glycemic control. High HbA1c during the first trimester is associated with increased risk of gross congenital malformations and during second trimester is associated with macrosomia (HbA1c <8.5 gm% risk of malformation is 3.4%, HbA1c > 9.5 gm% risk of malformation is 22%).

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The investigation of choice for detecting congenital malformation in Diabetic patients: USG

Diagnostic Criteria for Diabetes during Pregnancy

According to American Diabetes association the criteria for diagnosis of overt diabetes during pregnancy is:

a. Random plasma glucose >200 mg/dl
b. Fasting blood glucose >125 mg/dl
c. Two or more abnormal values on 100 gm oral glucose tolerance test during pregnancy.

Tests done in Diabetes patients during pregnancy.



Complications of Diabetes

Maternal	Fetal	Neonatal
• Infection • PIH • Polyhydramnios • Preterm labor • 35-50% chances of developing diabetes mellitus	• Hyperglycemia • Macrosomia • Shoulder dystocia • Abortions/IUD/ stillbirth	• **Hypoglycemia** • Hypocalcemia • Hypomagnesemia • Hypokalemia • Hyperviscosity syndrome (hyperbilirubinemia and polycythemia) • Prematurity/RDS

Thus Ans. to Q6 is Congenital adrenal hyperplasia as it is not a complication of diabetes, so the risk of developing it is same in diabetes and non-diabetes.

Screening for Diabetes During Pregnancy

Glucose Challenges Test:

- Performed by orally administering 50g of glucose and measuring

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venous plasma glucose 1 hour later irrespective of previous meal.

- Interpretation of result:
  - Plasma glucose: Interpretation
  - 140 mg/dl: Further testing by GTT required
  - 140 mg/dl: Further testing not required.
  - 200 mg/dl: No further testing required as values > 200 mg/dl confirm the diagnosis of gestational diabetes.
- **Time for screening:** *Between 24 and 30 weeks of gestation (patients at high risk should be screened between 18-22 weeks* and if initial screenings is negative it can be repeated between 26 and 30 weeks).Ideally it should be performed in all pregnant females but all those who have average/high risk for diabetes should be screened.

  Average risk:
  - Members of ethnic group with high prevalence of GDM,
  - diabetes in first degree relatives
  - age > 25 years
  - overweight before pregnancy,
  - weight high at birth

  High risk:
  - Marked obesity
  - strong family history of type 2 DM
  - previous history of GDM
  - History of stillbirth
  - History of delivery of large baby(> 4 kg)
  - glycosuria
  - h/o unexplained neonatal death
  - h/o congenital malformation
  - polyhydramnios
  - h/o traumatic delivey with associated neurological disorder in infant
  - h/o > 3 spontaneous abortions.
  - Recurrent monoliasis,
  - age > 30 years
  - impaired glucose metabolism

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Diagnostic Test-Glucose Tolerance Test:

- Patients with abnormal screening test are followed by a 3 hour glucose tolerance test (GTT)
- The test is performed with 100gm of glucose. Upper limit of normal for the 3 hour glucose tolerance test during pregnancy:
  - Fasting: 95 mg/dl
  - One hour: 180 mg/dl
  - Two hour: 155 mg/dl
  - Three hour: 140 mg/dl
- **If two or more of these values are abnormal:** Gestational diabetes is confirmed.
- **If one value is abnormal:** Increased risk of complications like macrosomia and preeclampsia - eclampsia. (Though gestational diabetes is not present)
- **WHO recommends use of glucose of 75 g GTT and only two samples to be withdrawn viz:** The fasting and the 2 hour value.

Management of Diabetes in Pregnancy:

- **Diet: Medical nutrition therapy (MNT): It is the cornerstone of treatment of diabetes in** pregnancy. Caloric requirement is 25-35 kcal/kg body weight/ day according to body mass index (Table). It is advisable to take 3 major and 3 minor meals so that there is no intermittent **hypoglycemia and still ideal blood sugars are maintained.**

Body mass index(BMI) kg/m2	Calories intake
18.5-24.9 (Normal)	30 kcal/kg/day
16.5-18.4 (Underweight)	35 kcal/kg/day
25-30 (Overweight)	25 kcal/kg/day
> 40 (Morbid obesity)	12 kcal/kg/day

  Diet composition should be 50-60% of carbohydrates, 20% proteins and 25-30% fats
- **Exercise: Planned physical activity for 30 minutes/day** is recommended for all individuals capable of participating. Advising patients to walk briskly or do arm exercises while seated in chair for at least 10 minutes after each meal accomplishes the goal.

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This should be continued for atleast 2-3 weeks with the aim to achieve-the following metabolic goals:

Metabolic Goals during Pregnancy:

- Premeal value- 70-95 mg/dl (Answer 9)
- Post meal (2 hrs post parandial) 120 mg/dl
- HbA1c-6% .
  - If these goals are not achieved patient should be put on Insulin. (Answer 8).
  - Oral hypoglycemics are not advised during pregnancy as they can cross the placenta and cause fetal hypoglycaemia.The only oral hypoglycemic drug approved for use in pregnancy is Glyburide

Intrapartum Management

Time of delivery:

- Low risk patients-wait for spontaneous labor till maximum 41 weeks
- High risk patients-37 completed weeks-induce labor as IUD occurs mostly in last 2 weeks of pregnancy.
- Mode of delivery- vaginal delivery

Indications of Elective LSCS in GDM Patients:

- Macrosomia > 4.5 kg (for predicting macrosomia, shoulder width > 14 cm, EFW > 4.5 kg on ultrasound)
- Demonstrable fetal compromise (Severe IUGR)
- Bad obstetric history
- Other obstetric indications

Monitoring GDM patients during spontaneous labor:

GDM patients controlled on diet:

- Blood glucose is maintained between 80–110 mg/dl.Blood sugar monitoring 2 hourly, serum electrolytes 12 hourly, urine sugar, ketones 4 hourly

GDM patients controlled on insulin:

- Nil per orally
- Blood glucose is maintained between 80–110 mg/dl
- Blood sugar monitoring 2 hourly

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- Serum electrolytes 12 hourly
- Urine sugar, ketones 4 hourly 5 unit insulin in 500 ml of 5% dextrose at rate of 100 ml/ hour
- If blood sugar> 140 mg/dl-plain insulin to be given subcutaneously according to sliding scale
- Sliding scale:
  - 140–180 mg% – 4 units
  - 181–250 mg% – 8 units
  - 251–400 mg% – 12 units
  - > 400 mg% – 16 units

  If blood sugar < 80 mg/dl, infuse 5% dextrose at rate of 100 ml/ hour.

  Frequent fetal heart monitoring for high risk pregnancy.

10. The answer is (d) i.e 300 mg

11. The answer is (b) i.e Iron deficiency anemia

Anemia in pregnancy

Definition: World Health Organization (WHO) has defined anemia during pregnancy as hemoglobin concentration of less than 11 gm% and a hematocrit of less than 33%. CDC (Center for Drug Control) proposes a cut off point of 11 gm% in 1st and 3rd trimester and 10.5 gm% during 2nd trimester

Severity of Anemia:

According to ICMR, severity of anemia is graded as:

Mild degree	10-10.9 gm%
Moderate degree	7-10 gm%
Severe degree	Less than 7 gm%
Very severe degree	Less than 4 gm%

Iron Requirements During Pregnancy

Total amount of iron required during pregnancy is 1000 mg, i.e 4-6 mg/ day which can be calculated as:

- Fetus and placenta require – 300mg
- Growing RBC of the mother require – 500mg
- Lost through sweat, urineand faeces – 200mg

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- Lost at the time of delivery – 200 mg
- Amount of iron s aved d/t amenorrhea – 300mg

So approximately (1200-300 =) 900-1000mg is required during pregnancy.

Question number 10 asks the amount of iron required by fetus during pregnancy- which is 300 mg as explained above.

Also Know

- All parameters of iron metabolism decrease during pregnancy except for the two Ts viz total iron binding capacity and transferrin levels, which increase.
- No matter in what form iron is being taken–only 10 % of it is absorbed, which means in order to fulfill the requirement of 4-6 mg/day , approximately 40–60 mg of iron should be taken in diet daily during pregnancy. Which is not possible , this is the reason why Iron supplementation is absolutely necessary in pregnancy.

In National Anemia Control Program under Ministry of Health and Family Welfare, all pregnant women who are not anemic are given folifer tablet containing 100 mg elemental iron (salt-ferrous sulphate) along with 500 μg folic acid for at least 100 days.

- **Earliest /most sensitive indicator of iron deficiency:** Decrease in the levels of serum ferritin.
- **M/c anemia in pregnancy:** In developing countries it is Dimorphic anemia i.e both due to iron and folic acid deficiency.
- **Physiological anemia during pregnancy:** The increase in plasma volume (30–40%) is much more than the increase in red cell mass (10–15%) during pregnancy, leading to apparent decrease in hemoglobin level called as physiological anemia of pregnancy.
- Starts at 7th–8th weeks
- Maximum by 32 weeks
- Does not go below 11 gm% in 1st trimester, 10 gm% in 2nd and 3rd trimester. (The rise in RBC volume begins at 20 weeks continues till term Therefore, in 3rd trimester there is slight rise I in hemoglobin concentration).
- This hemodilution during pregnancy serves to reduce maternal blood viscosity, thereby enhancing placental perfusion and facilitating nutrient and oxygen delivery to the fetus.

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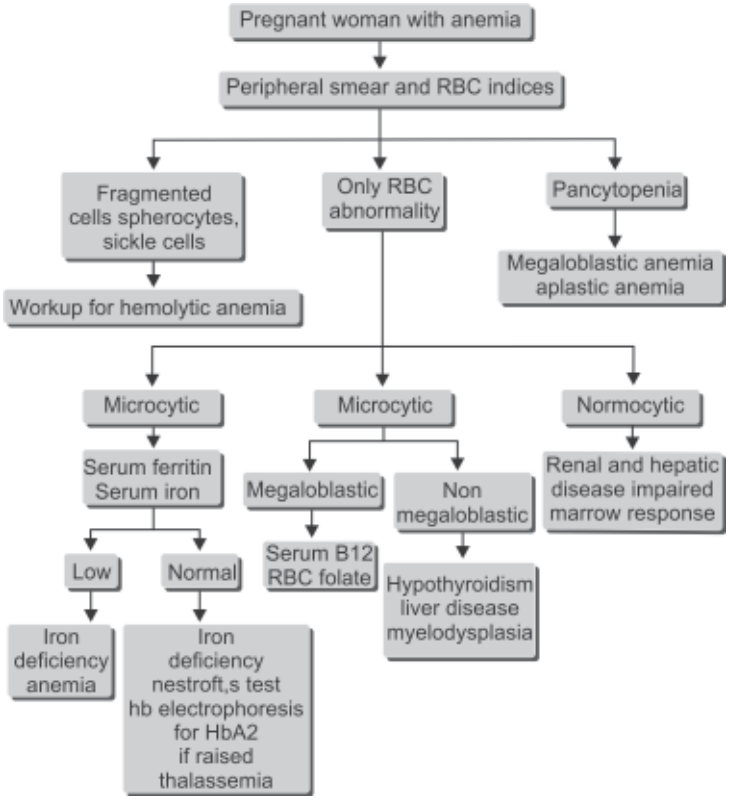
Diagnosis of Anemia



- In the question number 11 patient has Hb 7.4 gm%, Hct 22% and symptoms of early fa tigue, which indicate she is anemic .Her complete blood picture shows MCV and MCH low indicating microcytic anemia. Thus the D/D could be Iron deficiency anemia or Thallassemia.
- But since in this patient Nestrofts test(screening test for thallasemia) is negative thallasemia is ruled out and hence diagnosis is confirmed as Iron deficiency anemia.
- NESTROFT test is 'naked eye single tube red cell osmotic fragility test'. In this test 2 ml of 0.36 buffered saline solution is taken in one tube and 2 ml of distilled water in another tube. A drop of blood is added to each test tube and both the tubes are left undisturbed for 20 minutes. Both the tubes are then shaken and

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held against a white paper on which a black line is drawn. Normally, the line is clearly visible through the contents of tube containing distilled water. If the line is clearly visible similarly through the contents of tube with buffered saline, the test is negative. If the line is not clearly visible the test is considered positive. The principle is that normocytic normochromic cells when put in hypotonic solution will undergo lysis wheras in thalassemia trait, the cells are microcytic and hypochromic which are resistant to hemolysis due to decreased fragility. It has 91% sensitivity and 95% specificity and the negative predictive value is 99%.7 NESTROFT test is only a screening test for thalassemia. The definite test is the estimation of HbA2 levels by high liquid performance chromatography. In thalassemia HbA2 levels are > 3.5%.

Management of Anemia in Pregnancy:

i. Oral iron-180-200 mg elemental iron is given till blood parameters become normal

↓

One tablet per day as mantainence dose which should be continued throughout pregnancy and for 100 days (3 months) after pregnancy for replenishing the stores.

Response to Oral Iron

Laboratory parameters:

5–7 days:	Increase in reticulocyte count to up to 5% first parameter to increase after oral iron
2–3 weeks:	Increase in hemoblobin level @ 0.8-1.0 gm/dL/week Improvement in RBC indices – MCV, MCH, MCHC
6–8 weeks:	Hemoglobin level comes to normal level Peripheral smear shows normocytic normochromic RBC's Increase in serum ferritin level.

- Parenteral iron- It can be given by either intramuscular or intravenous route.

Dose of parenteral iron is calculated as:

- Body weight in kg × (Desired Hb – patient's Hb) × 2.21 + 1000 mg
- 1000 mg is taken for complete restoration of the stores in patients with continuing blood loss otherwise 500 mg is adequate for patients whose blood loss has been arrested.

OR

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- Give 250 mg elemental iron for each gm of Hb deficit and add another 50% for replenishment of stores.
- Intramuscular iron preparations available are iron dextran, iron sorbitol citrate complex.
- Intravenous iron preparations available are iron dextran, iron sucrose, ferrous gluconate.

The rise in hemoglobin after parenteral therapy is 0.7- 1.0 gm% per week which is same as seen with oral iron therapy, thus the **aim of giving parenteral iron is not rapid rise in Hb levels. The main advantage of parenteral therapy is the certainity of its administration**.

The indications of parenteral iron are:

1. Intolerance to oral iron
2. Impaired iron absorption
3. Chronic blood loss
4. Gastrointestinal disorders which gets aggravated by oral iron-peptic ulcer disease, ulcerative colitis
5. After 30 weeks period of gestation, parenteral iron is preferred as the compliance is 100%.

- **Blood transfusion:** 1 unit of blood raises the Hb levels by 0.8-1 gm% within 24hrs.

Indications of Blood Transfusion:

a. Severe anemia seen beyond 36 weeks of pregnancy
b. Anemia due to active blood loss
c. Refractory anemia

NOTE: The Hb levels at the time of delivery should be atleast 7 gm%.

12. The answer is (b) i.e Start category 1 ATT in 1stTrimester

Tuberculosis in pregnancy

Important Points:

- Increased chances of relapse and flare of tuberculosis occurs in puerperium .
- It is not an indication for termination of pregnancy
- ATT can be given at anytime during pregnancy ,including first trimester

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- INH + Rifampicin are given orally for 9 months (INH resistance-Ethambutol).
- Baby should be given prophylactic INH for 3months, if montoux is negative after 3 months, stop INH and give injection BCG
- In active lesions breast feeding is C/I,ATT is not a C/I for breast feeding.
- Pulmonary TB is not an indication for performing cesarean section

ATT C/I DURING PREGNANCY

Kanamycin	Floroquinolones	Capreomycin	Amikacin	Steptomycin

Mnemonic-K F C Always Surprising

13. The answer is (d) i.e rectovaginal group B streptococcal culture

Neonatal sepsis

- Group B streptococci, Streptococcus agalactiae is a major cause of neonatal mortality and morbidity.
- Neonates present with respiratory distress, apnea, hypotension.
- ACOG recommends universal culture screening for rectovaginal GBS at 35–37 weeks

Prophylaxis Against GBS

Intrapartum prophylaxis indicated	Intrapartum prophylaxis not indicated
• Previous infant with invasive GBS disease • GBS bacteriuria during present pregnancy • Positive GBS screening culture during present pregnancy unless LSCS is planned • Unknown GBS status with any of the Following – Delivery at <37 weeks – Amniotic member rupture >18hrs – Intrapartum temp >100.4F	• Previous pregnancy with posi tive GBS screening culture • Planned cesarean del per formed in absence of labor or memb rupture (regardless of maternal GBS culture status) • Negative GBS vaginal and rec tal screening culture

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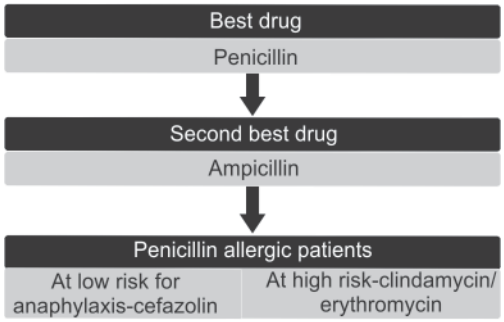
Drugs Used in GBS Prophylaxis



14. The answer is (a) i.e Current symptoms of genital pain and tingling

15. The answer is (d) i.e perform elective LSCS only if mother has active herpes at the time of delivery.

Herpes Simplex Virus infection in pregnancy:

- Most common time of Mother To Child transmission is–at the time of delivery
- ACOG doesnot recommend a routine screening for HSV
- DOC during pregnancy-Acyclovir(safe in lactation also) × 7-10 days
- ACOG recommends daily viral therapy at or beyond 36 weeks for women who have recurrences during pregnancy as it decreases the outbreaks at term and so decreased need for cesarean.
- Cesarean section is indicated for women with active genital lesions or in patients having prodromal symptoms of herpes viz genital pain and tingling (ans 14). Cesarean is not indicated in women with a h/o HSV infection but no active genital tract lesion/prodromal symptoms at the time of delivery.
- If no active breast lesions are present-patient can breastfeed.
- Now with this background about HSV infection, let's have a look at the options given in Q15.
- **Option a:** Administer one dose of acyclovir if she has active genital herpes at the time of delivery-incorrect as acyclovir should be given for 7–10 days in case of active herpes infection.

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- **Option b:** Administer prophylaxis with acyclovir from now and uptil delivery whether she has active herpes or not–again incorrect as we have to give acyclovir for 7–10 days, then stop and restart at 36 weeks of gestation.
- **Option c:** Perform elective LSCS even if mother is asymptomatic at the time of delivery. – again Incorrect
- **Option d:** Perform elective LSCS only if mother has active herpes at the time of delivery. – correct

16. The answer is (c) i.e Baby must be treated immediately after birth as chickenpox is serious in newborns.

17. The answer is (d) i.e administer varicella immunoglobulin to the patient.

Varicella infection in pregnancy

Important Points:

- If varicella infection occurs during first half of pregnancy(m/c time of transmission13 to 20 weeks) – it results in congenital varicella syndrome.
- **Congenital varicella syndrome** is characterized by chorioretinitis , microophthalmia, cerebral cortical atrophy, hydronephrosis and bone or skin defects.
- Congenital varicella syndrome is an indication for doing MTP.
- Congenital defects rarely occurs if varicella infection occurs after 20 weeks.
- **Neonatal varicella** is characterized by pneumonitis, hepatitis and DIC.
- Perinatal varicella exposure just before or during delivery poses a serious threat to newborns and so Varicella Immunoglobulin (VZIG) should be given to neonates of born to mothers who have clinical evidence of of varicella 5 days before and upto 2 days after delivery.
- The use of VZIG decreases the chances of neonatal varicella and also modify the clinical course but it doesnot always prevent severe or fatal varicella.Expectant treatment with close observation , followed by prompt initiation of antiviral therapy on suspicion of neonatal varicella is recommended.

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- DOC for treatment of infected pregnant mothers-i/v acyclovir
- Let me explain Q 17 – here the question says a pregnant woman is exposed to chicken pox rash, she doesnot have chicken pox…so obviously we will not treat her or her baby with acyclovir.Now since the female herself doesnot have chicken pox so why to give VZIG to the infant, rather this female should be given prophylactic VZIG so that she doesnot acquire chickenpox.

Varicella Prophylaxis: Exposed pregnant women who are susceptible should be given Varicella IG within 96 Hrs of exposure to prevent or attenuate varicella infection.

18. The answer is (c) i.e The proper treatment of infants born to infected mothers includes the administration of hepatitis B Ig as well as vaccine.

19. The answer is (a) i.e within 12 hrs

Hepatitis in pregnancy

- M/C after blood transfusion – Hepatitis C
- M/C causing fulminant hepatitis – Hepatitis E
- M/C causing maternal death – Hepatitis E
- M/C leading to vertical transmission – Hepatitis B
- M/C time of transmission – 3rd trimester

If mother is HBs Ag positive, fetus after delivery should be given-HBV immunoglobulin **(0.5 ml i/m, within 12 hrs of birth – Ans. 18 with 19)** followed by Hepatitis B vaccine within 12hrs and and then 1 and 6 months later. Efficacy of treatment 85–90%.

If mother is Hbe Ag positive chances of transmission of hepatitis to fetus are high whereas presence of Hbeab is protective (in 25% females even if Anti H Be is present , vertical transmission occurs).

All pregnant females should be screened for Hepatitis –Time for screening-1st prenatal visit and should be repeated in high risk patients in third trimester.

Screening Test is–HBs Ag antigen

Role of cesarean section in preventing hepatitis B infection is controversial.

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Also Know

Infections in Pregnancy:

- Most common-CMV
- Most teratogenic-Rubella
- M/C Time for rubella transmission to fetus-1st trimester (maxmimum-1to 4 weeks),absent transmission-beyond 20 weeks.
- In Rubella –M/C single defect which occurs is –Sensorineural hearing loss
- Heart defects seen in Rubella -PDA and Pulmonary artery stenosis
- After rubella vaccine, pregnancy is contraindicated for 1 month.
- CMV-Transmission can occur in any trimester
- -Most severe infection occurs if transmission occurs in 2nd trimester.
- CMV transmission can occur during vaginal delivery and breast feeding also
- Primary infection – leads to 40% transmission
- Recurrent infection – leads to 0.2%-2% transmission.
- **CMV Never Leads to Heart Defects in Fetus**
- M/C time for toxoplasma infection-3rd trimester
- Maxmimum/most severely fetus is affected if fetal infection occurs in 1st trimester
- Triad of toxoplasma-intracerebral calcification, chorioretinitis and hydrocephalus
- Treatment-Spiramycin (prevents fetal transmission but it cannot treat fetal infection if it is present.)
- Spiramycin + pyrimethamine and sufonamide combination is given to treat fetal infection and prevent further transmission.

20. The answer is (a) i.e Despite the potential for fetal infection, she may opt out from the test

Important points on HIV in pregnancy

Least Teratogenic Infection: HIV

- M/C time of vertical transmission:
  1. Peripartum period
  2. During delivery

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- Perinatal transmission 15–40%
- Risk depends on following factors- maternal viral load, CD4 count (inversely related), vitamin A deficiency and chorioamnionitis.
- Screening adopted for HIV is universal.
- Screening-Opt out screening (i.e patient can opt out from the test)
- HIV testing is the first step towards PPTCT (Prevention of parent to child transmission) aimed at reducing the vertical transmission of HIV infection.
- Screening test–ELISA a nd a positive or indeterminate test should be followed by a Western blot for confirmation.
- Antiretroviral therapy is given to pregnant female for 2 reasons:
  1. for benefit of her own health
  2. for preventing Mother To Child Transmission (HAART throughout pregnancy reduces MTCT to <2%)
- Relationship of CD4 count to development of opportunistic infections In a patient of HIV.
- All pregnant women should be given ART for two reasons:
  1. For benefit of her own health– these females should continue with treatment during pregnancy and afterwards
  2. HIV positive pregnant women who do not have indication for antiretro-viral therapy should have ART prophylaxis to prevent mother to child transmission

     (HAART throughout pregnancy reduces MTCT to <2%)
- Salient points of WHO's latest Nov 2009 guidelines which were revised from previous (2006) guidelines:
  1. Although antiretroviral therapy among asymptomatic HIV infected nonpregnant adults and adolesents is generally delayed until the CD4 drops below 350 cells/μL, all pregnant women should be offered treatment regardless of CD4 + Two unit or viral load to reduce MTCT

     For infants of mothers with HIV who are taking therapeutic ART for their own health, the duration of prophylactic ART has been increased irrespective of whether the infant is breastfeeding or not. For breastfeeding infants, it is recommended that daily NVP is instituted from birth until 6 weeks of age. For nonbreastfeeding infants: daily AZT or NVP from birth until 6 weeks of age is recommended.

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2. It is recommended that antepartum ARV prophylaxis should be started in all women from as early as 14 weeks gestation (if she is not already on ARV) or as soon as possible when women present late in pregnancy, in labor or at delivary.

HAART Timings *(Ref. Williams 23/e, p 1251)*

Condition	Begin HRT
If a female is already on HAART and becomes pregnant	Continue HAART-even in 1st tri-mester
If a female is not on HAART and doesnot require ARV for her own health benefit but for MTCT prevention	Begin HAART after 1st trimester-(at 14 weeks)
Patient comes in labor for first time and is not on HAART	Give Navirapine and Zidovudine drip
If pregnant female is HIV and Hepatitis B positive	Treat for HIV but Zidovudine is avoided. Give Interferon alphato female after delivery and to baby give HBIG and hepatitisB vaccine within 12 hrs of birth

- If HAART is given throughout pregnancy it reduces MTCT (Mother to Child transmission) to <2% and in such cases vaginal delivery can be done as cesarean will not decrease further risk of transmission.
- **If mother is not properly covered with ARV:** Elective cesarean section at 38 weeks should be done or if woman is on ARV and still viral load is > 1000 copies/ml then also elective cesarean section is done.
- After rupture of membranes the advantage of reducing Mother to child transmission by LSCS is lost, hence emphasis is laid on elective cesarean at 38 weeks.
- **Drug supplied by NACO:** Free of cost-NEVIRAPINE (both for mother and baby)
- **If vaginal delivery is being done:** Artificial Rupture of Membranes/Forceps/Vaccum//Fetal Scalp Electrodes are contraindicated.
- First born twin has more risk of infection than second of twin.
- **After delivery:** Breast feeding is not C/I in developing countries. Decision regarding the type of feed, i.e. breastfeed or replacement

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feed, should be made during antenatal period itself depending upon whether replacement feed is Acceptable, Feasible, Affordable, Sustainable and Safe (AFASS): As mixed feed is associated with increased rate of HIV transmission as compared to breastfeed alone, it is suggested the weaning must be complete and abrupt after six months of breastfeed or earlier if replacement feed is AFASS.

- **Answer to case study:** Women who have been receiving antiretroviral treatment for their HIV-1 infection should continue same treatment during pregnancy, intrapartum and postpartum period except for Efavirenz (EFV). NVP(Nevirapine) should be substituted for EFV, although exposure to EFV during pregnancy is not an indication for abortion for women who become pregnant while receiving an EFV-containing regimen and are in the first trimester of pregnancy.

NOTE:

1 Women who are receiving EFV and are in the second or third trimester of pregnancy can continue the current regimen.

2. NVP should be given in women with CD4 count of 200-350 cells/mm3: There are data to show that women with a CD4 count of > 250 cells/mm3 face a higher risk of severe hepatotoxicity with NVP.

21. The answer is (a) i.e VDRL in mother and baby

22. The answer is (c) i.e Penicillin

Syphilis in Pregnancy

- Bullous leisons on the body of the infant and presence of periostitis suggests the diagnosis of congenital syphilis. The only option related to syphilis is VDRL.

  Congenital syphilis:

  – Transmission of T pallidum across the placenta from a syphilitic woman to her fetus may occur at any gestational age but fetal damage occurs when transmission occurs after 16weeks.
  – Thus adequate treatment before 16 weeks may prevent fetal damage
  – Untreated infection leads to fetal loss in 40% cases, IUD, stillbirth and abortions.(stillbirths being more common than abortions)

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Early Congenital syphilis	Late congenital syphilis	Residual stigmata
• Appears within first 2 years of life, M/C time is 2-10 weeks age • Earliest manifestation-rhinitis/ snuffles • M/C-bone changes-osteochondritis • Periostitis • Mucocutaneous leison • Hepatospleenomegaly • lymphadenopathy	• Appears after 2 years of life. • Subclinical in most of the cases. • Features- interstitial keratitis • Eighth nerve deafness • Recurrent arthropathy • B/L knee effusion k/a Cluttons joint • Asymptomatic neurosyphilis • Gummatous periostitis	• Hutchinsons teeth (Centrally notched widely spaced peg shaped upper central incisor • Mulberry molars

In asymptomatic infants:

- If mother has been treated with penicillin in 1st/2nd trimester-
  No treatment for infant
- If mother has not been treated/received treatment with penicillin in third trimester –
  Treat infant with penicillin

SYPHILIS TREATMENT during pregnancy

Ref. Williams 23/e, p 1238

- Syphilis therapy during pregnancy is given to eradicate maternal infection and to prevent congenital syphilis.
- Parenteral penicillin G remains the preferred treatment for all stages of syphilis during pregnancy.
- There are no proven alternative therapies for syphilis during pregnancy Erythromycin may be curative for mother, but because of limited transplacental passage, it does not prevent all congenital disease.

Women with H/O penicillin allergy, first penicillin desensitization should be done and then followed by penicillin injection.

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Drug of Choice

Infection	Doc in Pregnancy
Bacterial vaginosis	Metronidazole to patient only 1st trimester-clindamycin
Pneumocystis carinii	Sulphamethozole-trimethoprim
Typhoid	Third gen cephalosporins/azithromycin
Syphilis < 1 year >1year	Benzathine penicillin 2.4 million U.i.m sigle dose Benzathine penicillin 2.4 million U. i.m weekly x 3doses
Gon orrhea	Inj Ceftriaxone 125 mg i.m single dose or, Tab cefixime 400mg single dose or, Inj Spectinomycin 2g i.m single dose
Chlamydia	Azithromycin single dose or Amoxicillin 500 mg TDS × 7days 2nd choice-Erythromycin
Grp B streptococci	Penicillin 2nd best- Ampicillin Penicillin resistant-cefazolin
Malaria-prophylaxis	Treatment Resistant cases (mostly d/t P. falciparum)
	Chloroquine Chloroquine Quinine + clindamycin (mefloquine is currently not recommended *...williams 23/e, p1228*)
Appendicitis	Immediate appendicectomy
Red degeneration	Conservative mgt (no termination of pregnancy and no myomectomy)
Thyrotoxicosis	Propylthiouracil

23. The answer is (d) i.e rapid urine b hcg measurement

In the question patient is presenting with amenorrhea of 6 weeks and she has history of being sexually active…now all of you know the most common cause of secondary amenorrhea is pregnancy…so first rule it out by doing a rapid urine hcg test, i.e Urine pregnancy test and then do USG to see whether the pregnancy is intrauterine or extrauterine. (the question specifically asks which is the next step in manangement)

Hcg–Imp points and testing:

- Beta unit is specific unit
- Secreted by syntiotrophoblast
- Functionally similar to LH and acts via plasma membr LH-Hcg receptors.
- Earliest detected 6-8 days after conception

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- Doubling time-48 hrs
- Maxm levels seen at 70 days/10 weeks /1st trimester
- Most sensitive test to detect hcg- RIA>IRMA
- It disappears from circulation 2 weeks postpartum

Increased	Decreased
• Multiple pregnancy • Erythroblastosis fetalis • Molar pregnancy • Fetus wid Down syndrome	• Ectopic pregnancy • Missed abortion • Impending abortion • Fetus wid Edward syndr (tri-somy 18)

24. The answer is (b) i.e missed abortion

Types of Abortion

- **Threatened Abortion:** It is a clinical entity where the process of abortion has started but has not progressed to a state from which recovery is impossible.
- **Inevitable Abortion:** It is a clinical entity where process of abortion has progressed to a state from where continuation of pregnancy is impossible.
- **Complete Abortion:** Here the products of conception are expelled en masse.
- Incomplete Abortion Here the entire products of conception are not expelled but a part is left inside the uterine cavity.
- **Missed Abortion:** When the fetus is dead and retained inside the uterus for a variable period, it is missed abortion

Abortion	Clinical picture	Size of uterus	Internal OS	Ultrasound
Threatened	Slight bleeding	Corresponds	Closed	Live fetus
Inevitable	Bleeding + pain +/- shock	Corresponds	Open with products of conception felt	Dead fetus
Incomplete	Bleeding + passage of clots	Smaller	Open with products of conception felt and coming out through os	Incomplete fetus
Complete	Bleeding stopped	Smaller	Closed	Empty
Missed	Brownish discharge/ slight bleeding	Smaller	Closed	Dead fetus

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25. The answer is (a) i.e Lupus anticoagulant

Antiphospholipid Antibody Syndrome

There are 3 main antibodies formed in antiphospholipid syndrome.

i. Lupus articoagulant
ii. Anti cardiolipin Antibody
iii. Biologically false positive syphilis test antibody

Lupus antico-agulant (M/C)		
• It leads to throm-bosis in the blood vessels unlike its name which suggests it should bring about anticoagulation- • Thrombosis involves whichever blood vessel, manifes-tations occur accordingly. • When thrombosis occurs in Placental blood vessels-abortion/IUD/still birth/IUGR/PIH can occur	**Diagnosis**-increased Aptt ,increased Russel viper venom clotting time, increased kaolin clotting time	T/t-heparin and aspirin

26. The answewr is (c) i.e Consumptive coagulopathy with hypofibrinogenemia

Dead fetus if retained for > 4–5 weeks, release thromboplastin which leads to DIC.(consumptive coagulopathy)

Obstetrical Conditions Leading to DIC

a. Septic abortion
b. IUD
c. Abruptio placentae
d. Amniotic fluid embolism
e. Severe preeclampsia, eclampsia. HELLP syndrome

27. The answer is (a) i.e B hcg levels will be higher than normal.

In the given question patient is presenting late in her first trimester of pregnancy with complains of persistent vaginal bleeding, nausea, and pelvic pain. Physical examination is notable for a gravid uterus larger than expected for gestational age. Fetal heart tones are absent.

D/D of height of uterus larger than the period of gestation:

- Wrong dates

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- Twin pregnancy
- Molar pregnancy
- Concealed variety of Abruptio placenta
- Polyhydramnios.

Twin pregnancy can be ruled out because it doenot explain persistent vaginal bleeding and moreover in twin/multiple pregnancy fetal heart tones are not absent…2 or more FHS are heard depending on the number of fetuses.

Concealed variety of APH doesnot occur in late first trimester. APH by definition means any bleeding which occurs after 28 weeks of pregnancy and uptil the birth of the child and hence it can be ruled out although absent fetal tones and Fundal height more than the gestational age are seen.

Polyhydramnios again can be ruled out since bleeding cannot be explained by it …so we are left with molar pregnancy which explainds all the findings.

Always remember: Patient complaining of extremes of nausea, vomiting + bleeding in first trimester+size of uterus more than the period of amenorrhea–think of Molar pregnancy.

28. The answer is (a) i.e Admit to antenatal unit for bed rest and betamethasone.

Before discussing the question lets first discuss a few general concepts about placenta previa and its management.

Placenta Previa Risk Factors:

- Multiparity and increased maternal age
- Previous H/O placenta previa 12 times more risk
- H/O any previous uterine surgery 4 time more risk
- Previous uterine currettage
- Increased placental size
- Succenturiate lobe
- Smoking

Placenta Previa Management:

- Never do P/V examination
- **Investigation of choice:** TVS(transvaginal scan… surprised don't

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be- because in placenta previa P/V examination is contraindicated since our finger has to inserted inside the internal os inorder to know the exact location of the placenta , which in turn can lead to torrential haemorrhage but in Transvaginal ultrasound, the probe is never taken beyond the internal os, it is kept in the cervical canal and obviously there are no chance of disturbing the placenta).

- Double set up examination (i.e Per vaginal examination in the operation theatre with all arrangements of cesarean section done) can be done in placenta previa.

Management options in a Case of Placenta Previa

Expectant management– (Called as Macaffee regime) Goal- is to carry pregnancy till term without putting mothers life at risk with an aim to achieve fetal lung maturity.	**Active management**–To terminate pregnancy immediately irrespective of gestational age.
• No Active bleeding present	• If active bleeding is present
• Hemodynamically stable	• Hemodynamically unstable/ shock
• Gestation age <37 weeks	• Gestational age >37 weeks and patient inlabour
• CTG-should be reactive	• Fetal distress present/ FHS absent
• No fetal anomaly on USG	• USG shows fetal anomaly or dead fetus

NOTE: In expectant management-Patient is admitted for the rest of the pregnancy, inj betamethasone is given to hasten the lung maturity of the fetus and blood is crossmatched and kept ready just in case patient starts bleeding again.The expectant management called as Macaffee and Jahnson regime should be continued till 37 weeks, but if anytime during expectant management patient rebleeds, pregnancy should be terminated immediately.

- Mode of delivery practically in all patients of placenta previa is– Cesarean section
- Low transverse cesarean section should be done but if placenta is anterior give vertical incision…williams 23/ep773
- Whereas according to Dutta 7/e, p249 cesarean section should be done in all cases where placental edge is within 2cms from internal os.

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- Now with this background lets have a look at the question.
- G1P0 woman at 29 weeks' gestation presents to the emergency department complaining of 2 hours of vaginal bleeding, the bleeding recently stopped, her vitals are stable(temperature is 36.8°C (98.2°F), blood pressure is 118/72 mm Hg, pulse is 75/min, and respiratory rate is 13/min), FHS are present and reassuring i.e there is no fetal distress…
- This means we will manage this patient expectantly and there is no need to immediately terminate her pregnancy..ruling out options c and d
- So now we have to choose between option:
  a. Admit to antenatal unit for bed rest and betamethasone. And option
  b. Admit to antenatal unit for bed rest and blood transfusion.
- The patients Hb is 11.1, there is no need for immediate blood transfusion (ruling out option b), just crossmatch and arrange blood and give betamethasone for hastening lung maturity.

29. The answer is (a) i.e Emergent cesarean section

Now this question can be explained in 2 ways but answer still remains the same:

Expl 1: Patient is presenting at 32 weeks of gestation to the emergency department with a small amount of vaginal bleeding. She doesn't have any pain., this could be a case of placenta previa.. now since there is fetal distress , we will do active management and terminate the pregnancy immediately by doing a cesarean section.

Expl 2: In this question patient has experienced small amount of painless vaginal bleeding…but the fetal distress doesnot coincide with the amount of blood loss, so probably this small amount of blood loss is fetal in origin this is why it has led to fetal distress i.e it is a case of vasa previa.

Management of vasa previa-Emergency cesarean section.

Vasa Previa:

- It occurs due to velamentous insertion of the cord
- Blood loss which occurs is fetal in origin and so there is increased fetal mortality – 75 to 90%, maternal mortality is not increased.

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- Can be diagnosed antenatally by Doppler study
- When bleeding occurs: Sinusoidal fetal heart rate pattern seen
- Diagnosis made at the time of bleeding by-Singers alkali denaturation test/apt test
- Management- Emergency Cesarean section.

30. The answer is (a) i.e DIC

31. The answer is (d) i.e release of thromboplastin by damaged placenta

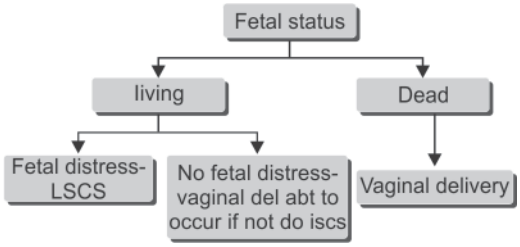
32. The answer is (c) i.e administer fresh frozen plasma.

Abruptio Placenta-Important points:

- Classification of Abruptio placenta is called as **sher/page classification**

  Management: Once Abruptio is diagnosed you have to manage it actively irrespective of the gestational age.
- In case of abruption: The abruptio delivery interval is important.
- Do not prolong this interval as complications like DIC/Renal failure (acute cortical necrosis) can occur.
- Never give tocolytics in patients of abruptio (no matter how tempted you may feel)
- Pritchard rule for management of abruption is Keep hematocrit atleast 30% and maintain urine output-30ml/hr

Mode of Delivery



DIC

- Release of thromboplastin in placental abruption leads to DIC. (ans 30 and 31 ... patient is 34 weeks preganat and involved in a car accident following which she starts bleeding per vaginally and

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has pain in abdomen also… i.e patient has abruption placenta and DIC is its complication which occurs due to release of thromboplastin)

- In managing DIC – use fresh frozen plasma-1unitof FFP raises – 5–10 mg/dl of fibrinogen .
- Cryoprecipitate – also increase fibrinogen but volume is not replenished
- Platelet should be given if count < 50,000/ml . Single unit transfusion raises platelet by 5000-10,000/ml. If Female is Rh negative give 300 mcg of anti d after platelet transfusion
- Side by side in abruptio delivery should be done
- Uncorrected DIC is a contraindication for vaginal delivery/LSCS. (ans 32…in the question patient is having abruption with elevated fibrin degradation products which means she has DIC, which should be corrected prior to delivery by giving fresh frozen plasma.)

Normal Values of DIC Profile

- Fibrinogen 150 – 600mg/dl
- PT-11-16 sec
- PTT 22–37 sec
- Platelet – 1.5 to 3.5 lac D dimer /mm3
- D dimer – <0.5 mg/l
- Fibrin degradation products <10 mcg /dl
- In case of DIC: All clotting factors are consumed so levels of fibrinogen decrease, PT and PTT, FDP, d dimer all increase.

NOTE: A fibrinogen level less than 100mg/dl or sufficiently prolonged PT/PTT in a woman with surgical bleeding is an indication for FFP in doses of 10–15ml/kg

33. The answer is (e) i.e severe preeclampsia

Before answering this question lets first understand the various terminologies related to **Pregnancy induced hypertension.**

Hypertension in pregnancy is defined as systolic BP $\geq$ 140 mm of Hg or diastolic BP $\geq$ 90 mm of hg on two occasions atleast 6 hours but no more than 7 days apart.

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Pregnancy induced hypertension		**Chronic hypertension Pregnancy**
(Means–a normotensive patient has conceived and due to some placental pathology, her B/P increases)		Liter ally means a hyper tensive female has conceived
Preeclampsia	**Gestational Hypertension**	
• Rise in B/P after 20 weeks of pregnancy. + • Proteinuria (>300 mg in 24 hr urine collection or >30 mg/dl in a random urine sample or ≥ + 1 on dipstick.) + • B/P comes back to normal within 12 weeks of delivery	• Like Preeclampsia but no proteinuria is associated	• Rise in B/P before 20 weeks + • No proteinuria + • B/P doesnot come back to normal within 12 weeks of delivery.

Preeclampsia can Further be Divided Into

	Mild preeclampsia	**Severe Preeclampsia**
B/P	≥ 140/90 mm of hg but less than 160/ 110 mm of hg	≥ 160/110 mm of hg
Proteinuria	≥ 300 mg in 24 hr urine collection or ≥ + 1 on dipstick but < + 3	≥ 5g in 24 hour urine collection or ≥ + 3 persis tently on dipstick.
Symptoms:		
Visual symptoms	Absent	Present
Oliguria (< 500 ml of urine in 24 hours)	Absent	Present
Epigastric pain	Absent	Present
Headache	Absent	Present
Features like HELLP syndrome:	Absent	Present
Hemolysis,	Absent	Present
Elevated liver enzymes	Absent	Present
Low platelet count	Absent	Present
Renal functiontest:		
S uric acid	Normal	Elevated
S urea	Normal	Elevated
S creatinine	Normal	Elevated
IUGR	Not seen	seen

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- **Eclampsia** is seizure or unexplained coma in a patient with preeclampsia
- **HELLP syndrome** is a variant of preeclampsia defined by following criteria:
  - **Hemolysis** identified by Burr cells and schistocytes on an abnormal peripheral smear, an elevated serum bilirubin (>1.2 mg/dl) or LDH level (>600IU/L), or a low serum haptoglobin.
  - **Thrombocytopenia** with platelets <100,000/microl is the most consistent finding in HELLP syndrome.
  - **Elevated Liver function tests** (i.e transaminases) greater than two times the upper limit of normal.

Now in Q 33 patient is presenting at 24 weeks of gestational age with BP 162/114 mm of hg and proteinuria +3 ,earlier her BP was normal as suggested by the lines that she has come for routine prenatal visit and her pregnancy has remained uneventful till now. This means it is a case of Pregnancy induced hypertension (either Preeclampsia or gestational hypertension), since she is having proteinuria also it rules out gestational hypertension and favours Preeclampsia.

The B/P of the patient even 6 hours after initial checking is 160/110 mm of hg and her proteinuria is +3 which shift the diagnosis to severe preeclampsia.

Coming on the Management of these Conditions

- Always remember Pregnancy induced hypertension (Preeclampsia/ Gestational hypertension) are raised BP conditions due to placental pathology(incomplete trophoblastic invasion) and **always their definitive treatment would be to Terminate the preganacy and throw out the defective placenta.**
- Antihypertensive of choice for Chronic hypertension in pregnancy-Methyldopa
- Antihypertensive of choice for Pregnancy induced hypertension(Preeclampsia/Gestational hypertension) Labetalol
- Antihypertensive of choice for Hypertensive crisis is-Labetalol.

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Antihypertensives in Pregnancy

Safe	C/I
• Labetalol • Calcium Channel blockers • Hydralazine • Alpha methyldopa • Sodium nitroprusside+/-	• ACE inhibitors • Diuretics • Reserpine • Loratidine

Management of PIH/eclampsia

Mild PIH	Severe PIH	Eclampsia
• Antihyperten-sives-Role is +/-, no proven efficacy. Generally bed rest and some diet restrictions are done. • Definitive management-(as discussed earlier will always be) termination of pregnancy Done at 37 completed weeks of pregnancy	• 1st step in management is seizure prophylaxis-MgSO4 • Antihypertensives should be given to decreas BP in a controlled manner without compro-mising the utero-placental perfu-sion. Aim-Systolic BP should be between-140 to 155 mmof Hg and Diastolic BP should be between 90 to 105 mm of Hg • Definitive mgt-termination of pregnancy at 34 completed weeks	• 1st step in management Airway management • Drug to control sei zures-MgSO4 • Anti hyppertensives to control BP • Definitive manage ment-immediate termi nation of pregnancy.

- **Route of delivery:** Patients in labor or with a favorable cervix can deliver vaginally, for rest of the cases LSCS is indicated.

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34. The answer is d initial inpatient evaluation followed by restricted activity and outpatient management.

- In the question patient has past history of hypertension which was controlled on diuretics and ACE inhibitors prior to pregnancy.Till date her B/P was normal, she was not using any antihypertensive and now all of a sudden her BP is 142/84 mm of hg and proteinuria is 0.35g all this suggests a possibility of superimposed preeclamplsia on chronic hypertension .
- In this situation since BP is not much raised falling in the category of mild preeclampsia and gestational age is 35 weeks , no need to induce labor (labor should be induced at 37 weeks in mild preeclampsia) i.e option b ruled out.
- I/V Furosemide and hydralazine again are not justified in mild preeclampsia patients (Role of antihypertensives is controversial in the setting of mild preeclampsia) i.e options aand c ruled out.
- Her pre pregnancy regime which consisted of a diuretic along with ACE inhibitor cannot be started as ACE inhibitors are contraindicated during pregnancy ruling out optione.
- So we are left with option d-initial inpatient evaluation followed by restricted activity and outpatient management. Which is the most logical step .
- **Also know:** Worsening chronic hypertension is difficult to distinguish from superimposed pre eclampsia .If seizures, thrombocytopenia, pulmonary edema, unexplained hemolysis or elevation in liver enzymes develop, superim-posed preeclampsia should be diagnosed. Monitoring trends in BP and urine protein may be helpful. A 24 hr urine calcium measurement may also be helpful in detecting preeclampsia, as levels of urine calcium are lower (< 195 mg total urine calcium in 24 hrs) in preeclampsia patients than in patients with hypertension alone.

35. The answer is (c) i.e. I/V $MgSO_4$

Ref: John Hopkins manual of gynae and obs 4/e,p 186

- In the question patient is presenting at 28 weeks with rise in BP and proteinuria which confirms her as a case of preeclampsia.
- The only confusion is whether she is a having mild preeclampsia or severe preeclampsia because that has a bearing on the management also.

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- Lets say this patient has severe preeclampsia:

Points in favour of the diagnosis	Points against the diagnosis
• Severe headache	• B/P-155/85 mm of hg
• 24 hour urine collection – 5g protein	• Proteinuria + 2

Read for youself what John Hopkins has to say on this issue.

"Severe preeclampsia is classified by the following criteria:

i. BP during bedrest of >160 mm of hg systolic or >110 mm of hg diastolic or

ii. Proteinuria > 300 mg on a 24 hr urine collectioneven if BP is in the mild range"

Ref. John Hopkins manual of obs and gynae 4/e, p186

- So our confusion about BP is over…now the second confusion is – this patients dipstick result favours mild preeclampsia whereas 24 hr urine result favours severe preeclampsia.

  Again read for yourself what JH manual has to say on this issue:

  "*Preeclamptic patients often have a wide variation in urine protein values over time, possibly from renal vasospasm. Discrepancies between the random urine dipstick and 24 hr urine collection measurements have been well described. The 24 hr urine coolection, therefore remains the preferred measure for diagnosing preeclampsia*".

  Ref. John Hopkins manual of obs and gynae 4/e, p186
- Our patient is thus a confirmed case of severe preeclampsia, and should be first managed by giving Mg SO_4 as a prophylaxis against seizures.
- Since she is only 28 weeks pregnant we will not perform cesarean immediately and try to carry the pregnancy uptil 34 weeks.

36. The answer is (d) i.e USG of fetal kidneys *(Ref. John Hopkins manual of obs and gynae-4/e, p189)*

ACE inhibitors are not recommended in pregnancy due to severe fetal malformations and n eonatal renal failure, pulm onary hypolplasia and fetal death.So if a female has taken ACE inhibitors in pregnancy, all the above side effects should be ruled out.

37. The answer is (d) i.e Diabetes

Before discussing the question, lets quickly revise oligohydramnios and polyhydramnios.

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Oligohydramnios:

- Liquor: <200 ml, AFI<5 cms, single pocket<2 cms
- **Causes:**
- D: Drugs like Prostaglandin synthatase inhibitors, e.g. Indomethacin
- I: IUGR
- L: Leaking following amniocentesis
- Mein: Maternal conditions like high B.P (PIH)
- P: Post dated pregnancy
- P: PROM
- A: Congenital Abnormalities-triploidy, Amnion nodosum
- R: Renal conditions of fetus like renal agenesis

Polyhydramnios

Liquor > 2 litres, AFI>25, Single largest pocket >8 cms

Causes

No Need to MUG	MUG UP
Multifetal pregnancy, Twin pregnancy (due to increased urine output)	Chorangioma of placenta
Maternal Hyperglycemia fetal hyperglycemia polyuria polyhydramnios	Downs syndrome
Fetal swallowing defects like oesophageal atresia, fascial clefts, neck masses	Rh negative pregnancy
Anencephaly, open spina bifida as CSF leaks into the amniotic fluid and increasing its volume.	TORCH infections
	Alpha Thallesemia

RH NEGATIVE PREGNANCY

38. The answer is (d) i.e. Give Anti D prior to her amniocentesis

39. The answer is (b) i.e. Repeat titre in 4 weeks

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40. The answer is (c) i.e. within 3 days of delivery of a Rh positive fetus

Rh Negative Pregnancy–An Overview

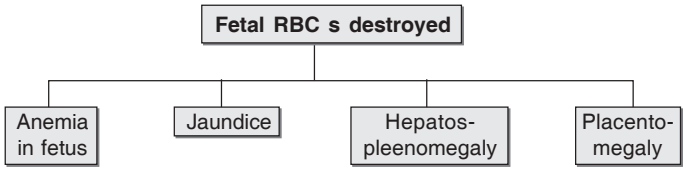
Rh isoimmunization occurs when a Rh negative woman's immune system is sensitized to Rh factor present on the surface of the fetal erythrocytes, stimulating the production of immunoglobulin G (IgG) antibodies. Ig G antibodies can cross the placenta during subsequent pregnancies in alloimmunized women and if the fetus is positive for the erythrocyte surface antigens, result in hemolysis of fetal erythrocytes and anemia.

The primary immune response in mother to the D antigen is weak and occurs over 6 weeks to 12 months. The initial antibodies produce in mother are of IgM type that does not cross the placenta, as a result first pregnancy is not typically at great risk. IgG become detectable within 6 month time. A second antigen challenge generates amnestic response that is both rapid and almost exclusive IgG which can cross the placenta, thus posing the greater risk of severe fetal disease.

The most common routes of maternal sensitization are via blood transfusion or fetomaternal hemorrhage associated with delivery, trauma, spontaneous or induced abortion, ectopic pregnancy or invasive obstetric proceduresIrefore in all Rh negative mothers before performing invasive procedures like amniocentesis , Anti D should be given.(Ans 38).

Fetal Problems in Rh Negative Pregnancy

Ig G antibodies against Rh antigen can cross the placenta and destroy the fetal erythrocytes which carry Rh antigen.



i. Results in i.sinusoidal heart rate pattern.

ii. Increased Peak systolic velocity in middle cerebral artery on Doppler study)

This IgG antibody mediated hemolysis of fetal erythrocytes, known as **hemolytic disease of the fetus and newborn (HDFN), can have a varied degree of manifestations which are the result of anemia**

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and hyperbilirubinemia. In severe cases, hemolysis may lead to extramedullary hematopoiesis leading to hepatosplenomegaly, decreased liver function and ensuing hypoproteinemia, ascites and anasarca in the fetus. When associated with high output cardiac failure and pericardial effusion, this condition is known **as hydrops fetalis**.

So in Rh negative pregnancy antibodies formed in mother eventually harm the fetus.

In an Rh Negative female if we want to know whether antibodies have been formed or not:

Methods are:

- **Indirect Coombs test:** It is done on maternal blood and if it is positive it indictes, Rh antibodies are formed in mother whereas a negative test indicates that Rh antibodies are not formed i.e isoimmunisation has not occurred.

Now here it is very important to understand one very important concept:

Anti D is given to all pregnant Rh negative mothers:

- **Principle behind giving Anti** D is, that if anti D is given to a Rh negative mother and suppose due to anyreason fetal blood with Rh antigen enters mothers circulation, this Anti D will lead an antigen antibody reaction and fetal RBC will be destroyed before it could stimulate mothers immune system to produce Rh antibodies.
- Thus the usefulness of administering Anti D is only before maternal Rh antibodies are formed, if maternal antibodies are already formed then there is no point in giving Anti D.
- **In other words Anti D should only be give if Indirect coombs test is negative.**
- **If Indirect Coombs test is positive then donot give Anti D, now it is important to know hoe much these antibodies have affected the fetus.**
- Whenever in Rh negative mothers we want know, to how much degree fetus is affected:
  - Do PUBS (perumbIlical blood sampling) and measure the hematocrit of fetal blood- but that is lil risky, so it should be the last resort.
  - Since the degradation product RBC is bilirubin therefore when hemolysis occurs fetus has jaundice and this bilirubin is excreted via fetal urine into the amniotic fluid (this is the reason why

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amniotic fluid is golden yellow in colour in Rh negative isoimmunisation) so do amniocentesis and measure the amount- of bilirubin by doing spectrophotometric analysis and measuring the delta optical density 450 and plotting the results on Lileys chart…this is most common method.

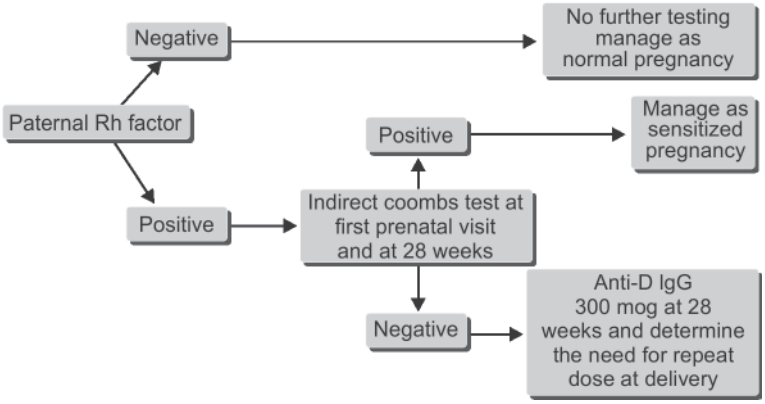
– In case hemolysis has occured fetus becomes anemic and peak systolic velocity in middle cerebral artery increases on doppler. These days management is being based on it.

Now Coming to Management of Rh Negative Pregnancies

Rh negative women presenting for obstetrical care can be categorized in two different groups:

1. Rh negative nonimmunized women.
2. Rh negative immunized women.

Management of Rh Negative non Immunized Mother



NOTE: Possibility of Rh sensitization during antenatal period is very small, thus -Indirect Coombs test is performed at 28 weeks before the administration of anti-D immunoglobulin.

After giving Anti D, antibody titre should be performed at regular intervals in the pregnant female.

After the antepartum administration of anti-D immunoglobulin, the antibody screening will detect anti-D antibodies in the patient's serum, but the titer should not be greater than 1:4 at term. An antibody titer greater than 1:4 at term most probably results from alloimmunization/

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isoimmunisation rather than anti-D immunoglobulin administration and such females again should be dealt in the same way like other isoimmunised females i.e category ii.

The Rh negative female who remains unsensitized i.e her antibodiy titre is always lower than 1:4 during pregnancy and have received anti-D immunoglobulin antenatally should be administered anti-D immunoglobulin in the postpartum period only when the following conditions are fulfilled:

1. Infant is Rh positive
2. Direct Coombs test on umbilical cord blood is negative.

NOTE: Just like Indirect coombs test is done antenatally on maternal blood and if it is negative then only Anti Dis given similarly, Direct Coombs test is done on infants blood after birth and Anti D given to mother if DCT is negative

Management of Rh Negative Immunized Pregnant Women

Management in this category requires the determination of whether it is a first affected pregnancy or woman already had a previously affected pregnancy.

First Affected Pregnancy

If this is a females first affected pregnancy that means first time ever in her obstetric history she is getting ICT positive-in such cases the moment their ICT is positive, antibody titre should be done.

Antibody titre of 1:16 is called as critical titre which means fetus is definitely affected.Only in these patients i.e who have first immunized pregnancy , Rh antibody titers can be used to determine the risk of fetal anemia, not in females who in earlier pregnancies also had ICT positive or females with history of hydrops fetalis. The rationale being that the association between the antibody titers and fetal affection that exists in the first affected pregnancy is lost during subsequent gestations. Also, in majority of first immunized pregnancies the anti-Rh antibody concentration is low and rarely exceeds the critical level of most laboratories. The critical level is that level below which no death due to fetal hemolytic disease has occurred within 1 week of delivery:

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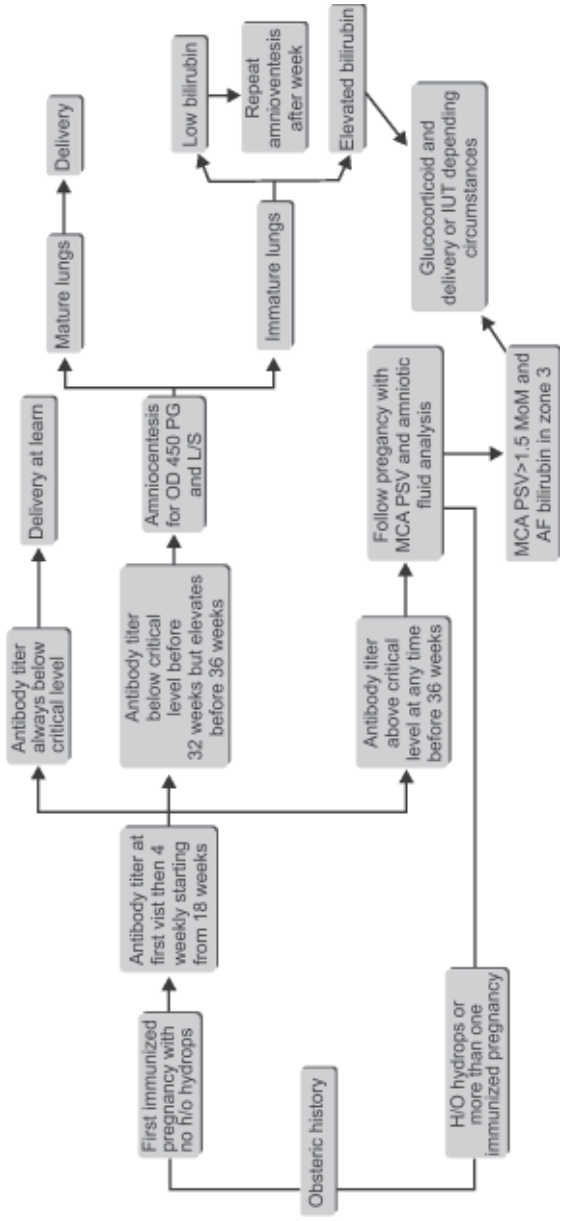
Management of Rh negative immunised pregnancy



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- Serum antibody titers are done in these women every 4 weeks until the titers are found to be at or above the critical level (1:16).If titres are above critical level, there is no further use of antibody titer and the pregnancy is further monitored by middle cerebral artery peak systolic velocity (MCA-PSV) or amniotic fluid bilirubin concentration.
- If antibody titers remains below critical level up to 36 weeks, the patient should be delivered by elective induction between 38-40 weeks and the birth of unaffected or mildly affected fetus should be anticipated.
- If there is sudden rise of antibody titers above the critical level after 34 weeks but before 37 weeks of gestation, amniocentesis is done to assess the fetal lung maturity. Pregnancy should be terminated if the lungs are mature, but if the lungs are immature and the bilirubin level is low (less than 0.5 mg/dl), the pregnancy should be allowed to continue as long as weekly amniocentesis shows fetal pulmonary immaturity and a low bilirubin concentration. Delivery is contemplated as soon as these fetuses achieve lung maturity.

Women with Previous Affected Pregnancy

After the first affected pregnancy, the ability to predict fetal anemia from the maternal anti-D antibody titers is lost and now these pregnancies should be monitored by MCA-PSV and amniotic fluid bilirubin concentration. In these patients pregnancy can be followed by

Middle Cerebral Artery Peak Systolic Velocity

It is a noninvasive tool for the diagnosis of fetal anemia. The principle behind this test is that there is increased velocity of blood flow in the anemic fetuses due to increased cardiac output in an attempt to enhance the oxygenation.

Amniotic Fluid Spectrophotometry (AFS)

It detects the presence and severity of fetal hemolysis and anemia. By the middle of the second trimester, amniotic fluid consists predominantly of fetal urine and tracheopulmonary effluent, thus the amniotic fluid bilirubin is also elevated if the fetal hemolysis is there. Amniotic fluid containing high levels of bilirubin, such as that found in fetuses with severe hemolytic disease, is yellowish-brown. This observation by Liley in 1961 led to the development of a method to predict the severity of fetal hemolysis. In this method amniocentesis is done and amniotic

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fluid is subjected to spectro photo-metric analysis and ΔOD 450 is measured and result plotted on lileys graph.

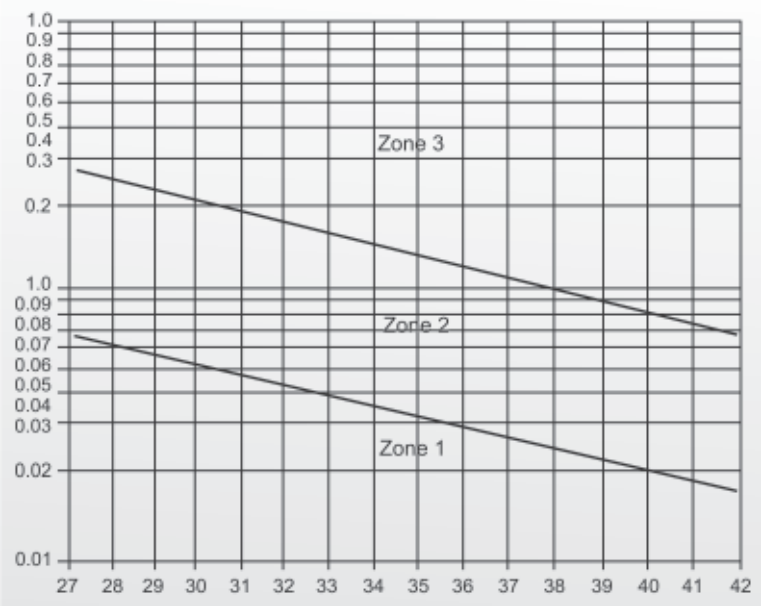

Fig. 2: Lileys curve

Results fall into one of the 3 Zones of Liley curve.

Zone	Management
A. Zone 1 (i.e. fetus is mildly affected)	• Repeat amniocentesis at 4 weeks and delivery at term 38–40 weeks
B. Zone 2 (i.e. fetus is moderately affected) In the lower zone 2-anticip ated Hb level is 11-13.9 mg/dl, in the upper zone 2 it is 8-10.9g/dl	• Repeat amniocentesis at 1–2 weeks
C. Zone 3 (i.e. fetus is severely affected) anticipated Hb = < 8 g/dl	• Intrauterine transfusion if preterm or delivery at 34 weeks if fetus is and delivery at salvageable

Ref. Fernando Arias 3/e, p 366-367

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The main limitation of the Liley's curve is that it starts at 26 weeks of gestation and extrapolation of the lines to earlier gestational ages is inaccurate. Queenan have developed a curve for fetal assessment from 14 to 40 weeks, divided into 4 zones.

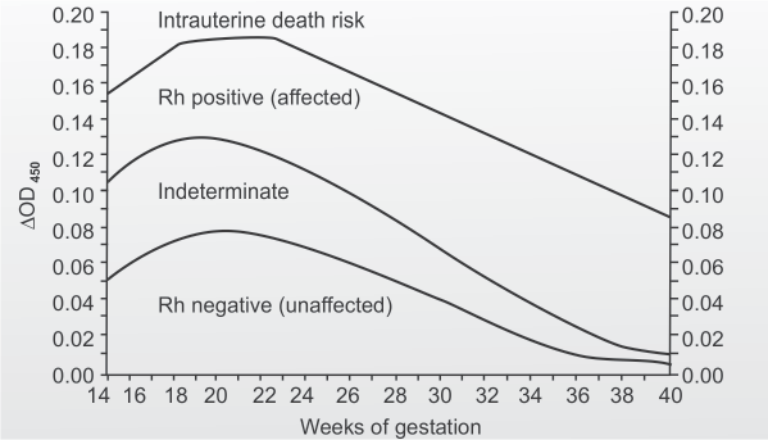

Fig. 3: Queenan curve

Now with this detailed understanding of Rh negative pregnancy let us have a look at Q. 38:

Points worth noting are:

- Primi patient with Rh negative blood group
- She is 37 years old-elderly primi (>30 years) and has risk of Down syndrome (>35 years)
- She is concerned about the risk of having a down syndrome baby at this age and so insists on having amniocentesis done.
  - **Option a:** Advise against amniocentesis as it will increase the risk of isoimmunisation –although the risk of isoimmunisation will definitely be increased but still I will not advise her against it seeing her age and her concern.
  - **Option b:** Follow Rh titres carefully and give Anti D if evidence of isoimmunisation is present. Come on just now I have explained in that Anti d should be given only if evidence of isoimmunisationt is absent.Thus this statement is absolutely wrong.

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- **Option c:** Give Anti D at 28 weeks of pregnancy and after delivery if baby is Rh negative. If baby is Rh negative, no need to give Anti D.
- **Option d: Give Anti D prior to her amniocentesis:** This is the most logical step which should be done in this case.
- **Option e: Give rubella vaccine as she is Rubella non immune:** Now I don't need to explain that Rubella vaccine is contraindicated during pregnancy.

39. The answer is b i.e. Repeat titre in 4 weeks

In the same patient–blood grouping shows A negative, with an anti D antibody titer of 1:4- the most appropriate next step in the management –Since this patient is a primi patient and her antibody titre is 1:4 so we should follow it by doing a repeat titre after every 4 weeks.

If this pregnancy would not have been her first affected pregnancy, then amniocentesis i.e. option a would have been the correct response.

40. The answer is (c) i.e Within 3 days of delivering an Rh negative fetus

Anti-D immunoglobulin should be given to all nonsensitized Rh negative women after the following potentially sensitizing events during pregnancy:

- Invasive prenatal diagnosis (amniocentesis, chorion villus sampling, fetal blood sampling)
- Other intrauterine procedures (e.g. insertion of fetal shunts, embryo reduction)
- Antepartum hemorrhage
- External cephalic version of the fetus
- Closed abdominal injury
- Intrauterine death
- Ectopic preganacy
- Abortion/MTP
- After delivery
- After cesarean
- After Manual Removal of Placenta

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A dose of 50 mcg is recommended for prophylaxis following sensitizing events up to 12 weeks of pregnancy. For all events after 12 weeks, 300 mcg of anti-D immunoglobulin should be given.

After delivery Anti D should be given within 72 hours of delivery of **Rh positive fetus** but can be given uptil 28 days of delivery.

The usual dosage of 300 mcg anti-D immunoglobulin is capable of neutralizing the antigenic potential of up to 30 ml of fetal blood (15 ml of fetal red cells) and prevents Rh alloimmunization in 90% of cases. In less than 1% of cases in which the volume of fetomaternal hemorrhage exceeds 30 ml, Kleihauer-Betke test is used to quantitate the volume of FMH and the appropriate amount of anti-D IgG (i.e. 10 mcg/ml fetal blood) is administered accordingly.

41. The answer is (c) Serum bilirubin > 5mg/dl

42. The answer is (b) 36 weeks

Cholestasis in Pregnancy:

- It 2nd most common cause of jaundice in pregnancy(m/c being hepatitis in pregnancy)
- It is characterized by accumulation of bile acids in liver.

Clinical Features:

- Manifestation appears beyond 30 weeks (i:e in 3rd trimester) and occasionally in late 2nd trimester.
- 1st symptom to appear is pruritis-which has a predilection for the palms and soles. (pruritis appears 3 weeks before lab findings)
- Jaundice is sligh-t bilirubin levels rarely exceed 5mg.
- Recurs in subsequent pregnancies and so OCP's are contraindicated in females with H/O cholestasis during pregnancy.
- M/c in twin pregnancy.

Investigation

Rise in s. bile acids is the earliest and the most consistent change(best marker for chol;estasis is bile acids-All india 2011). There is a 10-100 fold increase in S. Cholic acid followed by S. Chenodeoxycholic Acid.

- Serum bilirubin level increases and increase is always in direct bilirubin but bilirubin levels rarely exceed 5 mg .
- Serum alkaline phosphtase is mildly raised (increase in alkaline phosphatase is seen in liver damage, so it is seen in cholestatsis,

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but because the enzyme is also released by placenta in normal pregnancy so measurements are less useful as a diagnostic tool)

- SGOT/SGPT increased (in nearly 100% cases) rarely more than 250U/L
- Liver biopsy (definitive diagnosis)–no necrosis, no inflammation
- MGT-doc-ursodiol, corticosteroids,antihistaminics,vit k, cholestyramine can also be used
- Time of delivery 37–38 weeks but if jaundice is present (as in question 42) then patient should be delivered at 36weeks

Now coming to the Question No. 41

- A pregnant female with idiopathic cholestatic jaundice – is associated with
  Option a: Intense itching – True
  Option b: SGDT, SGPT < 60IU – True
  Option c: S. bilirubin > 5m g/dl – Incorrect
- In Idiopathic cholestasis of pregnancy bilirubin levels are rarely more than 5 mg as supported by:

"Bilirubin levels rarely exceed 5 mg%" *Ref. Williams 22/e, p 1126*

"Hyperbilirubinemia, results from retention of conjugated pigments; but total plasma concentration rarely exceeds 4-5 mg/dl".

Ref. Williams 23/e, p1064

"Hyperbilirubinemia occurs in 20% of women and is almost exclusively direct reacting Bilirubin levels are usually between 2-5 mg/dl."

Ref. Mgt of High Risk pregnancy
S.S trivedi, Manju puri Jaypee publication – pg 356

Option d: Markedly increased levels of alkaline phosphatase-Incorrect. In cholestasis of pregnancy alkaline phosphatase may be mildly elevated and is not markedly elevated

- Thus both option c and d are incorrect but if I have to choose one option I would mark option 'c' as my answer:
  – Based on the fact that alkaline phosphatase as such does not carry much significance in the diagnosis of cholestasis (whether it is mildly / Markedly elevated)

"Alkaline phosphatase increases above the normal elevation but is not much helpful in diagnosis."

Ref. Mgt of High Risk Pregnancy
Ref. S.S trivedi Manjupuri Jaypee pub – pg 356

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Extra edge: Pruritis of cholestasis during pregnancy and physiological pruritis gravidarum in pregnancy can be differentiated by – **GST** – Glutathione S.transferase – It rises in cholestasis, atleast 9 weeks before the increase in bile acid.

43. The answer is (a) i.e Immediate delivery

Remember

> Whenever a pregnant female presents with hepato renal failure as is evidenced by increased liver enzymes, deranged coagulation profile and increase in ammonia (patient is confused again suggesting uremia) + hypoglycemia – diagnosis is Acute fatty liver of pregnancy

Acute Fatty Liver of Pregnancy /Acute Yellow Atrophy of the Liver

It is a rare condition occurring in third trimester (mean gestational age of 37.5 weeks)[Q].

Aetiology:

- It is associated with disorders of fatty acid transport and oxidation
- Deficiency of LCHAD enzyme i.e. long chair hydroxyl aceyl coenz A dehydrogenase
- Risk are increased in case of:
  - First pregnancy, male fetuses, preeclampsia, maternal obesity and multiple pregnancy.

Histology: Pathology

- Liver is yellow, soft and greasy
- Swollen hepatocytes with central nuclei and cytoplasm filled with microvesicular fat

Collectively called as:

- Periportal sparing.
- Acute yellow atrophy.
- Minimal hepatocellular

Clinical Features

- **Patients present in the third trimester** (generally at 37 weeks) **with nonspecific symptoms** like nausea, vomiting, anorexia, vague abdominal discomfort and malaise.

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- In many women, persistent vomiting is the main symptom.
- This is followed by jaundice after about one week.
- Acute fatty liver of pregnancy should also be suspected in any woman who presents with new onset nausea and malaise in third trimester.
- Ascities is seen in all patients.
- In 50% cases-features of preclampsia viz-hypertension proteinuria and oedema are present.

Investigations:

- Liver function tests are abnormal:
- Serum bilirubin is increased but less than 10 mg/dl
- Increase in SGOT and SGPT
- Alkaline phosphatase is increased (moderately)
- Prothrombin time may be increased
- Clotting time increased
- Clotting factors viz serum fibrinogen levels are increased
- In severe cases, there may be disseminated coagulation failure.

Renal Function Test:

- increased S. creatinine (present in all patients)
- increased S. uric acid.
- increased S. Ammonia levels

Others:

- Decreased level of glucose (hypoglycaemia)
- Decreased platelet count
- Decreased fibrinogen levels.

Management:

- **T/t of hepatic encephalopathy:** Fresh frozen plasma, cryoprecipitate, platelets and blood.
- Rapid delivery is essential (Elective termination at 37 to 38 weeks is preferred).

Complication

Maternal mortality 10-75% due to

- Hepatic encephalopathy

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- PIH
- DIC
- Renal failure

Transient diabetes insipidus occurs during the period of recovery (due to increased vasopressin concentration).

Fetal Prognosis:

- Fetal prognosis is poor.
- If the fetuses survive, they may later on develop a Reye like syndrome of hepatic encephalopathy and severe hypoglycemia due to the defect in beta fatty acid oxidation.

44. The answer is (c) i.e Both B2 agonist and inhaled corticosteroids are safe in pregnancy

Asthma in Pregnancy – Important Points

Asthma is the most common chronic condition in pregnancy and affects 3% to 12% of gestations.

- It is more likely to deteriorate in women with severe asthma.
- Exacerbations are most frequent between 24 to 36 weeks gestation and are most commonly precipitated by viral respiratory infections and non compliance with inhaled corticosteroid regimens.
- Because asthma exacerbation can be severe , they should be treated aggressively in pregnancy.
- **Complications of asthma in pregnancy:** Preterm labor, preeclampsia ,LBW baby and slight increase in abruptio placenta
- Severity of asthma correlates with FEV1 (the FEV1 ideally is > 80% of the predicted, FEV1 less than 1L or less than 20% of predicted value, correlates with severe disease and PEFR (normally it ranges between 380-550 L/min).

Management of Asthma in Pregnancy:

- **Mild asthma**: Inhaled beta agonist (albuterol preferred because of more human data on safety in pregnancy)
- **Mild persistent:** Low dose inhaled corticosteroids (Budesonide preferred)
- **Moderate:** Low dose inhaled corticosteroids and long acting b agonist (Salmetrol preferred)

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- **Severe:** High dose inhaled corticosteroid and long acting beta agonist and oral steroids if needed.
- PGF-2alpha is absolutely C/I in patients of Asthma

  So if in an asthamatic patient PPH occurs drug of choice is PGE1.
- In asthamatic patients DOC for cervical ripening-PGE2 (PGE2 is not contraindicated in asthamatics)

45. The answer is (e) i.e Thyroxine is safe in pregnancy and the dose of thyroxine would be increased during pregnancy to avoid hypothyroidism, which may affect the baby adversely.

Hypothyroidism in Pregnancy

- M/C cause-Autoimmune cause-Hashimoto thyroiditis
- Hypothyroidism can lead to Mental retardation in baby, abortion, stillbirth, IUGR, prematurity
- Since maternal Hypothyroidism in pregnancy (whether overt or subclinical) may impair featl neuropsychological development, hypothyroidism should be treated adequately in pregnancy.
- Thyroxine requirement increase during pregnancy and this increased requirement begins as early as 5 weeks.
- DOC for thyrotoxicosis in pregnancy–Propylthiouracil.

46. The answer is (b) i.e Division after formation of the embryonic disk result in conjoined twins.

- Twin preganancy can be monozygotic (uniovular) or Dizygotic (binovular).
- Uniovular twinning occurs due to fertilisation of a single ovum by a single sperm followed by fission of single fertilized ovum. It is less common than binovular twins (i.e option a is incorrect).
- Uniovular twins are always of the same sex and are identical in appearance, resembling each other both physically and mentally, and even at times showing the same pathological tendencies.
- Uniovular or monozygotic twins can have a single placenta (monochorionic) or can have separate placenta (dichorionic) depending on the time of division of the fertilized ovum.

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Monozygotic Twins

Division of single fertilised ovum			
< 3 days	**4 - 8 days**	**> 8 days**	**> 14 days**
dichorionic diamniotic	monochorionic diamniotic	monochorionic monoamniotic	conjoined twin

- Binovular is fertilization of two ova by two sperms. Such twins are more frequent than uniovular (3:1). They may be of the same sex or opposite sexes and show a degree of resemblance no more than that of brothers and sisters from different births, this is the reason they can be called as "fraternal twins".
- Binovuar or dizygotic twins always have 2 placenta, i.e they are dichorionic.
- Thus dichorionicity can either be due to dizygotic or it could be due to monozygotic twins (i.e option d is incorrect)
- The incidence of monozygotic twins is fixed throughout the world..1 in 250 deliveries, whereas incidence of Dizygotic twins varies from region to region, being maximum in nigeria. (i.e option c is incorrect)
- Although multifetal births account for only 3% of all live births, they are responsible for a disproportionate share of perinatal morbidity and mortality. (i.e option e is incorrect)
- There is a higher risk of low birth weight babies and preterm labor. Multiple pregnancies are commonly associated with moderate to severe anemia, gestational hypertension malpresentation, polyhydramnios, cord prolapse,abruption or placenta previa.
- It's also associa1ted with abnormalities like discordance, twin reversed arterial perfusion (TRAP) or conjoint twins.

47. The answer is (d) i.e Dichorionic and diamniotic in monozygotic twins

- As discussed dizygotic twins always have dichorionic and diamniotic placentas (i.e option a and c are incorrect)
- Monozygotic twins can have monochorionic or monoamniotic placentas depending upon the time of division…but always remember- The amnion develops after the chorion, so dichorionicity implies diamnionicity … it can never be that a twin is dichorionic but monoamniotic (i.e option b is incorrect)

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48. The answer is (b) i.e Anemia

This scenario represents a typical case of twin to twin transfusion syndrome.

Twin to Twin Transfusion Syndrome

- It is always seen in monochorionic placenta.
- There is an AV malformation such that there exists a communication from the umbilical arterial system of the "donor" twin to the umbilical vein of the "recipient" twin.
- The donor twin is growth restricted, hypovolemic, has oligohydramnios and is anemic becoz it gives blood to the recipient twin. The recipient is larger, hypervolemic, has polyhydramnios and is plethoric. It has also been termed as Twin Oligohydramnios/ Polyhydramnios Sequence (TOPS).
- The earlier the TOPS appears, worse will be the prognosis.
- TTTS is more common in female fetuses.
- Coming to the question- Twin A is the recipient twin and Twin B is the donor twin since it has oligohydramnios.Thus Twin A can have CHF- due to volume overload, will have hydramnios and can have thrombosis since it has polycythemia which can lead to thrombosis, but never will it have anemia.

Also Know

Diagnosis of TTTS: By injecting O negative leukocyte poor washed RBC into the smaller (donor) twin and immediately removing the blood from the cotwin and testing it with Kleihauer-Betke stain, twin to twin transfusion can be confirmed

- Since Arterial supply from the donor twin drains into the venous system of recipient. Doppler can pick up the vessels from one twin's umbilical cord and then finding a continuing vessel with venous flow coursing towards the co-twin's umbilical cord.

Management

The TTTS can cause Preterm delivery due to Polyhydramnios, IUGR or fetal demise.

- Amnioreduction has shown improvement in fetal survival in 65% of cases. When the amniotic fluid exceeds 40 cm, one liter of fluid is removed for every 10 cms rise above normal.

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- This procedure takes care of polyhydramnios and fetuses are born later in gestation and weigh more than untreated cases with TOPS. (Twin oligohydramnios – Polyhydramnios sequence)
- Amniotic septostomy can create artificial opening between the gestational sacs to produce in effect a monoamniotic pregnancy. TTTS is seldom seen in monoamniotic gestations. There is speculation that the donor twin has access to amniotic fluid via the opening so it can correct the oligohydramnios by oral rehydration.
- The vessels on the placental surface can be ablated by neodymium:yttrium-aluminumgarnet laser -Severe twin–twin transfusion syndrome presenting before 26 weeks of gestation should be treated by laser ablation rather than by amnioreduction or septostomy.
- Finally, selective fetoreduction (SFR) can treat TTTS but this method is reserved for refractory cases to other forms of therapy or when in utero death of one of the twins is imminent.

INDUCTION OF LABOR

49. The answer is (a) i.e indomethacin

50. The answer is (a) i.e atosiban

All the drugs given in Q. 49 can be used as tocolytic but indomethacin should not be used beyond 32 weeks as it can lead to premature closure of ductus ateriosus.

TOCOLYTICS

- P–Prostaglandin synthatase inhibitor like indomethacin, sulindac
- C–CA channel blocker-Nifedipine
- O–Oxytocin antagonist-Atosiban
- D–Diazoxide
- Mein–Mg SO4
- NO–Nitric oxide inhibitor-Glyceryl triniitrate
- Periodic–progesterone
- Bleeding–b mimetics-salbutamol, ritrodrine, isoxsuprine, terbutaline

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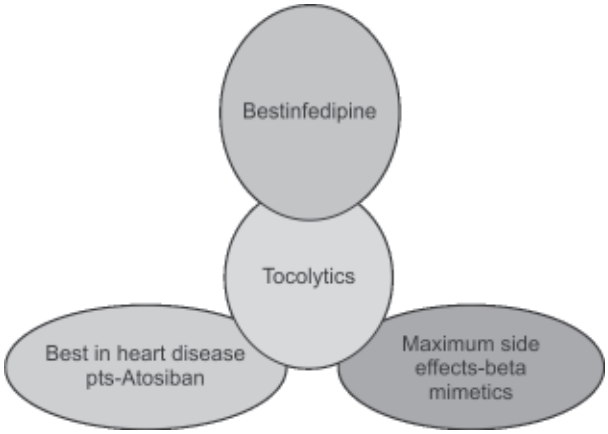
Mnemonic

PCOD Mein No Periodic Bleeding



Role of Tocolytics in Heart Disease

Most of them are contraindicated in pregnancy:

- Safest tocolytic is atosiban (oxytocin antagonist)
- Beta agonist is contraindicated in cardiac arrthymias, valvular disease and cardiac ischemia because of their sympathomimetic side effects such as tachycardia, palpitation and hypotension.
- Nifedipine is contraindicated in conduction defect, left ventricular failure due to side effects as tachycardia, hypotension, etc.

51. The answer is (c) i.e complete placenta previa *(Ref. John Hopkins manual of Obs and gynae-4/e, p 77)*

- Friends there are a number of conditions in which labor can be induced , so for all such Questions remember those conditions in which induction of labor is contraindicated.
- Contraindications for induction of labor-All those condition in which cesarean section necessarily has to be done, are contraindications for induction of labor viz.
- C–Contracted pelvis (Naegles pelvis/Roberts pelvis)/Advanced Cervical cancer
- A–Active genital herpes infection/High viral load HIV
- P–placenta previa/Vasa previa/Cord prolapse

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- U–Uterine scar of classical cesarean section, myomectomy scar, hysterotomy scar
- T–Transverse lie.

MNEMONIC-CAPUT

52. The answer is (c) i.e Early cord clamping

53. The answer is (b) i.e post dated pregnancy

Active Management of 3rd Stage of Labour Includes

- Administering a uterotonic agent after the delivery of the shoulder of the baby.

  The uterotonic agent of choice is oxytocin followed by methylergometrine.
- Delayed cord clamping, so that the blood in the cord (approx. 40–50 ml) goes to the baby and is not wasted.
- Delivery of the placenta by controlled cord traction/Modified Brandt Andrews technique.
- Massage of the uterus after the delivery of the placenta.

Active management of labor-reduces the duration of third stage of labor from 15 minutes to 5 minutes and thus reduces the amount of blood lost, so in turn reduces the chances of PPH and decrease maternal mortality.

The only disadvantage of Active management of labor is, since uterotonic agent is given before the delivery of placenta thus chances of Retained placenta are increased.

Normally in active management of third stage we do delayed cord clamping but in certain conditions early cord clamping is advocated**.**

Indications of Early Cord Clamping:

- Preterm or growth restricted fetus due to risk of hypervolemia (even an extra 40-50 ml of blood can cause CHF in premature infants)
- Birth asphyxia (first immediately resuscitate the baby and then think about anything else)
- Rh isoimmunization
- HIV positive female
- Maternal diabetes .

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54. The answer is (c) i.e Flex mothers thigh against her abdomen.

This patient has shoulder dystocia as head initially progresses beyond the perineum and then retracts which is called as Turtle sign.

Turtle sign positive: Head delivers but retracts against symphisis pubis

Shoulder dystocia (difficulty in delivery of shoulders) Impaction of anterior shoulder of fetus against symphysis pubis after fetal head has been delivered. Occurs when breadth of shoulders is greater than BPD.

Risk factors are:
D – Maternal Diabetes
O – Obesity-maternal and fetal, i.e macrosomia
P – Post term baby
A – Anencephaly: In anencephaly pseudo shoulder dystocia occurs.

Complications: M/C complication is Erbs palsy, klumpkes palsy, fracture clavicle fracture humerus, fracture spine, PPH (due to Injury to perineum), Fetal hypoxia.

Shoulder Dystocia Drill

1st Line of management	2nd Line	3rd Line
• Stop giving fundal pressure • Can give supra-pressure • Best/most effective pubic pressure manouvre-Mc Roberts manouvre (flexion and abduction of thigh)	• Woods Corkscrew manouvre	• Cleidotomy (# clavicle of baby) • Symphiosotomy (divide pubic symphysis of mother) • Zavaneilli manouvre (push head back and do cesarean)

- **Going with the drill,** we should first try 1st line steps and then others, this rules out option d i.e Push infants head back into the uterus and do cesarean section and e i.e do a symphiosotomy.
- Fundal pressure should never be applied in case of shoulder dystocia ruling out option (b).
- This automatically leaves us with 2 options (a) abduct mothers thigh and apply suprapubic pressure and (c) i.e Flex mothers thigh against her abdomen.

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- Now this is common sense that while doing Mc Roberts manouvre we will first flex the patients legs, and then abduct them and not vice versa…so the immediate next step is flex her thighs, i.e option (c).

55. The answer is (d) i.e Speculum examination to rule out leaking and usually assess cervical dilatation and effacement.

In the Q important points to note are:

- Patient is coming in preterm labor-31 and has contractions every 8 mins lasting for 20–30 secs
- She is not sure whether her water bag has broken or not(i.e unsure whether Preterm premature ruture has occurred or not)
- Cephalic presentation and no fetal distress

Now they are asking–Which of the following is the next best step in management:

- Cervical culture for group B streptococci – incorrect as the usual time for screening for GBS is at 36 weks, since this patient is in preterm labor and GBS status is unknown , we will not do culture and wait for the report…by that time she would have already delivered and infant already infected, so we will give her a shot of penicillin as a prophlaxis against GBS
- Digital cervical examination and assessment of dilation and effacement- incorrect as patient isnot sure whether her bag has broken or not, just in case membranes have ruptured, digital examination is contraindicated.

  In case of Preterm Premature rupture of membranes:

  "Only sterile speculum examination should be performed. Avoid digital examination unless delivery is imminent. Digital examination decreases the latency period and increases the risk of neonatal sepsis."

  Ref. John Hopkins manual of obs and gynae 4/e, p128
- Quantification of strength and timing of contraction with external tocometer- not necessary since we have already been given the frequency and duration of uterine contraction.
- Speculum examination to rule out leaking and usually assess cervical dilatation and effacement-this is the logical next step in this patient. In all cases of preterm labor before performing digital examination sterile speculum examination should be done to rule out ruptured membranes and to assess cervical dilatation.

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Preterm labor:

"Sterile speculum examination- done to inspect visually for bleeding, amniotic fluid pooling,advanced dilatation, bulging membranesand purulent cervical discharge.After ruling out PPROM, perform digital examination for dilatation, effacement, and station."

Ref. John Hopkins manual of obs and gynae 4/e, p124

- USG examination of the fetus- Iknow most of you must have thought this option is the correct answer but always read the Q very carefully…they are asking the next best step in manangement—which will be Sterile speculum examination… Always remember not only for exams but also for your practice years , whenever a female come to you in labor, before knowing how much she is dilated donot send her for USG, because if she delivers on the way…next day you will be in news…!!!!!

56. The answer is (a) i.e Sedate the patient and wait

This patient is presenting at 37 weeks of gestation with loss of engagement, 1 cm effacement of cervix and 10 uterine contractions per hour. She is hemodynamically stable and not in distress.

So she could either be in false labor or it could be a case of prolonged latent phase of labor and the best way to distinguish both is to sedate the patient, if patient is in false labor when she will wake up her pains would have subsided and if she is having prolonged latent phase of labor, then when she wakes up she will automatically be in active phase.

Remember-1ST Stage of Labour

Latent phase	Active phase
• Cervical effacement • Begins with true labor pains and ends when cervix is 3 cms dilated • Normal duration-nulli-8hrs • Multi-4-6 hrs (5.3hrs)	• Cervical dilatation • Begins when cx is 3cms dilated and ends when cx is fully dilated • Minm rate of dil-primi-1.2cms/hr • Multi-1.5 cms/hr • Descent begins when cx is 7-8 cms dilated • Friedmann curve-phase of acceleration-phase of maxm slope-deceleration phase

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57. The answer is (c) i.e attempt forceps delivery

In the question points worth noting are:

- Patient is in labor has been completely dilated and pushing for 3 hrs
- She has taken epidural analgesia.
- She is exhausted and her temp is 37.8 ^ c (i.e maternal distress is present)
- FHS is 170/min with decreased variability. (i.e fetal distress is present.
- P/V shows cervix is fully dilated and fetal head is at +3 station.

  This is a case of prolonged second stage of labor with fetal distress.
- Second stage: Normal duration is 0-30 mins for multiparous and 2 hours for nulliparous.
- Prolonged second stage is defined as:

Nulliparous	Multiparous	
>2hr	>1hr	Without epidural analgesia
>3hr	>2hr	With epidural analgesia

- In the question patient is fully dilated i.e she is in second stage of labor and is a primigravida who has taken epidural analgesia, has been pushing for 3 hrsand has still not delivered i.e prolonged second stage.
- Management of prolonged second stage is either instrumental delivery-forceps/ventouse or Cesarean section.

Always Remember 2 Things:

- Forceps are better than vaccum in fetal distress
- In case of fetal distress, with full dilatation of the cervix and station of fetal head at or below +2 station- Forceps are much faster way of delivery than cesarean section.

Here since patient is fully dilated, station of fetal head is +3 and fetal distress is present, so we will opt for forceps.

58. The answer is (b) i.e monitor and follow labor on partogram

The points worth noting in the question are:

- Patient is in labor for one hour
- She belives her water bag has broken
- She has H/O previous LSCS for fetal distress.

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- All P/A examination findings are normal
- Fetal heart rate tracing is normal. (baseline FHS 140/min,beat to beat variability is present, occasional heart rate acceleration of 160/min for 15–20 secs. There are also decelarations to 115–120/min with the onset of contractions- note decelerations at the beginning of contraction signify early decelerations are normal becoz when contraction begins, head of the baby is compressed producing decelaration but it recovers soon)

What is the most appropriate next step in management?

- Augment contractions with oxytocin–personally I would not do it for two reasons
  - She ia a previous LSCS patient
  - Oxytocin should be given to augment labor when the patient is in active phase of labor. Avoid using oxytocin in latent phase as chances of fetal distress and cesarean are increased. (and I know she is still in latent phase probably because she is in labor for 1 hour only)
- Monitor and follow labor on partogram- very logical step and should be done in all patients in labor irrespective of whether he is a previous cesarean section patient or not.
- Obtain immediate consent for LSCS : Why will I do it??? There is no indication for doing cesarean in this patient as her previous LSCS was done for fetal distress not for any recurring cause like contracted pelvis.
- Send the patient for BPS: Again no need as there is no fetal distress or any other indication for doing so.
- Perform urgent aminoinfusion–no need, even if her membranes have ruptured, she is already in labour.

59. The answer is (a) i.e emergency cesarean section

Points worth noting here are:

- Patient is presenting with C/O decreased fetal movements.
- FHR = 180/min with absent variability (i.e fetal distress is present)
- Uterine contractions are present-every 3 minutes
- O/E-Cervix is long /closed/-2 station.

  Friends always remember–The earliest indication of fetal distress is

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known by the mother–whenever a pregnant female complains of decreased fetal movements, do not ignore it- rule out fetal distress and then send the patient back home.

- In this case patient is complaining of decreased fetal movements and fetal heart rate is 180 i.e fetal distress is present so. **Option a**– i.e emergency cesarean section should be done. Since cervix is not favourable and fetal distress present we cannot wait for vaginal **delivery.**

Also know

Fetal kick count- This is the simplest test for fetal surveillance, is least expensive and least invasive of all tests for fetal surveillance.

Technique

Ref: John Hopkins manual of obs and gynae 4/e, p 90

Cardiff Technique	Sadovsky Technique
Involves maternal counting of fetal movements When she gets up in the morning and recording the time required for the fetus to move ten times. On an average this should take 2 to 3 hrs, longer Time periods should prompt the mother to call her Physician for further fetal testing.	Here mother counts fetal movements for 1 hour , this test is usually performed after Meals when the patient lies in left lateral position. To be considered as reassuring 4 or more movements should be present In an hour .If 4 movements are not felt in First hour, she should repeat it for another Hour and if 4 movements are not present in 2 Hours, patient should consult her gynaecologist.

Management after Abnormal Results

After the observation of decreased fetal movement, the next sequential step to evaluate fetal well being is a non stress test.

60. The answer is (d) i.e She should continue to monitor kick count and return to you after a week to reassess the situation

Ref. Williams obs 23/e, p 832 and 839

- This patient is presenting at 41 weeks with uncomplicated pregnancy and good fetal kick count, i.e there is no fetal distress. I n such a

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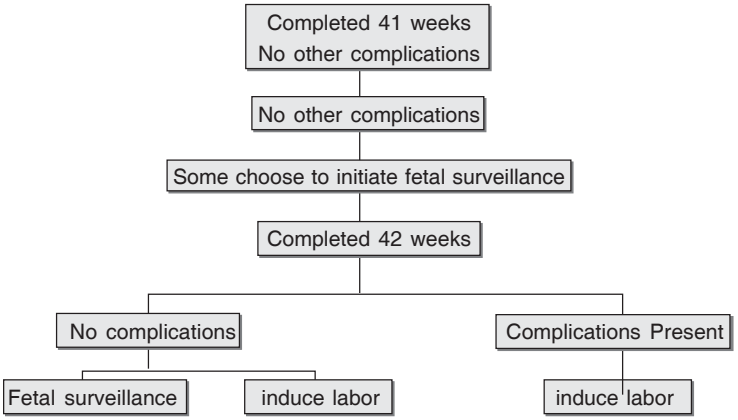
situation i.e in uncomplicated pregnancies maximum we can wait uptil 42 weeks for spontaneous labor pains.

- The international definition of prolonged /postterm pregnancy, endorsed by ACOG is 42 completed weeks or 294 days days or more from the Last menstrual period. Pregnancies between 41 weeks and 1 day and 41 weeks and 6 days, although in the 42nd week, do not complete 42 weeks until the seventh day has elapsed.
- Protocol for management of pregnancy at or beyond 41 weeks.

Ref. Williams 23/e, p 839



Thus it is clear in patients with no complications we can wait till completed 42 weeks of pregnancy.

Since in this patient ,cervix is 50% effaced and 1 cm dilated and vertex is at -1 stn. Clinically when I would have got this parient I would have done sweeping and stretching of membranes, and sent her back home and she would have returned after a day or two with labor pains.

61. The answer is (d) i.e LSCS

Again in this question patient is a primi patient who has been dilated to 9 cms for the past 3 hours, i.e it is a case of arrest of dilatation.

Remember

Abnormalities of active stage of labor

Protracted Active Phase:

- Nulliparous–cervix dilates by < 1.2 cms/hr or descent of fetal head is < 1cm/hr

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- Multiparous – cervix dilates by < 1.5 cm/hr or descent of fetal head is < 2cm/hr
- **Arrest of dilatation–**no dilatation for >2hrs
- **Arrest of descent–**no descent for > 1hr.

In this patient fetal scalp ph was 7.27 earlier and now after 20 mins it is 7.20 signifying fetal acidosis which should be managed immediately by doing a cesarean.

Fetal scalp ph-Fetal capillary scalp blood pH can be used to identify fetuses in serious distress

Ph of scalp = ph of umblical arterial blood and is lower than umblical venous blood

If pH > 7.25-normal
If pH is between 7.20 to 7.5 repeat within 30 minutes
If it is ≤ to 7.2 cesarean section should be done.

62. The answer is (c) i.e perform immediate cesarean section

The Points Worth in this Question

Patient at 40 weeks' gestation presents in labor, everything is normal, contractions/patients vitals and FHS, cervix is 4 cms dilated and station of fetal head is–3 position i.e it is not engaged, and the moment membranes are ruptured, fetal bradycardia occurs (fetal distress occurs) signifies cord prolapse since the head was not fixed.

Management of Cord Prolapse if Baby is Alive:

- Emergency cesarean section
- Forceps delivery only if station of fetal head is below or at +2 station and cervix is fully dilated.

63. The answer is (c) i.e fetal weight

Cord prolapse is an obstetric emergency. After cord prolapse when the cord gets expoed to external environment the whole cord goes into spasm, leading to severe decelerations in fetal heart rate and fetal distress. If the fetus is alive and mature enough for survival, immediate delivery should be done.

Risk factors for cord prolapse include:

1. Long cord

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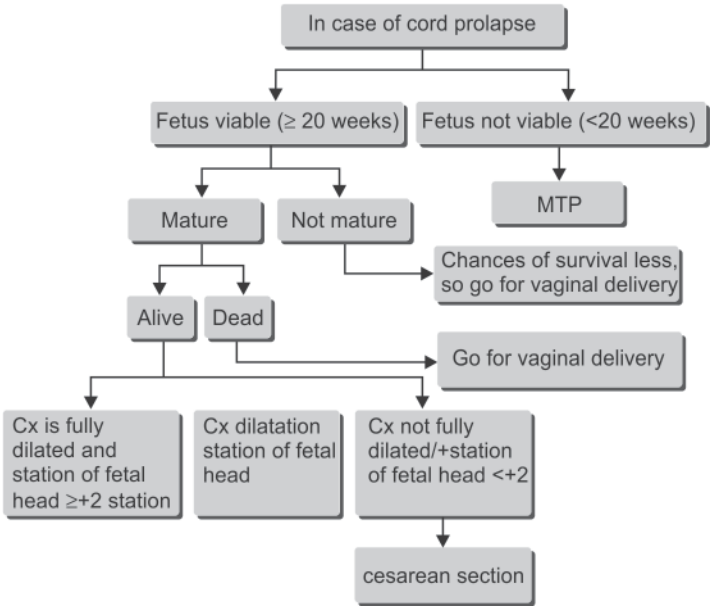
2. Polyhydramnios
3. Abnormal lie (transverse, breech, and oblique)
4. Multiple pregnancies
5. Floating (unengaged) head



64. The answer is (e) i.e Prolonged second stage of labor due to adequate uterine contraction strength.

- Now friends in this question there is a trap, the question which is asked is unrelated to the clinical scenario described before the question.
- The question is simply asking the condition in which we can use forceps:
  - **Option a. Fetal distress during active stage of labor**- now friends, active stage of 1st stage of labor begins when cervix is 3 cms dilated and ends when cervix is fully dilated and one of the prerequisites of forceps is that cervix should be fully dilated thus forceps cannot be applied in the active stage of first stage of labor. In case of fetal distress occurring in

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active stage of labor the only treatment option is cesarean section.

- **Option b. Labor complicated by shoulder dystocia**-forceps are not used, management is Mc Roberts manouvre.
- **Option c. Prolonged active stage of labor due to inadequate uterine contraction strength**-management is oxytocin to increase uterine contraction strength, again we have already discussed forceps shouldnot be used in active phase of labor.
- **Option d. Prolonged latent stage of labor due to inadequate uterine contraction strength**-again latent phase of labor is when cervix begins dilating and lasts uptil it is 3 cms and so forceps cannot be applied.Prolonged latent phase is managed by therapeutic rest.
- **Option e. Prolonged second stage of labor due to adequate uterine contraction strength.** Second stage of labor begins when cervix is fully dilated and ends with the delivery of the baby, so logically in this stage forceps can be applied if uterus is contracting (which is so in this patient also)

NOTE:

Indications for forceps delivery:

- Fetal distress in the second stage of labor
- Maternal distress in the second stage of labor
- Prolonged second stage of labor
- Prophylactic use of forceps is done when mother has heart disease or PIH, to cut short the second stage of labor.

Also Note

In the clinical scenario given before the question patient is a multigravida who is fully dilated (i.e is in second stage of labor) and has been pushing for 3 hours without delivering i.e there is prolonged second stage of labor.

Second stage-normal duration is 0–30 mins for multiparous and 2 hours for nulliparous.

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Prolonged Second Stage is Defined as:

Nulliparous	Multiparous	
>2hr	>1hr	Without epidural analgesia
>3hr	>2hr	With epidural analgesia

65. The answer is (a) i.e Fetus should be vertex prestation or face presentation with mentoanterior

66. The answer is (d) i.e occipitomental

67. The answeris (c) i.e low forceps *(Ref. Dutta 7/e p 573, 575 williams 23/ed p 513)*

F = **F**avourable head position and station
O = **O**pen OS (fully dilated)
R = **R**uptured membranes
C = **C**ontractions present and consent taken
E = **E**ngaged head, empty bladder
P = No major C**P**D
S = **S**tirrups, lithotomy position

Classification of forceps delivery according to station and rotation

Type of Procedure	Criteria	Forceps used
A High forceps	• Vertex not engaged • No longer used	Kielland forceps
B Mid forceps	• Head is engaged but presenting part/station is above +2	Andersons or simpsons forceps
C Low forceps	• Station is more than + 2 but has not yet reached the pelvic floor Rotation can be more or less than 45°	
D Outlet forceps	• Station is more than + 2 and fetal skull has reached the level of pelvic floor • Scalp is visible at the introitus without separating the labia • Fetal head is at or on the perineum • Sagittal suture is indirect AP diameter or Rt or Lt occipito anterior or posterior position • Rotation is < 45°	Wrigley's forceps

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NOTE:

- The most important point of reference in the use of forceps is the station of Biparietal diameter.
- Usually forceps should not be applied if head is above + 2 station and if head is unengaged.

Presentations in which Forceps

Can be Applied	Cannot be Applied
• Vertex	
• Deep Transverse arrest	(only after manual rotation)
• After coming head of breech	(Forceps used–Pipers forceps)
• Face-mento anterior presentation	(Note-Forceps cannot be applied only in those conditions in which cesarean section has to be done) Transverse lie
• Brow presentation	
• Face-mento posterior presentation	

Coming to Q 65

- **Option a:** Fetus should be in vertex or mentoanterior position is correct
- **Option b:** Sagittal suture should be less than 15° from antero posterior plane is incorrect

  Forceps can be applied till maximum 45° rotation
- **Option c:** There should be no caput succedaneum- Again incorrect as presence of caput succedaneum is not a contraindication for forceps application
- **Option d:** Head should be at zero station also incorrect as outlet forceps is applied when head reaches the perineum

66. Forceps should be applied along occipeto mental diameter of fetus.

67. Extraction of fetus from +2 station by forceps classifies it as low forceps

68. The answer is (b) i.e Face presentation

Attitude of the fetus means the relationship between the different parts of fetus:

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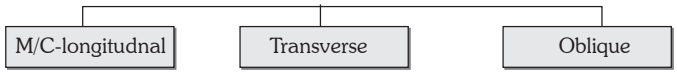
- Normally all the parts of fetal body are flexed, i.e the fetus lies in an attitude of flexion, now this is common sense that when there is face presentation the head has to be extended, i.e a deviation from the the normal attitude.
- Important Terms Frequently Asked
- Fetal lie: Refers to relation of long Axis of fetus to long axis of mother



Fetal presentation- Refers to the part of the fetus which occupies the lower part of the uterus.

Lie	Presentation
Longitudnal	m/c- Cephalic followed by Breech Thus M/C malpresentation is breech
Transverse	Shoulder So whether in question it mentions fetus is in Transverse lie or whether they say Shoulder presentation it means the same and should be managed by cesarean. Also in dead fetus with transverse lie best management is cesarean section.

- Fetal presenting part-It is that part of the presentation which overlies the internal os.
- In cephalic presentation the most common presenting part is Vertex, since head of the fetus is flexed mostly.
- Others could be Brow or face presentation, depending on the degree of extention.

NOTE: In brow–always cesarean section is done whereas in face presentation if it is mentoanterior, vaginal delivery can be tried but if it is mentoposterior cesarean has to be done.

- Fetal position is the relationship of point of direction of presenting part to one of the four quadrants of maternal pelvis. Most common being Left Occipito transverse followed by Left occipito anterior.
- M/C fetal malposition is occipito posterior position (management is wait and watch).

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69. The answer is (b) Send the patient to labor and delivery immediately for an emergent CS

Now here patient has come for routine antenatal visit, during which it was discovered that the fetus is breech.

Points worth noting are:

- Gestational age is 37 weeks.
- On vaginal examination the cervix is 50% effaced and 1- 2 cm dilated.
- The presenting breech is high out of pelvis, i.e it is not engaged and version can be attempted.
- The estimated fetal wt. is about 7 lb (i.e it is not much that vaginal breech delivery cannot be attempted)
- Usg confirms fetus is in frank breech position, there is a normal amount of amniotic fluid present, and the head is well flexed.(all factors favoring version and vaginal breech delivery).
- Since patient is 37 weeks pregnant and presenting part is high out of the pelvis , amount of amniotic fluid is adequate so we can attempt external cephalic version and yes since version carries a risk of fetal distress and cesarean section. I will give the patient a chance to discuss with her family members and come back to me in a few days if she wishes for external cephalic version. (i.e option d is correct).

Another option in this case would be to allow the patient to undergo a vaginal breech delivery whenever she goes into labor .i.e option is correct.

Now both version and vaginal breech delivery carry a risk to the fetus so if patient refuses to take any risk I will advise her to go for an elective cesarean section at or after 39 weeks, there is no need /indication for an emergency cesarean section and hence option b is the answer.

70. The answer Version 1 is (b) i:e 24 hrs after delivery

70. The answer Version 2 is (d) i:e during third trimester of pregnancy *(Ref. Internet search)*

Kiegels exercise are pelvic floor exercises which consists of contracting and relaxing the muscles that form part of the pelvic floor.

The aim of Kegel exercises is to improve muscle tone by strengthening the pubococcygeus muscles of the pelvic floor.

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Kegel exercises are good for treating vaginal prolapse, preventing uterine prolapse and to aid with child birth in females and for treating prostate pain and swelling resulting from benign prostatic hyperplasia (BPH) and prostatitis in males.These exercises reduce premature ejaculatory occurrences in men as well as increase the size and intensity of erections.

Kegel exercises may be beneficial in treating urinary incontinence in both men and women(The treatment effect might be greater in middle aged women in their 40s and 50s with stress urinary incontinence alone...".)

Kegels exercises Time for initiating kegels exercise:

- Pregnancy-1st trimester
- After vaginal delivery-after 24 hrs
- After cesarean section-after 24 hrs.

Thus in version 1 answer to the question is 24 hrs after delivery and in version 2 answer is 3rd trimester of pregnancy

Limitations of Kegels Exercises *(Ref: Jeffcoates 7/e, p 286)*

- Kiegels exercise has a limited effect as it affects mainly voluntary muscles viz bulbocavernous, levator ani, superficial and deep transverse perineal muscles and not the main fascial supporting tissues.

71. The answer is (a) i.e a. continue breast feeding from both the breasts

72. The answer is (b) i.e dicloxacillin

In q 71: The patient at post partum day 10 is presenting with pain in her right breast.

Her right nipple has become dry and cracked, and it has become increasingly swollen and painful. Her temperature is 38.3°C (101°F). Her right nipple and areola are warm, swollen, red, and tender. There is no fluctuance or induration, and no pus can be expressed from the nipple – these findings are suggestive of mastitis.

In mastitis the recommended therapy is pencillinase resistant beta lactam antibiotics like dicloxacillin and if patient is sensitive to penicillin Erthromycin is the drug of choice.

Mastitis is not a contraindication for breast feeding and patient should continue breast feeding even from the affected breast.

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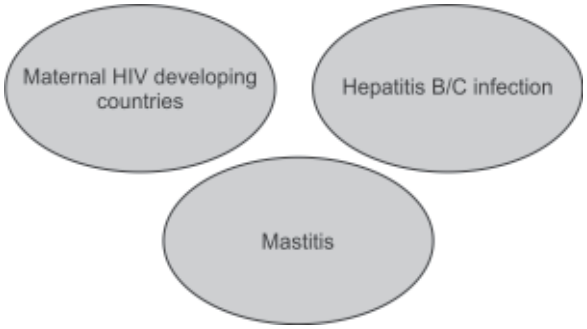
Similarly in Q72 patient is having mastitis for which the DOC is dicloxacillin.

Also know–C/I of Breast Feeding

Maternal Conditions	Fetal Conditions
• Human T cell leukemia • Undergoing treatment for breast cancer • Taking any anticancer/teratogenic drug • Active TB infection • Active herpes simplex leisons on breast • Clinically infectious varicella leison	• Galactosemia • Lactose intolerance

Breast Feeding is not C/I in



73. The answer is (d) i.e. Warfarin is not a contraindication for lactation

Remember:

- Warfarin is contraindicated in the first trimester of pregnancy as it can lead to contradi syndrome comprising of microcephaly, optic atrophy , nasal hypolplasia and chondrodysplasia punctate.It can also lead to IUGR, abortions and IUD.
- But warfarin is absolutely safe during lactation as an extremely minute quantity of it is excreted in breast milk .

74. The answer is (c) ie. Reassurance.

This patient is a puerperal female who is complaining of bloody vaginal discharge with no other signs. O/E there is a sweetish odour bloody

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discharge on the vaginal walls and introitus.Her vitals are normal suggesting that this cannot be PPH (The most common cause of secondary PPH is retained bits of placenta for which curettage is done, but here it is not required) .

Slight amount of bloody discharge called as lochia is absolutely normal for the first 15 days after delivery and doesnot require any treatment , so we will reassure the patient and do nothing.

Donot get confused with the finding of WBC count, 10,000 with predominant granulocytes as this is a normal finding in the puerperal period Note- leucocytes can rise to as high as 25ooo during puerperium probably as a response to the stress of labor). Since lochia has no foul smell it means no infection and so no need for culture or antibiotics.

75. The answer is (b) i.e PGF2A

This is a case of Atonic PPH as the patient has presented with vaginal bleeding immediately after delivery and uterus is not palpable per abdominally, i.e it has lost its tone.

In Atonic PPH the first step in management should be uterotonic agents like oxytocin or methylergometrine and if bleeding is not controlled by using either of it , straightaway PGF2a i.e carboprost should be used.

NOTE:

- If patient would have been an asthamatic then our answer would have been misoprostol since PGF2a is contraindicated in them.
- If patient would have presented 24 hours after delivery then the answer would have been Dilatation and curettage as the most common cause of secondary PPH is retained placental bits.

76. The answer is (d) i.e factor 11

Pregnancy is a hypercoaguable state, all clotting factors increase in pregnancy except factor 11 and 13.

Another frequently asked question is what happens to fibrinogen levels during pregnancy-since fibrinogen is clotting factor number 1 therefore it also increase in pregnancy.

Also Remember

Pregnancy Causes Increase in Concentrations of: *(PGI 2001)*

- Globulin
- Fibrinogen

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- Transferrin and Total iron binding capapcity
- Leukotrienes.

77. The answer is (c) i.e 36 weeks

Anticoagulants in Pregnancy

2 main anticoagulants are:

Warfarin	Heparin
Can cross placenta Leads to-short stature, Stippled epiphysis, warfarin and pregnancy Nasal hypoplasia, pregnancy Saddle nose and frontal Bossing if used in 1st Trimester. Advantage- it is highly effective anticoagulant.	Cannot cross placenta and so does not lead to fetal defects But it is not as effective as is a hypercoaguble state. During pregnancy unfractionated heparin is used. LMWH can be used during pregnancy but should not be used in pregnant patients with valves replaced.

Keeping these things in mind, during pregnancy anticoagulants are used.

Period of gestation	Anticoagulant used
Uptil 12 weeks	Unfractionated heparin
12-36 weeks	Warfarin
36 weeks onwards anduptil 6hrs before delivery	IV heparin (since if warfarin is continued after delivery PPH can occur)
From 6 hrs after vaginal delivery and 24 hrs after cesarean	Restart heparin
3rd day after delivery	Start warfarin and stop heparin once INR is adjusted between 2-3

78. The answer is (c) i.e Pregnancy specific beta1 glycoprotein

Schwangershaft Protein:

- It is the other name for pregnancy specific B1 glycoprotein.
- Produced by trophoblast.
- Can be detected 18 days after ovulation.
- Its concentration rises steadily and reaches 200mg/ml at term.
- Role-measure of placental function for fertility control.

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79. The answer is (d) i.e Increased activity of ureters

80. The answer is (b) decr GFR

Changes in Renal System During Pregnancy



Renal System

- Size of kidney ↑ 's (1 cm longer)
- Dilatation of kidney resembling hydronephrosis
- Ureter – Dilatation (Right > Left) → occurs in midpregnancy
- Ureteral elongation *which* resembles angulations on X-ray.
- Bladder – due to ureter dilatation = hyperemia occurs.

Now with this background lets have a look at Q79 –In this question there is no doubt about option a i.e increased GFR and option b i.e. Increased RBF during pregnancy. Hypertrophy of the bladder can also occur due to hyperemia but in pregnancy activity of the ureters doesnot increase as there is ureteric stasis due to the smooth muscle relaxant effect of progesterone.

In PIH- B/P of the patient increases so volume of blood reaching kidney decreases as pressure and volume are inversely related , in other words Renal Blood Flow decreases , so GFR decreases. (Ans 80)

81. The answer is (b) i.e 3 – 8 weeks after conception

Fetal Growth Periods

Growth Pd	Seen From	Imp Points
Ovulation Pd	Fertilisation-2 weeks	
Embryonic Pd	3 weeks-8 weeks	Most threatogenic period
Fetal Pd.	>8 weeks and till delivery	

82. The answer is (a) i.e Bimastoid

Friends always whenever you get a question on fetal head diameters keep the following points in mind and your question will be solved:

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- Always transverse diameters of fetal head are smaller than the Anteroposterior diameters.
- The transverse diameters of fetal head can be remembered by Mnemonic

  Miss Bimastoid
  Tina Bitemporal
  So Supersubparietal
  Pretty Bi Parietal

  In this order, where smallest is Bi mastoid and largest Bi Parietal.
- Amongst Anteroposterior diameters, Mentovertical 14 cms is the largest followed by Submentovertical and Occipitofrontal both being 11.5 cms.

Now coming to the question , which has the smallest amongst the given options:

a. Bimastoid
b. Bitemporal
c. Occito frontal
d. Submento vertical

Here occipitofrontal and submentovertical ar AP diameters and so obviously are bigger than the other two transverse diameters.Between the remaining two, Bimastoid is smaller. (Miss Tina So pretty)

83. The answer is (c) i.e 3rd degree tear.

Classification of Perineal Tears

Degree of perineal tear	Structures involved
1st degree	Only vaginal mucosa and perineal skin involved, but not the underlying fascia and muscle
2nd degree	IInvolves the vaginal mucosa, perineal skin and the fascia and muscles of perineal body.
3rd degree	Involves the vaginal mucosa, skin and perineal body and the anal sphincter is also disrupted.
4 th degree	In addition , the rectal mucosa is also involved.

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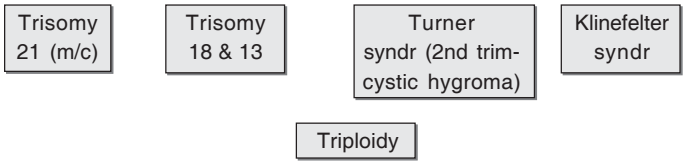
84. The answer is (b) 11-13 weeks

Nuchal translucency is the maximum thickness of the subcutaneous translucent area between the skin and soft tissue that overlies the fetal spine in sagittal plane.

- Measured between 11–13 weeks
- NT-upto 3mm is normal and > 3 mm is marker for Downs syndrome(60% cases)
- Nuchal fold thickness > 5mm is the most imp sonographic marker of aneuploidy in second trimester

Causes of Increased Nuchal Translucency



85. The answer is (c) Chorionic villi sampling *(Ref: Fernando Arias 3/e p 38-40, Williams Obs 23/e, p 300)*

Friends: In Patients with previous H/O Down's syndrome the only confirmatory test, which tells us with 100% reliability of the chances of Down's syndrome in present pregnancy is **"Karyotyping"**

The sample for karyotyping can be obtained in first trimester by–chorionic villi sampling and in 2nd trimester by amniocentesis.

So: Obviously we will think of marking option 'c' i.e. chorionic villi sampling as the correct answer BUT. The Question specifically mentions that patient is 9 weeks pregnant and we all know that if CVS is done before 10 weeks– it can lead to limb reduction defects and oromandibular defects in the fetus/Some people argue CVS is not the correct thing to do, at this stage.

Read for yourself what Williams has to say on this issue.

"Early reports of an association between CVS and limb. Reduction defects and oromandibular limb hypogenesis caused a great deal of concern (Burton, 1992; Firth, 1991, 1994; Hsieh, 1995, and all their colleagues). Subsequently, it was shown that limb-reduction defects were associated with CVS performed earlier in gestation—typically around 7 weeks" *(Ref. Williams Obs 23/e, p 300)*

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Also Know

Diagnostic Tests for Down Syndrome		
In first trimester	– Chorionic villous biopsy	
In second trimester	– Amniocentesis	
Overall best test for diagnosis is Amniocentesis		
Screening test for down syndrome		
1st trimester	– Serum PAPP - A^Q	Combined test
	– Serum hCG^Q	
	– USG-Nuchal translucency	
In 2nd trimester	– Triple test	
	– Quadruple test	
	– USG	

Test not done for diagnosis of Down syndrome–Amniotic fluid estimation.

Triple Test - Includes

- HCG
- Estriol
- Alpha feto protein (Maternal).

In Downs Syndrome

HCG ↑ AFP ↓ Estriol ↓

(Remember h = for HCG and h for high)

In Edwards Syndrome

HCG ↓ AFP ↓ Estriol ↓

Quadrple Test is done for Downs Syndrome

It involves Triple Test Plus Inhibin

1. Alpha fetoprotein
2. HCG
3. Estriol
4. **Inhibin:** Note levels of inhibin are increased in Downs. Syndrome. (Remember I = for Inhibin and I for increased)

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USG Markers of Downs Syndrome in 2nd Trimester

Echogenic bowel	ASD/VSD
Duodenal atresia (double bubble sign-30% have down)	Cystic hygroma
Single umbilical artery	Ventriculomegaly
Cong diaphragmatic hernia	Choroid plexus cyst
Exomphalos	Sandal gap
Annular pancreas	5th finger middle phalanx hypoplasia
	Short femur and humerus

86. The answer is (b) i.e cleft palate

87. The answer is (a) i.e fetal loss *(Ref. Williams obs 23/e, p300, textbook of obs, Sheila balakrishnan p 607)*

Chorionic Villus Sampling:

- Done at 10–12 weeks preferebly
- Done transcervically: 10–12 weeks
- Done transabdominally: 10 weeks to term.
- M/C complication is-Fetal loss
- If done before 9 weeks it results in oromandibular limb defects
- Chorionic villi sampling can detect
  i. Chromosomal anomaly of the fetus like downs syndrome
  ii. Metabolic diseases like- Gauchers disease, Tay sachs disease, Niemann pick disease, Phenylketonuria
  iii. Hemoglobinopathies –sickle cell anemia, Hemophilia

But it cannot detect structural defects like Neural tube defects, cleft lip and cleft palate…ans 86

As far as Q 87 is concerned I know most of you will say answer should be oromandibular limb defect…but read the question very carefully, they are asking M/C complication at 4 weeks, now at 4 weeks the gestational sac is hardly formed …no limbs are formed and all cells are totipotent so here the answer will be fetal loss.

88. The answer is (b) i.e 1000 milli IU/ml

89. The answer is (b) i.e The accuracy of determining gestational age using ultrasound begins to decrease after first.

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90. The answer is (c) i.e. Crown rump length on abdominal or vaginal examination.

USG in Pregnancy

Earliest sign of pregnancy on USG is–appearance of Gestational sac.

In case of ectopic pregnancy a pseudogestational sac is visible so. The confirmatory sign /First sign of intrauterine pregnancy is Appearance of yolk sac and not gestational sac.

Structure	TVS	TAS
Gestational sac	4 weeks 5 days	5 weeks
Yolk sac	5 weeks	7 weeks
Fetal cardiac activity	6 weeks	7-8 weeks

- An intrauterine Gestational Sac should be seen by TVS when maternal serum Bhcg level is 1000-1200 micro IU/ml and by TAS with levels of 3000-6000 micro IU/ml.
- Gestational sac is eccentric and can be seen at 4weeks and 5 days on TVS
- Double decidua sign of gestational sac is due to interface between the decidua and the chorion , which appears as 2 distinct layers of wall of the gestational sac and differentiates gestational sac from pseudogestational sac of ectopic pregnancy.

USG is Done in Pregnancy

A. To confirm pregnancy

B. To confirm the no of fetuses

C. To detect congenital anomaly-
   - Earliest congenital anomaly detected by USG is anencephaly
   - Earliest time to diagnose anencephaly-10 weeks
   - Anencephaly is best diagnosed at 14 weeks
   - To detect all congenital anomalies single scan should be performed at 16-20 weeks
   - Marker for Downs in 1st trimester on USG are –Absent nasal bone and increased nuchal translucency
   - Banana and Lemon sign are seen on USG in case of -Spina Bifida

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D. To confirm gestational age:

Trimester	USG parameter used
1st Trimester	CRL-crown rump length
2nd Trimester	HC (head circumference)>BPD (biparietal diameter)
3rd Trimester	FL (femur length)>HC, BPD
Overall best parameter and best time to confirm gestational age is	CRL and first trimester.

E. To assess fetal growth–Best parameter-AC (abdominal circumference).

Thus Best USG parameter to detect macrosomia as well as IUGR is – Abdominal circumference.

Coming to Q 89- The question is asking about first trimester USG-

Option a. A gestational sac can be first seen 2 weeks after LMP – incorrect as it is seen at 4 weeks, 5 days after LMP

Option b. The accuracy of determining gestational age using ultrasound begins to decrease after first trimester- correct as the best time to determine gestational age is first trimester.

Option c. Yolk sac is the first sign of pregnancy on USG- Incorrect as the first sign of pregnancy on USG is Gestational sac, first sign of intrauterine pregnancy is yolk sac.

Option d. USG can be used to determine the sex of the baby yes USG can determine sex of the baby but not in first trimester

Sex of the baby can be determined confirmedly on USG at 14 weeks.

91. The answer is (d) i.e. Congenital nephrotic syndrome *(Ref. Williams 23/e, p 291, Fernando arias 2/e, p38)*

Alpha Fetoprotein:

- It is a glycoprotein[a] synthesied by the fetal yolk sac[a] in the early weeks of gestation and by the gastrointestinal tract and liver later.
- Concentration AFP is maximum in fetal serum at 13 weeks. Maximum concentration of AFP is seen in fetal serum.

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- AFP passes from the fetus to the amniotic fluid by the way of urine and can be detected in amniotic fluid by amniocentesis (diagnostic test)
- It passes into the maternal serum by diffusion and can be detected in maternal serum after 12 weeks
- Maternal screening is done between 15-20 weeks. In maternal serum levels peak at 32 weeks.

Cut off Levels of AFP- 2.5 Multiple of Median

AFP is Increased	AFP Decreased
Wrong gestational age	G-gestational trophoblastic tumors, gestational diabetes
NTDs	O-overestimated gestational age, maternal obesity
Abdominal wall defects- Omphalocele gastrochisis	A-abortions
Multiple pregnancy	T- trisomy 21
Renal anomalies	
Fetal bladder tumors	
Pilonidal sinus	

Other Related Points to be Remembered:

- Fetal serum contains AFP in a concentration 150 times that of maternal serum.
- Acetyl cholinesterase levels in amniotic fluid is more specific than AFP in predicting Neural tube defects

Amniocentesis

Can detect everything which Chorionic villi sampling can detect and in addition since levels of Alpha fetoprotein can be measured, it can detect Neural tube defects.

Therapeutic Indications for amniocentesis

First Half of Pregnancy:

- Induction of abortion (Instillation of chemicals e.g; hypertonic saline, urea, prostaglandin)
- Repeated decompression of the uterus in acute hydramnios.

Second Half of Pregnancy:

- Decompression of uterus in unresponsive cases of chronic hydramnios

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- To give intrauterine foetal transfusion in severe hemolysis following Rh-isoimmunisation.
  - Time for performing amniocentesis- 16-20 weeks
  - A 20–22 gauze spinal needle is used.
  - Length of needle is 4^2 (014inches or 10 cm)
  - Amount of amniotic fluid to be collected for diagnostic purposes is 10 ml.

Precautions for Amniocentesis:

- Prior USG localization of placenta to prevent feto-maternal bleeding.
- Prophylactic administration of 100 microgram of anti-D Ig in Rh-negative non- immunised mother.

Preferred Sites for Amniocentesis

Early Months: 1/3rd of the way up the uterus from symphysis pubis

Later Months:

- Trans-isthmic suprapubic approach after lifting the presenting part OR
- Through the flanks in between the foetal limbs OR
- Below the umbilicus behind the neck of the fetus.

Hazards of Amniocentesis

Maternal Complications	Fetal Complications
• Infection • Hemorrhage(placental or uterine injury) • Premature rupture of the membranes • Premature labor	Trauma Feto-maternal Hemorrhage

92. The answer is (c) i.e. An indicator of considerably increased incidence of major malformations of the fetus *(Ref: Williams obs 23/e, p 582)*

Single Umblical Artery:

- Seen in 0.7-0.8% single pregnancy and 5% twin pregnancy
- Increased incidence is seen in Diabetic pts, black pts, with eclampsia, APH, hydramnios and oligohydramnios

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- Finding of a single umblical is not insignificant as it means increased incidence of congenital malformations(renal/genital), Trisomy 18 and abortion, IUGR, preterm labor in the fetus.

93. The answer is d i.e misoprostol Ref Internet search

Mobius Syndrome:

- **Möbius syndrome** is an extremely rare congenital neurological disorder which is characterized by *facial paralysis* and the inability to move the eyes from side to side.
- Most people with Möbius syndrome are born with complete facial *paralysis* and cannot close their eyes or form facial expression.
- They have normal intelligence
- Möbius syndrome results from the underdevelopment of the *VI* and *VII cranial nerves*
- **Causes:** The causes of Möbius syndrome are poorly understood. Möbius syndrome is thought to result from a vascular disruption (temporary loss of bloodflow) in the brain during prenatal development. There could be many reasons for the vascular disruption leading to Möbius syndrome.The use of the drugs *misoprostol* or *thalidomide* by women during pregnancy can lead to mobius syndrome.

94. The answer is (e) i.e. ethyl alcohol *(Ref: Williams obs 23/e, p)*

Maternal abuse-and abnormalities associated.

Smoking Leads most commonly to -IUGR:

- There are increased chances of preterm delivery, placenta previa, abruptio and Abortion.
- It leads to Congenital heart defects, gastrochisis and small intestine atresia, cleft lip and palate in the fetus.

Maternal Alcohol abuse-leads to *(Ref. Wi lliams Obs 23/e, p317)*

Fetal Alcohol Syndrome diagnostic criteria- all required

i. Dysmorphic facial features-
   a. Small palpebral fissures
   b. Thin vermilion border
   c. Smooth philtrum

ii. Prenatal/and or postnatal growth impairment

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iii. **CNS abnormalities:**
   a. Structural: Head size < 10 percentile, significant brain abnormalit y on imaging
   b. Neurological
   c. Functional Global cognitive or intellectual deficits, functional deficits in atleast three domains.

Alcohol Related Birth Defects:

i. **Cardiac-**atrial or ventricular septal defect, aberrant great vessels, conotruncal heart defects.
ii. **Skeletal-**radioulnar synostosis, vertebral segmentation defects, joint contractures, scoliosis.
iii. **Renal-**aplastic or hypoplastic kidneys, dysplastic kidneys, horse shoe shaped kidney, ureteral dilatation.
iv. **Eyes-**Striabismus, ptosis, retinal vascular abnormalities, optic nerve hypoplasia.

   Ears-Conductive or neuriosensory hearing loss

   Minor-Hypoplastic nails, clinodactyly, pectus carinatum or excavatum , camptodactyly, **hockey stick** palmar crease, **railroad track** ears.

Maternal Opiate abuse: After birth children generally appear normal or have small head size,have tremors, irritabilty, sneezing, and vomiting.

- Symptoms lastfor < 10 days
- Abnormal respiratory function during sleep can lead to sudden death .

95. The answer is (a) i.e. Glucose challenge test *(Ref. Read below)*

Points worthnoting here are:

Patient is presenting to antenatal clinic at 24 weeks for routine check up and a coincidental finding on USG is fetus at 24 weeks of gestation in frank breech position, with no other abnormalities.

Now friends at 24 weeks, breech should not worry you as most of the times it spontaneously rotates and be comes cephalic at term.Thus

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options c i.e ECV, d i.e immediate LSCS and e i.e immediate induction and vaginal delivery are ruled out.

Culture for Neisseria gonorhhea and Chlamydia trachomatis. It is normally done at initial visit and in certain high risk groups at 32-36 weeks along with group B streptococcal screening, so it is also ruled out.

24 weeks gestational age is the correct time for screening for gestational diabetes therefore we will do Glucose challenge test with 50 gms of glucose.

Friends, mentioning about breech presentation was just given to confuse you, actually examiner wants to know whether you know the correct time for different screening tests or not.

96. The answer is (d) i.e. FHR ranging from 110-120 bpm over a period of 40 mins.

97. The answer is (c) i.e sinusoidal heart rate pattern.

98. The answer is (e) i.e. Instruct the patient to go to labor and delivery for a nonstress test.

99. The answer is (c) i.e. The results are normal and she can go home *(Ref. Management of high risk pregnancy Manju Trivedi, SS puri p 62)*

CTG IMP Points

Character	Normal	Abnormal
Baseline FHR	110-150 beats per minute	<110 to >150 bpm or variabilty, 5 bpm or presence of decelerations
Baseline variability	10-25 beats per minute	<5 bpm for >90 min or sinusoidal pattern
Accelerations	2 (of atleast 15 bpm lasting for 15 sec) in 20 min	None in 40 min
Decelerations	None	Decrease in FHR by 15 bpm

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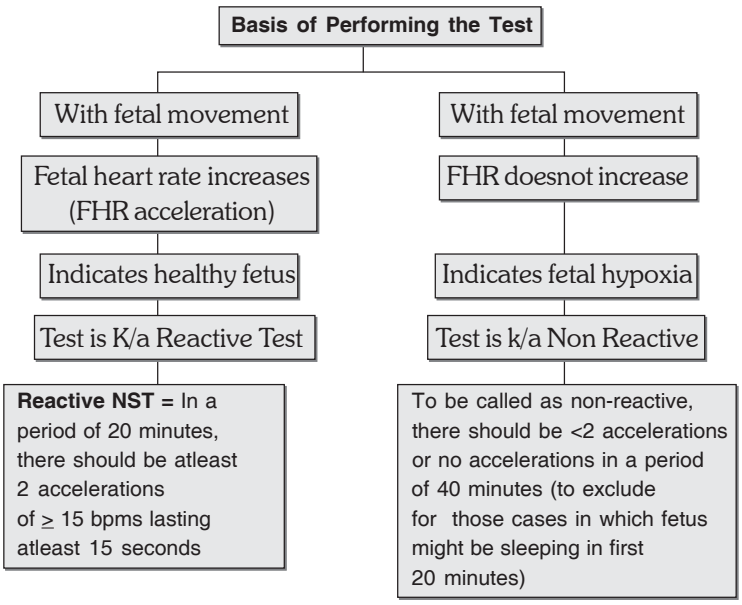
Non Stress Test



Remember: Whenever a pregnant female complains of decreased fetal movements

- NST testing should be started 32-34 weeks
- Interval between NST testing
  - Ideally – repeated weekly (a reactive NST means that fetus is not in danger for atleast 7 days
  - In high risk pregnancies like diabetes mellitus, IUGR and Gestational hypertension! twice weekly
  - In severe preeclampsia remote from term – done daily
- The positive and negative predictive value of a NST is typically less than 50% and more than 90% which means a reactive NST is more reliable in excluding fetal hypoxia than a non reactive test in predicting fetal compromise
- A non reactive NST earlier was being followed by a CST (contraction stress test) to confirm the diagnosis of hypoxia but CST is associated with risk of initiating labour and hence these days a non reactive NST is being followed by a biophysical score (Manning score)

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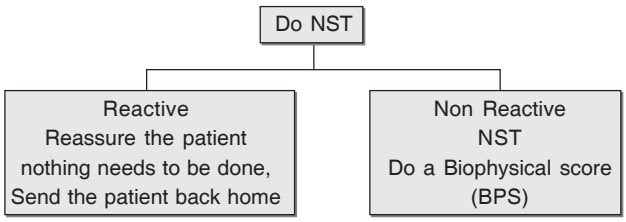

Decelerations-decrease in FHR of 15bpm :

- Early-(Type1)-Head compression/vagal nerve stimulation
- Late (Type 11)-uteroplacental insufficiency and fetal hypoxia
- Variable deceleration (M/C type) -cord compression
- Sinusoidal heart rate pattern - Stable, fixed heart rate with fixed variabilty and without any accelerations. Seen in fetal anemia and fetomaternal haemorrhage.

BPS, Interpretation and Pregnancy and its Management

BPS	Interpretation	Mgt
	Fetus normal	High risk-repeat weekly Diabetic /post term/ non reactive NST– twice weekly
8 normal liquor	Normal	Same
8 liquor less	Chronic fetal asphyxia	If >37 wks, deliver otherwise repeat testing
	Possible fetal asphyxia	Amniotic fluid-less- deliver Normal amniotic fluid->36 wks-deliver Repeat test-<6-deliver Repeat test>6 repeat test as per protocol
	Probable fetal asphyxia	Repeat test on same day- if <6-deliver
	Certain fetal asphxia	Delivers

Now with this background see the Q's.

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96. Hypoxemia/concerning NST would be the one in which FHR is ranging from 110–120 bpm over a period of 40 mins (i.e. twice NST is done no accelerations seen)

97. Fetal anemia leads to sinusoidal heart rate pattern.

98. Patient is complaning of decreased fetal movement, do not take it lightly send her for NST.

99. BPS shows a score of 8 which is normal, so send the patient back home and reassure.

100. The answer is (c) i.e. Taking vitamins before conceiving and continuing them after conceiving

The points worth noting here are- patient is presenting to the prenatalclinic for the first time at 26 weeks of gestation. USG shows herniation of cerebellum through foramen magnum and frontal bossing and lumbosacralkyphosis.

Herniation of cerebellum through foramen magnum is Banana sign and frontal bossing is lemon sign , both of which can be seen in Spina bifida which can be prevented by taking folic acid before conceiving and continuing it after conception.

USG Signs of Spina Bifida

The intracranial signs which aid in diagnosis are:

- Small BPD
- Venticulomegaly (> 10 mm)
- Frontal bone scalloping- Lemon sign – as shown in the usg given in the question.
- Elongation and downward displacement of cerebellum-called as Banana sign(banana sign disappears after 24 weeks)
- Obliteration of cisterna magna

  Note: Ninety nine percent of fetuses with NTD have one of the above-mentioned 5 specific cranial abnormalities.

  Lateral ventricle is measured at the atrium-normal =7mm from15 wks onward
- Mild-ventriculomegaly-10-15 mm
- Overt->15 mm
- A dangling choroid plexus is seen in severe cases

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TRUE AND FALSE

101. SLE can be managed during pregnancy using prednisolone, sulphsalazine and methotrexate- is false. *(Ref Williams 23/e, p 1150)*

Methotrexate cannot be used during pregnancy—"*Medicine to be avoided in lupus include mycophenolate mofetil and methotrexate*".

(Ref Williams 23/e, p 1150)

Drugs Used in Management SLE

Arthralgia	Severe disease	Skin rash
• NSAIDS • Sulphasalazine	• Corticosteroids • Azathioprine • Cyclophosphamide- not in life threatening situations	• Chloroquinine

Drugs to be Avoided

- OOCPs and IUCD
- Mycophenolate
- Mehotrexate

102. Internal podalic version is done under GA is true. *(Ref. Dutta obs 7/e, p 585)*

Internal Podalic Version

Only indication:

- Second twin transverse lie
- Always do under GA
- M/C complication-Rupture uterus

103. A 31 year old pregnant female with twin gestation has more chances of Downs syndrome than general population is true.

Downs syndrome–Chances of Downs are increased at the following material ages.

- $\geq$ 35 yrs In singleton pregnancy
- $\geq$ 31 yrs In twin pregnancy
- $\geq$ 31 yrs In h/o previous down syndrome

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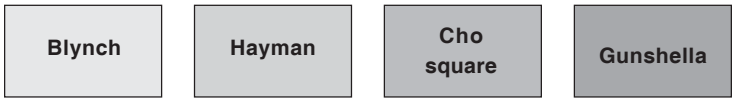
104. Hayman and Cho square sutures are used for managing PPH-true

Sutures used in PPH mgt.



105. Placenta previa mostly needs cesarean section if placental edge lies within 2 cms of the os True Dutta obs 7/e, p249 *(Ref. Williams obs 23/e, p773)*

According to Williams: Cesarean delivery is necessary in practically all patients with placenta previa.

According to Dutta: Cesarean delivery is done for all women with sonographic evidence of placenta previa where placental edge is within 2 cms from the internal os.

106. PPH has a tendency to recur in subsequent pregnancy… true *(Ref. Dutta obs 7/e, p 412)*

For preventing PPH it is important to identify certain risk factors antenatally, one of which is previous history of PPH. So PPH has a tendency to recur in future pregnancies.

Ans. 107 Direct coombs test detects maternal Ig M on fetal red cells… false *(Ref. Dutta obs7/e, p 335)*

Indirect and Direct coombs test Ig G antibody and not Ig M as Ig G can cross the placenta and not Ig M.

108. Listeria infection may be suspected if meconium is present in amniotic fluid in < 34 weeks gestation…True *(Ref. Williams obs 23/e, p 1224)*

"Discoloured , brownish, or meconium stained amniotic fluid is common with fetal infection, even with preterm labors."
Ref. Williams obs 23/e, p 1224

109. DOC for pneumocystis carinii in pregnancy is pentamidine…False *(Ref. Williams obs 23/e, p 1252)*

According to Williams and internet search DOC for treatment of pneumocystis carinii during pregnancy is sulfamethoxazole-trimethoprim.

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110. Peak systolic velocity is increases in middle cerebral artery with fetal anemia.. True

'Middle cerebral artery peak systolic velocity It is a noninvasive tool for the diagnosis of fetal anemia. The principle behind this test is that there is increased velocity of blood flow in the anemic fetuses due to increased cardiac output in an attempt to enhance the oxygenation."…. High Risk Pregnancy SS trivedi , Manju Puri p 265.

DOPPLER STUDY- Important points

Indications of Doppler study during pregnancy

- IUGR (most important investigation for management)
- Rh iso immunization
- Prediction of PIH
- Diagnosis of placenta accreta/ percreta, vasa previa.

Uterine Artery: Doppler

Increased impedance of maternal uterine artery velocimetry at 16-20 weeks is predictive of preeclampsia and IUGR**.**

Middle cerebral artery (MCA)

In fetus with IUGR, as the S/D ratio begins to rise the blood flow in MCA increases. There is redistribution of blood flow and vital organs like brain continue to receive adequate blood at the expense of liver and kidney. This is called brain-sparing effect.

Peak systolic velocity (PSV) in the middle cerebral artery is increased in fetal anemia. PSV in MCA is now used in management of Rh isoimmunized fetuses.

Umbilical artery:

– A normal systolic/ diastolic (S/D) ratio indicates that the fetus is receiving adequate blood supply.
– Rising S/D is the earliest change in IUGR.
– Absence of diastolic flow in umbilical artery is an ominous sign and Intrauterine fetal death can be expected within 7 days.

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– In extreme cases diastolic flow may become reversed and IUFD will occur with in 48 hours.

111. A 30 year old female with BMI 28kg/m2 should gain 14-16 kg weight during pregnancy….False *(Ref. Williams obs 23/e, p 950 table 43-3)*

Weight gain during pregnancy

Category	BMI(kg/m2)	Recommended weight gain(kg)	Pounds
LOW	<18.5	12.5 TO 18	28–40
NORMAL	18.5–25	11.5–16	25–35
HIGH	26–29.9	7–11.5	15–25
OBESE	> 30	5–9.1	11–20

Factors affecting weight gain:

Prepregnancy Weight	Race and ethnicity	Socioeconomic status	Ass condition twins diabetes/ polyhydramnios	Parity

NOTE: Cigarette smoking doesnot affect maternal weight gain, it affects fetal weight gain.

112. Montevideo unit is contraction in mm of H2O per 10 mins…false (Ref. Williams obs 23/e p437)

Montevideo unit

Montevideo unit is strength of contraction in mm of hg multiplied by frequency per 10 min, for eg 3 contractions in 10 min each of 50mm of hg = 150 MVU

Clinical labor begins at 80-120 MVU

During active stage uterine contractions are 190-300MVU

113. M/c cause for second trimester recurrent abortions is cervical incompetence …True *(Dutta obs 7/e, p 168-169)*

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Abortions

Isolated	Recurrent(>3)
1st trimester abortion– M/C cause	**2nd trimester abortion– M/C cause**
• Isolated–chromosomal anomaly-trisomy16 • Recurrent–chromosomal anomaly-balanced translocation of chromosome	• Isolated–cervical incompetence • Recurrent–cervical incompetence

• TORCH infections never lead to recurrent abortions	2 most useful investigations for recurrent abortions- • Karyotyping • Testing for antiphospholipid Ab	Most common cause of recurrent abortions- • 1st trimester- chromosomal defect • 2nd trimester- Cervical incompetence

Cervical Incompetence

• Diagnosis in non pregnant state-H/O painless spontneous abortion in 2nd trimester • Hegar dilator no 8 can be passed without resistance • HCG–funnel shape appearance	• Management • Vaginal circlage/ Abdominal circlage • Time for stitch application –after 14 weeks • Time for stitch removal- 37 weeks or earlier in preterm labor	• Diagnosis in pregnancy- • TVS-Cx length <30 mm and diameter >20 mm	• C/I of stitch application- • Cx> 4cms dilated • Memb ruptured/ vaginal bleeding/ uterusirritable/ infection present

114. Trial of labour is C/I in previous LSCS pts….True

Now friends there is a hell lot of difference between Trial of labor and VBAC

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TRIAL OF LABOR-Trying to Conduct spontaneous vaginal labor in mild to moderate degree of inlet contraction of the pelvis i.e obstetrician is aware pelvic inlet is mildly contracted and still vaginal delivery is being tried.

VBAC-Vaginal birth after cesarean is –when vaginal delivery is being tried in a previous LSCS patient , only if pelvis is normal and not contracted.

C/I OF TRIAL OF LABOR

1. Associated midpelvic or outlet contraction
2. Presence of complicating factors like-
   - Elderly primi
   - Malpresentation
   - Post maturity
   - Post cesarean section
   - Preeclampsia
   - Medical disporders like DM, heart dis.

This simply means that in a previous LSCS patient if pelvis is even mildly contacted donot try for vaginal delivery, just go for repeat cesarean.

Also know:

- In Contracted pelvis-obstetric conjugate <10 cms
- If Obstetric Conjugate is 9.6 cms to 10 cms –mild contraction
- If it is 8.6 to 9.5 cms –moderate contraction
- If <8.5 –Severe contraction

115. Pelvis with AP diameter more than transverse diameter is Android pelvis…False *(Ref. Dutta obs 7/e,p 346 table)*

Types of pelvis-Caldwell and Mohoy classification

Gynaecoid	Android	Anthropoid	Platypelloid
M/C type Inlet transverse diam>AP diam Shape of in let-round/ transverse oval	Male pelvis Inlet-transverse diam>AP diam Shape of inlet-wedge shaped	Ape like pelvis Only pelvis in which AP sdiameter >transverse diameter Shape-long oval	Flat pelvis Least common Bowl shaped pelvis Trans diameter much more than AP diameter

Contd...

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Contd...

Gynaecoid	Android	Anthropoid	Platypelloid
Subpubic angle-90	Subpubic angle-<90		
M/C position – Left occipito Transverse is the most common followed by Left occipito anterior	Deep Transverse Arrest/Non rotation	Direct occipito posterior position common	
Engagement-synclitic/ asynclitic Naegles-ant parietal bone leads,seen in multi Litzman-post parietal bone leads, seen in primi	Dystocia dystrophica syndrome	Face to pubes del can occur	Engagement occurs by exagerrated asynclitism so engaging diameter is super subparietal diameter.

116. Loss of knee jerks occurs when Mg SO4 conc->8 meq...False *(Ref. Dutta 7/e, p 234, Fernando arias 3/e, p420–421, Williams ob s 23/e, p738–739)*

Mg SO4

- DOC to prevent and treat convulsions in eclampsia
- Mech-decr acetylcholine release and blocks ca channel(so use carefully with Ca channel blockers)
- Therapeutic range-4 to 7 meq/l
- First sign of toxicity- loss of knee jerks->10 meq/l
- Respiratory depr occurs if mg conc >12meq/l
- Regime followed-Pritchard regime

117. A 25 year old primigravida with 24 weks gestation has a first episode of asymptomatic bacteriuria.The risk of having pyelonephritis is 15%....False *(Ref. Williams 23/e, p1035–1036, COGDT, 10/e, 374)*

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Asymptomatic Bacteriuria:

- Bacterial Count >105 /ml in midstream clean catch sample on 2 occasions in an asymptomatic patient is referred to as Asymptomatic bacteriuria.
- M/C organism -Ecoli
- Incidence in pregnancy and non pregnant -1 to10%
- m/c in multiparity, diabetic patients and sickle cell trait patients.

Screening test-Dip slide test

ACOG-recommends screening at first prenatal visit

Risk of pyelonephritis in untreated-25%, in treated-10%

Risk of UTI-40%

T/t-ampicillin,amoxicillin,cephalexin or nitrofurantoin.

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GYNAECOLOGY
CASE STUDY

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CASE STUDY

CASE STUDY # 1

Ms. Seema a 33 year-old (G2 P0 A2) woman with a previous history of regular menses, presents with secondary infertility.

History of Present Illness

The patient was referred to a gynaecologist because of secondary infertility and secondary amenorrhea. She was diagnosed twice missed abortion: three years ago at 7 weeks gestation and 1 year ago at 9 weeks gestation. After the latter episode, due to retained products of conception, she underwent dilatation and curettage. Since then she reports no menstrual bleeding. Prior to her second pregnancy, the patient's menstrual cycles were regular (28-30/4-6). Sperm analysis of her husband is normal. Because of her problems with infertility and amenorrhea she became frustrated and depressed. Her husband is currently unemployed and she is afraid that they will not be able to afford her infertility treatment.

Patient History

- **Menstrual history:** Menarche: 13 years. Menstrual cycles: regular 28-30/4-6. LMP: one year ago.
- **Past medical history:** Unremarkable.
- **Current medications:** None.
- **Family history:** Unremarkable. No family history of congenital anomalies and chromosomal abnormalities.
- **Social history:** Ms. Johnson is employed as a secretary. She drinks alcohol occasionally and in moderation. She smokes one-half pack of cigarettes a day. She reports no history of substance abuse.

Investigations

- 1st Serum beta-HCG level was negative.
- 2nd Progesterone withdrawal test was negative.
- 3rd Estrogen –progesterone sequential test was negative.

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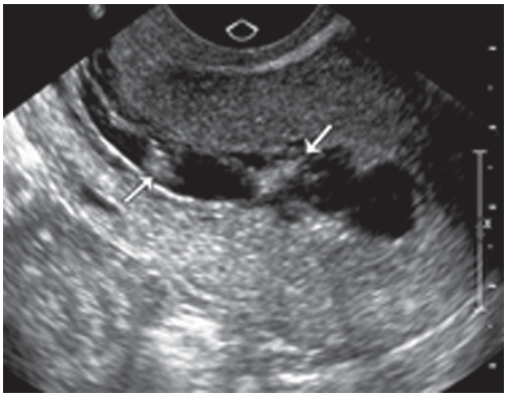
- 4th FSH, LH and estradiol levels (to demonstrate the presence or absence of ovarian function) were normal.
- Pelvic ultrasound findings:



1



2

Figs 1 and 2: Asherman syndrome in a patient with a history of dilation and curettage. (1) Hysteroslapingogram depicts several linear intrauterine filling defects (arrowheads) (2) Sagittal image from transvaginal hysterographic US shows multiple uterine synechiae (arrow)

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QUESTIONS RELATED TO CASE DISCUSSION

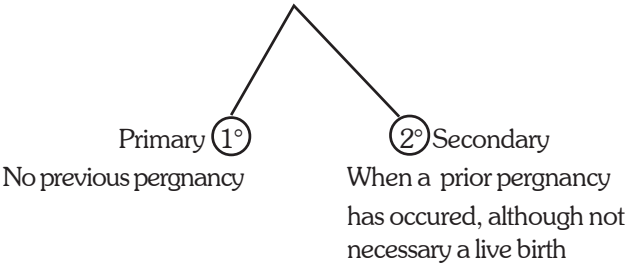
1. What is the definition of secondary infertility?

a. The inability to conceive after 3 months of unprotected intercourse by a couple who previously had a child.
b. The inability to get pregnant despite having frequent, unprotected sex for at least a year by a couple who previously had a child.
c. Infertility secondary to female tubal scarring which occurs after acquiring pelvic inflammatory disease.
d. Inability to conceive after 6 months of unprotected inter course by a couple who previously had a child.

Ans. is (b) i.e. The inability to get pregnant despite having frequent, unprotected sex for at least a year by a couple who previously had a child.

(Ref. Shaw 15/e, p 200; Novak 15/e, p 1134)

Explanation: Secondary infertility is the inability to get pregnant despite having frequent, unprotected sex for at least a year by a couple who previously had a child (choice b). Infertility is defined as 1 year of unprotected inter course without pregnancy.



Subfertility: Refers to couples who conceive after 12 months of attemped impregnation.

Fecundabilty: Refers to the probability of pergnancy per cycle, which is ≈ 20% in fertile couples.

Fecundablility: Refers to the probabitly of achieving a live birth in a single cycle.

ALSOKNOW: About 90% of couples should conceive within 12 months of unprotected intercourse.

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2. Which of these conditions is least likely causing this patient's secondary infertility?

a. Pituitary Dysfunction
b. Mullerian agenesis
c. Asherman's syndrome
d. Ovarian Dysfunction

Ans. is (b) i.e. Mullerian agenesis

Explanation: Mullerian agenesis is a congenital defect of the genital tract whereby the uterus is absent. It is the second most common cause of primary amenorrhea. The patient in the question was having normal menstruation prior to second pregnancy and in a case of mullerian agenes is, she would not have been able to conceive previously and therefore this condition is the least likely cause of secondary infertility.

(Choice a) Pituitary dysfunction can occur at any time during a woman's life. It can be the cause of both primary and secondary amenorrhea and both primary and secondary infertility. Since pituitary dysfunction can be the cause of this secondary infertility, it is ruled out.

(Choice c) Asherman's Syndrome is a condition of intrauterine adhesions likely caused after a D and C. This condition would most likely occur after a previous conception. The adhesions would subsequently cause a secondary infertility and therefore it is also ruled out

(Choice d) Ovarian dysfunction can also occur at any time during a woman's life. It can be the cause of both primary and secondary amenorrhea and both primary and secondary infertility. Because ovarian dysfunction can be the cause of this secondary infertility, it is not the most likely choice.

3. What is the most common cause of infertility in a female?

a. Anovulation
b. Female genital tract anatomic defects
c. Antisperm antibodies
d. Cervical factos

Ans. is (a) i.e. Anovulation

(Ref: Shaw 15/e, p 208)

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Explanation: Infertility in a female is most likely caused by ovulatory disorders **(choice a)**

Female genital tract abnormalities (choice b), antisperm antiboides (choice c) and cervical abnormalities (choice d) could also be indicated as a cause of infertility but are not as likely as anovulation.

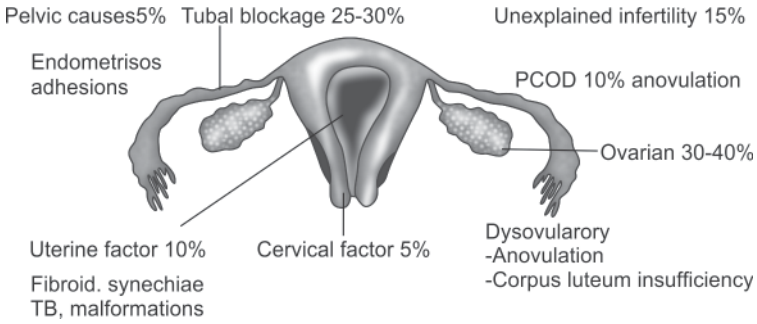

Fig. 3: Causes of female infertility

4. What age is considered as elderly primi? What is the incidence of having a child with Down syndrome for a 45 year old mother?

a. Age 35, 1 in 100
b. Age 30, 1 in 100
c. Age 30, 1 in 100
d. Age 37, 1 in 30
e. Age 30, 1 in 30

Ans. is (e) i.e. Age 30, 1 in 30

(Ref: Dutta 7/e, p 341, Williams 23/e, p 297)

Explanation: Elderly primi is a woman having their first pregnancy after the age of 30 years. The incidence of congenital anomalies increases as the maternal age increases. The child of a mother of the age of 45 has a 1 in 30 chance of developing Down Syndrome.

ALSO KNOW

Risk of Down Syndrome–related to maternal age:

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Maternal age	Risk
35	1/385
40	1/100
42	1/60
45	1/30

4A. In which of the following scenarios is D and C not indicated?

a. Removal of retained products of conception
b. Uncomplicated endometrial biopsy
c. Insufficient endometrial biopsy in patient with strong risk of endometrial cancer
d. Molar pregnancy

Ans. is (b) i.e. Uncomplicated endometrial biopsy

(Ref: Read explanation below)

Dilatation and curettage is indicated for conditions such as retained products of conception, insufficient endometrial biopsy in patient with a strong risk of endometrial cancer, and molar pregnancy. D and C is not indicated in uncomplicated endometrial biopsy **(choice b)**.

5. Ms. Seema a 33 year-old (G2 P0 A2) Woman with a previous history of regular menses, presents with secondary amenorrhea and infertility. Her history is significant for two spontaneous abortions and D and C. Based on her history, what is the most likely diagnosis of this patient?

a. Intrauterine adhesions
b. Hemorrhage
c. Uterine perforation
d. Infection

Ans. is (a) i.e Intrauterine adhesions

(Ref: William Gynae 2/e, p 444)

This patient is unable to conceive following a D and C, so most probably it has lead to formation of intrauterine adhesions i.e. Ashermann Syndrome.

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Ashermann Syndrome

In a series of 1856 women with ashermann syndrome, it was observed that 88% followed post abortal or postpartum uterine currettage. In ashermann syndrome the spectrum ranges from filmy adhesions, dense bands or complete obliteration of the uterine cavity.

6. What is the most common cause of abortion in the first trimester?

a. Syphilis
b. Chromosomal anomalies
c. Elective abortions
d. Cervical incompetence

Ans. is (b) i.e. Chromosomal anomalies

(Ref: Dutta Obs 7/e, p 159-160, COGD T 10/e, p 259, Williams Obs 23/e, p. 215)

Explanation: Abortion in the first trimester is most likely caused by chromosomal abnormalities. Up to 80% of all abortions occur before 12 week and among these 50-75% are caused by chromosomal abnormalities **(choice b).**

7. During her first pregnancy, Ms. Seema at 7 weeks gestation came to your clinic complaining of vaginal bleeding and abdominal cramping. She denied passage of any tissue. On examination, her cervical os was open. What is the most likely diagnosis?

a. Complete abortion
b. Inevitable abortion
c. Missed abortion
d. Threated abortion

Ans. is (b) i.e. Inevitable abortion

Explanation: An inevitable abortion **(choice b)** is the diagnosis in this case because the patient complains of vaginal bleeding accompanied by dilatation of the cervical os. Abdominal pain is present and bleeding is usually more severe than threatened abortions.

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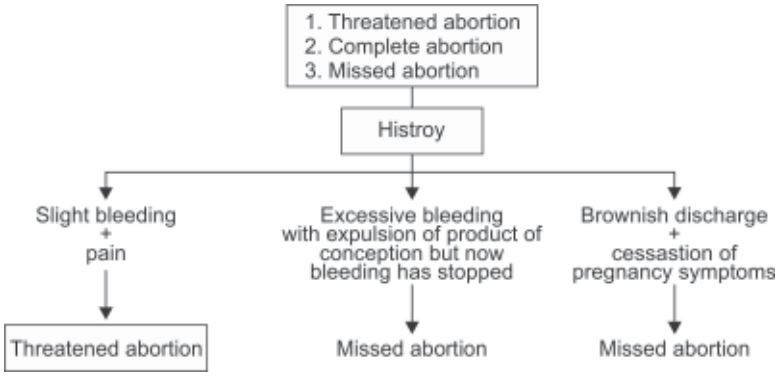
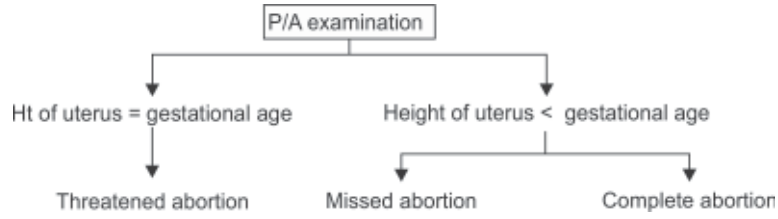
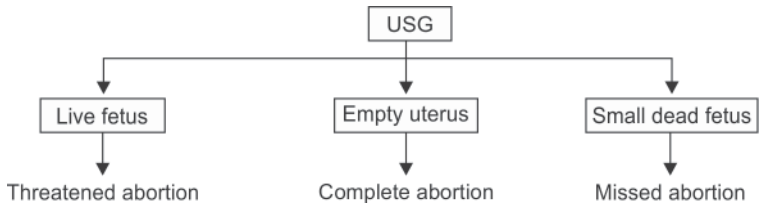
In all these types of questions—Remenber:

1. Abortions with internal OS closed







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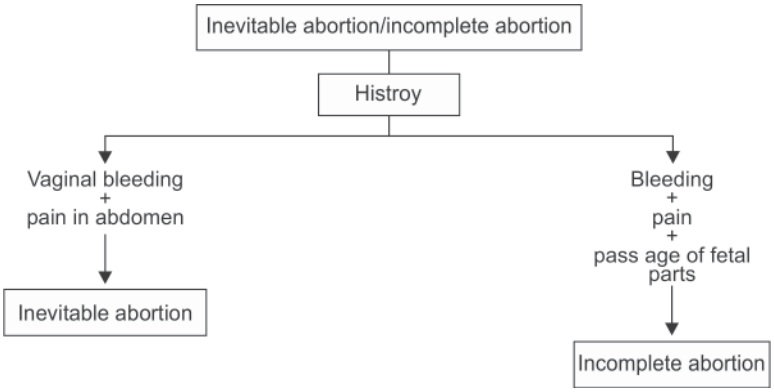
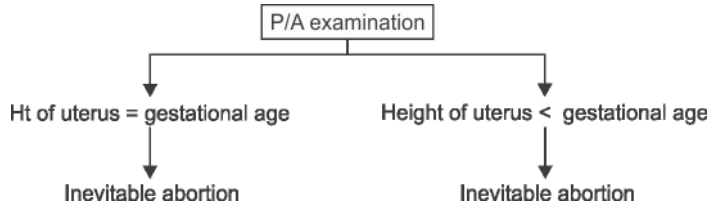
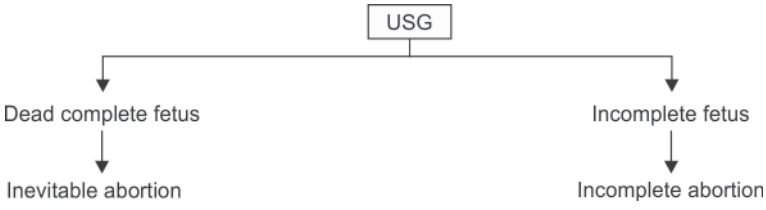
Abortions with internal OS open







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8. Which of the following would most likely be seen upon histological examination of this patient's endometrium before the therapeutic hysteroscopy was performed?

a. Avascular fibrous bands joining the uterine walls
b. A thin atrophic endometrium consisting only of the stratum basalis with sparse glands
c. Multiple large bundles of smooth muscle cells arranged in a whorled pattern
d. Thickened endometrium with crowded glands

Ans. is (a) i.e. Avascular fibrous bands joining the uterine walls

Explanation: Asherman's syndrome is defined as secondary amenorrhea occurring in women with normal endocrine function, and is caused by adhesions that form due to endometrial trauma most commonly from curettage for treatment of pregnancy complications. In developing countries with a high prevalence of tuberculosis, genital tuberculosis is also a relatively common cause of Asherman's syndrome.

Though histological examination of the endometrium is not used to diagnose asherman syndrome it most commonly is seen as avascular fibrous strands joining the uterine walls **(Choice a)**.

(Choice b) This description best represents what is seen upon histological examination of the postmenopausal endometrium.

(Choice c) This best describes uterine leiomyomas (fibroids).

(Choice d) This best describes endometrial hyperplasia which most commonly presents with heavy uterine bleeding, not amenorrhea.

9. Which of the following is the embryologic cause of a septated uterus?

a. Persistence of the mesonephric duct
b. Regression of an entire mullerian duct
c. In utero exposure to DES
d. Failed degeneration of septum created by mullerian duct fusion

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Ans. is (d) i.e. Failed degeneration of septum created by mullerian duct fusion.

Explanation: Mullerian duct appears between 5-6 week. Earlier it is lateral to wolffianduct, then cross them and fusion begins at 7-8 weeks and is completed by 12 weeks. Cervix can be differentiated from corpus by 10 weeks and cervix is differentiated from vagina by 20 weeks. Septum disappears by 5th month of IUL.

If the fusion of the mulllerian ducts is incomplete uterus didelphys (horns may or may not share a common cervix) or a bicornuate uterus (two uterine horns with a single shared cervix) may arise. A septate uterus forms when the fusion of the mullerian ducts occurs properly but the normally transient septa created by their apposition does not regress **(Choice d)**. The amount of septum that persists determines whether the septum is partial or complete.

(Choice a) The mesonephric duct in males contributes to the: epididymis, vas deferens, seminal vesicle, and ejaculatory duct. In females only portions of the mesonephric duct persist as the appendix vesiculosa, duct of epoophoron, and gartner's duct.

(Choice b1) Regression or failed elongation of an entire mullerian duct of me side results I unicornuate uterus.

(Choice c) In utero exposure to DES is linked to both cervicovaginal and uterine developmental abnormalities. Uterine abnormalities related to DES exposure in utero include: uterine hypoplasia, T-shaped uterine cavity, and an incompletely formed cervix.

10. If the patient's secondary amenorrhea was due to anorexia nervosa which of the following laboratory findings would most likely be present?

a. High FSH, High LH, Low estrogen
b. Normal FSH, Normal LH, Normal estrogen
c. Low FSH, Low LH, Low estrogen
d. Low FSH, Low LH, High estrogen

Ans. is (c) Low FSH, Low LH, Low estrogen

(Ref: Novak 15/e, p 1055)

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Explanation: Excessive weight loss and decreased fat stores leads to diminished synthesis and release of gonadotropin-releasing hormone (GnRH). The decreased output of GnRH from the hypothalamus leads to low serum FSH and LH which in turn causes low estrogen **(choice c)**. The end result is secondary amenorrhea due to a lack of endometrial stimulation from estrogen.

(Choice a) This hormone profile is that of a postmenopausal woman. As a woman's store of primordial follicles decreases due to ovulation or degeneration the ability of the ovaries to produce estrogen diminishes as well. LH and FSH levels are high during menopause because there is a lack of estrogen to inhibit their production.

(Choice b) Asherman's syndrome is characterized by normal hormone levels and secondary amenorrhea.

(Choice d) This hormone profile would be that of a pregnant female or a patient with a granulosa cell tumor.

11. What is the treatment of choice for women of reproductive age with moderate intrauterine adhesions?

a. Laparoscopic hysterectomy
b. D+C
c. Watchful waiting
d. Hysteroscopic adhesiolysis

Ans. is (d) Hysteroscopic adhesiolysis

(Ref: Williams Gynae, 12/e, p. 444)

Explanation: Hysteroscopic adhesiolysis is the method of choice for managing Ashermann syndrome.

12. What follow up is needed after treatment of intrauterine adhesions?

a. None
b. Sterile speculum exam
c. Laparoscopy
d. Hysterosalpingography

Ans. is (d) i.e. Hysterosalpingography

Explanation: Following adhesiolysis, and after allowing time for the patient to heal, physicians should perform a repeat HSG in order to verify that the adhesions are resolved and to evaluate tubal patency.

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(Choice b) One of the initial exams used to rule out premature labor

(Choice c) Some indication for laparoscopy include endometriosis, tubal or ovarian surgery, and intraperitonal hemorrage.

13. What is the pregnancy rate following adhesiolysis for moderate intrauterine adhesions in a patient with three or more unsuccessful pregnancies?

a. 93% b. 75%
c. 64% d. 18%

Ans. is (b) i.e. 75%

(Ref: Williams gynae 2/e, p 444)

Explanation: Following adhesiolysis, while fertility is returned, the likelihood of getting pregnant is remains lower than a patient who had never had adhesions and is 75%, and of these 80% achieve live birth rate.

Prior to surgery, patients must be counselled of the likely outcomes of surgery so that they are able to make an informed decision regarding their care.

CASE STUDY # 2

Patient Introduction

Mr Verma and Mrs Verma present with primary infertility after two years of unprotected intercourse. Evaluation of 38 year-old Mr Verma is significant for the presence of a painless swollen right testicle. His 32 year-old, Go P0 wife complains of dysmenorrhea, lower abdominal cramping and pain with deep pelvic thrusts during intercourse (dyspareunia).

History of Present Illness

- For the past two years, Mrs Verma complains of a pelvic pain and dysmenorrhea. She denies any abnormal vaginal discharge, nau-

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sea, appetite changes or breast tenderness. She also denies increased urinary frequency or urgency, or changes in bowel habits.

- She denies weight loss, excessive exercise or increased stress. She denies any history of gonorrhoea, Chlamydia, or any other STD.
- Mrs Verma has had a few sexual partners over the years, but considers none of them to be high risk. Her pap smears have always been normal.
- She has had no known pregnancies. She has used oral contraceptives in the past. Because she wants to get pregnant she has not used oral contraceptives (OC) during the past two years.
- Analysis of Mr. verma sperm demonstrated a low sperm counts (2 million sperm per millilitre).

Patient History

Mrs. Verma

- **Menstrual history:** Menarche: 12 years; Menstrual cycles: reglar, 28/5; LMP: One week ago and is still bleeding.
- **Past medical history:** Unremarkable.
- **Current medications:** None.
- **Family history:** Unremarkable.
- **Social history:** Mrs. Verma has been married for two years. She works as a secretary at a local law firm. She does not smoke cigarettes, and consumes 5-7 alcoholic drinks per week. She reports no recreational drug use.

Mr. Verma

- **Past medical history:** Noncontributory
- **Current medications:** None
- **Family history:** Noncontributory
- **Social history:** Mr. Verma works as journalist. He smokes 20 cigarettes per day, consumes 7 alcoholic drinks per week, and reports no recreational drug use.

Investigations

Mrs. Verma

- **Physical examination:**
  Vital signs and general physical examination were normal.

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- **Pelvic examination:**
  - No purulent or bloody discharge was noted. The vulva, vagina, and cervix demonstrated no lesions and/or masses.
  - The patient reported tenderness to deep palpation.
  - The uterus was of normal size, retroverted, and without nodularity.
  - A 4 cm mass was palpated in the left adnexal region.
  - A discrete nodularity of the uterosacral ligaments was noted during palpation.
  - Pap smear: normal
  - Gonorrhea and chlamydia cultures: negative
- **Pelvic ultrasound:**

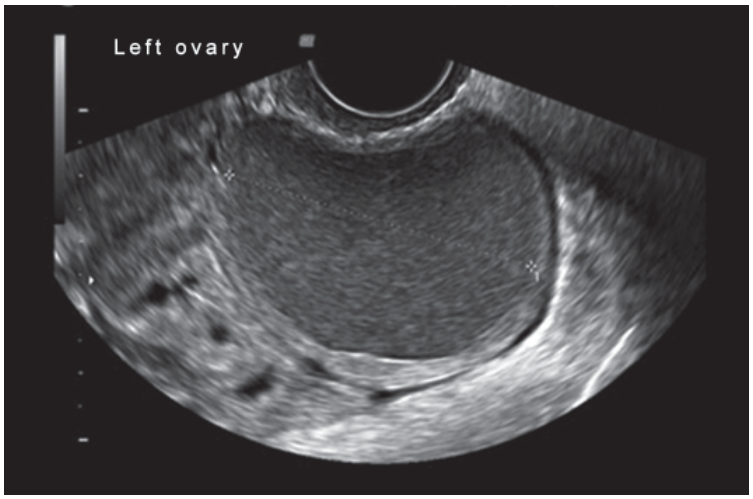

Fig. 4: Chocolate paste fluid filled cyst ovarian cyst measuring 4×3.5 cm in the left adnexal region. Clear demarcation from the ovary and peripheral vascularization indicate an ovarian endometrioma.

Mr. Verma

- **Physical examination** revealed diffuse enlargement of the entire left testicle. He reports no back pain. There are no pulmonary complaints, such as shortness of breath, chest pain, or hemoptysis.

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There are no signs of mediastinal involvement such as pain, dysphagia, shortness of breath, or superior vena cava syndrome.

- Chest, abdominal and pelvic CT scan
- Tumor markers: alpha-feto protein (AFP) and human chorionic gonadotropin (hCG)

Findings

- The chest and abdominal CT scan was negative for metastases.
- **Tumor markers:** AFP was normal, hCG was elevated (95 mlU/mL)

1. On average, what percentage of normal couples will conceive within the first 12 months of attempted conception?

a. 40-50%
b. 55-60%
c. 70-75%
d. 80-90%

Ans. is (d) i.e. 80-90%

(Ref: Novak 15/e, p 1134)

Explanation: It is estimated that 80-90% of couples that do not have any infertility issues will conceive within the first 12 months with regular, unprotected intercourse **(choice d)**.

2. Which of the following conditions is NOT in the differential diagnosis for a painless, swollen testicle?

a. Epididymal cyst
b. Varicocele
c. Hydrocele
d. Testicular torsion
e. Spermatocele

Ans. is (d) i.e. Testicular torsion

(Ref: Bailey and Love)

Explanation: Testicular torsion **(choice d)** presents with severe pain and swelling in the testicle that begins abruptly usually after exercise. The cremasteric reflex is absent. Decreased testicular blood flow can be detected using Doppler ultrasound. The other

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answer choices would most likely present with painless swollen testicles

(Choice a) An epididymal cyst and a spermatocele (choice b) are synonymous terms for a painless cyst at the head of the epididymitis that contains sperm. It can be palpated separate from the testis and is transilluminated above proximal to the testis.

(Choice b) A varicocele is a painless collection of dilated veins in the pampiniform plexus surrounding the spermatic cord with a characteristic "bag of worms" texture. They do not transilluminate.

(Choice c) A hydrocele is painless, cystic scrotal fluid collection that transilluminates. It collects between the parietal and visceral layer of the tunica vaginalis and may be communicating or noncommunicating.

3. What is the most likely condition causing the triad of dysmenorrhea, infertility and dyspareunia?

a. Pelvic Inflammatory disease
b. Polycystic ovary disease
c. Endometriosis
d. Cervical cancer
e. Depression

Ans. is (c) i.e. Endometriosis

(Ref: Shaw 15/e, p 468-469)

Explanation: Of these choices, endometriosis **(choice c)** is the most likely condition to cause this triad of symptoms. Ectopic foci of endometrium in the pelvis and abdomen lead to cyclical inflammation, causing dysmenorrhea and inhibiting ovulation. Dyspareunia can occur with inflammation around the uterosacral ligaments caused by endometriosis.

(Choice a) Although PID can cause pelvic pain and infertility, it is more likely to cause chronic pelvic pain rather than dysmenorrhea and is not as likely to case dyspareunia unless it is acute.

(Choices b) PCOS is not associated with dysmenorrhea or dyspareunia, but it can cause infertility. This, however, is due to anovulation caused by hormonal imbalance.

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(Choice d) Cervical cancer may cause dyspareunia, but it is unlikely to cause infertility or dysmenorrhea.

(Choice e) Depression may also be associated with dyspareunia, but is not a likely cause of infertility or dysmenorrhea.

4. Which of the following is NOT a contributing factor for dyspareunia?

a. History of sexual abuse
b. Endometriosis
c. Depression
d. Postmenopausal state
e. History of HIV

Ans. is (e) i.e. History of HIV

(Ref: Text book of Gynae, Shiela Balakrishnan, p 204)

Explanation: Many different physical and psychological factors are associated with dyspareunia, however a history of HIV **(choice e)** is not readily associated with dyspareunia.

(Choice a) Patients with a history of sexual abuse may have both physical and psychological factors which can lead to dyspareunia.

(Choice b) Endometriosis is an ectopic foci of endometrium in the pelvis and abdomen lead to cyclical inflammation, causing dysmenorrhea and inhibiting ovulation. Dyspareunia can occur with inflammation around the uterosacral ligaments caused by endometriosis.

(Choice c) Depression is a psychological condition that may be associated with dyspareunia.

(Choice d) Postmenopausal women express decreased estrogen with resulting vaginal atrophy. This loss of vaginal tissue and lubrication can cause dyspareunia.

ALSO KNOW

Dyspareunia implies pain during coitus and is a common sexual dysfunction. It can be superficial or deep.

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Superficial Dyspareunia

This may be caused by any local lesin on the vulva or vagina:

- Narrow introitus
- Tough hymen
- Vulvovaginitis
- Herpetic ulcers
- Bartholin's cyst or abscess
- Gartner's duct cysts
- Atrophic vaginitis
- Tumours of vulva or vagina
- Urethral Problems

Deep Dyspareunia

The cause is usually due to pathology of the paravaginal tissues and the pelvic organs.

- Endometriosis especially involving the rectovaginal septum
- Chronic PID
- Prolapsed ovaries in the pouch of Doglas

Treatment

The individual cause must be corrected.

5. What is a normal range for the sperm count in a healthy adult male?

a. <2 million sperm/ml
b. 2-4 million sperm/ml
c. 5-10 million sperm/ml
d. 12-16 million sperm/ml
e. >20 million sperm/ml

Ans. is (d) i.e. 12-16 million sperm/ml

Explanation: Healthy adult males have an average sperm concentration of 15 million spermatozoa/ml with a 95% confidence interval of 12-16 million spermatozoa/ml **(choice d).**

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Semen analysis - WHO

Parameter	1992 guidelines	2010 Guidelines
Volume	2ml	> 1.5ml
Sperm concentration	20 million/ml	>15 million/ml
Sperm motility	50% progressive	> 32% progressive
Or > 25% rapidly progressive		
Morphology (Strict Criteria)	> 15% normal forms	>4% normal forms
WBC	< 1 million/ml	<1million/ml
Immuno bead or mixed anti globulin reaction test	< 10% coated with antibodies	<50%

6. Which of the following is NOT a complication of an infection with chlamydia and/or gonorrhoea?

a. Infertility due to tubal scarring
b. Chronic pelvic pain
c. Tubo-ovarian abscess
d. Menorrhagia
e. Fitz-Hugh-Curtis Syndrome

Ans. is (d) i.e. Menorrhagia

(Ref: Textbook of Gynae – Shiela Balakrishnan pg 211, 212

Explanation: There are many complications associated with a gonococcal/chlamydial infection including PID, infertility, chronic pelvic pain, ectopic pregnancy, and Fitz-Hugh-Curtis Syndrome. The complications do not include menorrhagia **(choice d)**. Menorrhagia is not associated with a gonococcal/chlamydial infection as the pain would more likely be chronic in nature.

(Choice a) Ascending infection with gonorrhoea and/or chlamydia can cause inflammation and subsequent scarring in the fallopian tubes, leading to infertility because of blockage of passage of the fertilized egg into the uterus.

(Chocie b, c and e) Ascending infection can also lead to PID, which in turn may result in chronic pelvic pain, and fulminant

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abscess formation around the ovary and fallopian ampulla, called tubo-ovarian abscess. The infection can also ascend into the abdomen, leading to inflammation and subsequent perihepatic scarring, known as Fitz Hugh-Curtis syndrome. Infection with chlamydia/gonorrhoea and subsequent PID are not associated with menorrhagia.

7. Which of the following does NOT constitute a high risk sexual partner?

a. Person who has been incarcerated
b. Pregnant woman
c. IV drug user
d. Man who has sex with other men
e. Partner with multiple STDs

Ans. is (b) i.e. Pregnant woman

Explanation: High risk sexual partners are those that are at a higher likelihood of being exposed to sexually transmitted diseases due to their environment or lifestyle. A pregnant woman **(choice b)** with no other risk factors would be the answer choice because she has the least likelihood of contracting an STD.

(Choice a, c, d, e) All of the remaining answer choices are individuals who are at a higher likelihood of being exposed to sexually transmitted diseases due to their environment or lifestyle. Examples of high risk sexual partners include sex workers, individuals who have been incarcerated, i.e. imprisoned those who have a history of prior STDs, those with a history of IV drug use and men who have sex with other men.

NOTE: In prisoners, homosexuality is common. So they constitutes high risk partner.

8. A 34-year-old woman complains of dysmenorrhea for the last 4 years. The pain is noted only during her menses and two to three days just before menstruation. She does not have any vaginal discharge. Which of the following is most likely the cause of these symptoms?

a. Ovarian carcinoma
b. Endometriosis
c. Pelvic inflammatory disease
d. Endometrial hyperplasia

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Ans. is (b) i.e. Endometriosis

(Ref: Textbook of Shiela Balakrishnan 1/e, p 203; Shaw 15/e, p 294-295)

Dysmenorrhea

Primary/Spasmodic	Secondary/Congestive
• No pelvic pathology is responsible forthe pain • Mostly seen in adolescents • M/C in affluent society • Almost always confined to ovulatory cycle hence pain appears within 6 months-1 yearafter onset of m narche (when cycles become ovulatory) • Pain appears on 1st day of menstrual period and usually lasts for 12hrs. • Pain never persists beyond 48 hours • Pain is usually cured after 24 years of age and following pregnancy and delivery. T/t of spasmodic dysmenorrhea- 1. Prostaglandin synthetase inhibitor- M/C used drug. 2. OCP's × 3 - 6 cycles- if pain is not relieved by a nalgesics and antispasmodics principle- makes the cycles anovulatory and hence pain is relieved. 3. Surgery - rarely required, e.g. dilatation of cervical canal – Paracervical block. – Presacral neurectomy and uterosacral nerve ablation.	• Pain is due to presence of pelvic pathology. • Pain seen years after menarche (mostly in parous females) • Can be seen in anovulatory cycles also • Patients mainly complain of deep seated pelvic pain. • Pain appears 3-5 days prior to the period and is relieved with the start of the period. Important causes are: • Endometriosis • PID • Adenomyosis • IUCD • Uterine fibroid • Polyps • Cervical stenosis • Congenital malformation of uterus like bicornuate uterus **Mgt :** Treatment of the underlying cause.

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Explanation: The patient is having secondary dysnerorrhea, which is seen in case of Endometriosis.

(Choice a) Ovarian carcinomas often present late as they initially produce nonspecific symptoms including: abdominal distension, urinary frequency, and gastro-intestinal upset.

(Choice c) Symptoms of pelvic inflammatory disease (PID) may include: pelvic/lower abdominal pain, dyspareunia, abnormal vaginal discharge, and fever. PID may also be asymptomatic and diagnosed during a workup for infertility.

(Choice d) Endometrial hyperplasia, which peaks in incidence during the 5th and 6th decades of life, should be considered in women with heavy, prolonged, frequent, or irregular uterine bleeding.

9. A 32 year old woman begins medical treatment for endometriosis. After 2 months the patient returns to the physician complaining of hot flashes, vaginal dryness, loss of libido, and mood swings. What type of medication was the patient prescribed?

a. GnRH analogue
b. Androgenic agent
c. Combined oral contraceptive pills
d. Progestins

Ans. is (a) i.e. GnRH analogue

(Ref: Shaw 15/e, p 473)

Explanation: All of the choices listed are classes of drugs that can be used to treat the pain associated with endometriosis. Medical therapy can be used as a first-line treatment or after surgery as pain symptoms may recur. Currently there is no evidence that medical therapy improves the infertility that is related to endometriosis, so the aim of medical management is the reduction of pain symptoms and improving quality of life.

(Choice a) GnRH analogues, such as Leuprolide, when given continuously stimulate GnRH receptors in the pituitary gland and cause down regulation of these receptors which in turn, after an initial "flare," leads to suppression of gonadotropin release. GnRH analogues cause a pronounced hypo-estrogenic state and lead to

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symptoms similar to those experienced by women going through menopause (e.g., hot flashes, vaginal dryness, mood swings, and accelerated bone loss). A major limitation to long term use is a marked decrease in bone mineral density.

(Choice b) Danazol, a derivative of 17a-ethinyltestosterone, is an old and effective treatment for endometriosis but its ling-term use is limited by side effects such as weight gain, muscle cramps, atrophic breast changes, vasomotor symptoms, oily skin, acne, hirsutism, voice changes, and blood lipid changes.

(Choice c) Oral contraceptive pills are the most commonly prescribed treatment for endometriosis and can be used in a cyclic or continuous fashion. Side effects include bloating, nausea, and breast tenderness.

(Choice d) Progestins such as oral medroxyprogesterone acetate and injectable depot medroxyprogesterone acetate are effective treatments for endometriosis related pain. The side effects of the oral or depot progestins include weight gain, acne, spotting, and depression.

10. A 28 year old women with known endometriosis is found to have a cystic ovarian mass upon ultrasonography of her pelvis. A biopsy of the mass upon ultrasonography of her pelvis. A biopsy of the mass confirms the diagnosis of an endometrioma. It is decided that cystectomy will not be possible and an oophorectomy is performed. During the procedure the ovarian vessels were ligated and transected. Which ligament contains the ovarian artery and vein?

a. Round ligament
b. Uterosacral ligament
c. Cardinal ligament
d. Infundibulopelvic ligament

Ans. is (d) i.e. Infundibulopelvic ligament

(Ref: Shaw 15/e, p 12)

Explanation: The infundibulopelvic ligament **(choice d)**, also known as the suspensory ligament of the ovary, contains the ovarian vessels, lymphatics, and nerves.

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(Choice a) The round ligament is a remnant of the gubernaculum and keeps the uterus anteverted and anteflexed.

(Choice b) The uterosacral ligaments pass superiorly and somewhat posteriorly from the margins of the cervix to the middle of the sacrum. In patients with endometriosis, endometrial implants may be palpated on the uterosacral ligaments during a pelvic exam. The implants may be recognized as nodularity and palpation may illicit pain.

(Choice c) The cardinal ligament, also known as the transverse cervical ligament extends from the cervix and vagina to the lateral walls of the pelvis.

11. A 27 year old patient visits her gynaecologist with complaints of dysmenorrhea and dyspareunia. She is healthy and used no medications. Her pelvic exam is notable for a retroverted uterus and nodularity of the uterosacral ligaments. Laparoscopy shows dark implants adhering to the uterosacral ligaments. This patient has been attempting to get pregnant for over a year. What is the first-line treatment of her infertility?

a. Intrauterine insemination
b. Oral contraceptive pills
c. Laparoscopy
d. In-vitro fertilization

Ans. is (c) i.e. Laparoscopy

Explanation: A 27 year old patient presenting with dysnerorrhea and dyspareunia, with retroverted uterus and nodularity of uterus is suggestive of Endometriosis

This is further confirmed by laparoscopic findings of dark implants adhering on the uterosacral ligaments.

In patient of endometriosis

The first line of treatment for:



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(Choice a) Intrauterine insemination is recommended before laparoscopy only if there is a patency of the fallopian tubes (detected by hysterosalpingography).

(Choice b) This choice may improve her painful smptoms but would not address her infertility.

(Choice d) This choice is rarely a first choice prior to laparoscopy, and is only justified in situations where IVF would have been indicated for additional reasons (e.g. male factor of infertility).

12. On ultrasound ovarian endometrioma may be misinterpreted as:

a. Dermoid cyst
b. Ovarian carcinoma
c. Hemorrhagic cyst
d. All of the above

Ans. is (d) i.e. All of the above

Explanation: Endometrioma of the ovary or chocolate cyst is caused by bleeding from the ectopic endometrial tissue within the ovary. Ultrasound imaging small to large cystic lesions with diffuse, low level echoes and peripheral flow on color Doppler imaging.

Due to their content, chocolate cysts may be easily mistaken for dermoid cysts **(choice a)**, complex ovarian masses, such as ovarian carcinoma (choice b), and hemorrhagic cysts **(choice c).**

Therefore, a correct answer should include all there entities **(choice d).**

13. All of the following influence the rate of recurrence of endometriosis after laparoscopy except:

a. Stage o the disease
b. Depth of lesions
c. Occurrence of precious surgery
d. Age of patient

Ans. is (b) i.e. Depth of lesions

(Ref: Novak 15/e p 545)

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Explanation: The rate of recurrence of endometriosis increases with the stage of disease, duration of follow up and the occurrence of previous surgery. The likelihood of recurrence appears to be lower when endometriosis is located only on the right side than when left side is also involved.

The risk of endometriosis is also significantly correlated to the age of the patient. The younger the patient is at the time of diagnosis the higher the risk of recurrence.

Prevention of Recurrence

After first line surgery for endometriosis, women should be advised to seek conception as soon as possible.

14. If a daughter of the patient was concerned about the risk of sever endometriosis relative to the general public what would be an appropriate response.

a. Your mother having endometriosis places you at no greater risk than the general public.
b. Your mother having endometriosis places you at 5 times greater risk than the general public.
c. Your mother having endometriosis places you at 10 times greater risk than the general public.
d. Your mother having endometriosis places you at 25 times greater risk than the general public.

Ans. is (c) i.e. Your mother having endometriosis places you at 10 times greater risk than the general public.

(Ref: Novak 15/e, p 508)

Explanation: A first degree relative having endometriosis confers a 6-9 times greater risk than seen in the general population of patients.

15. What would be the proper course of action in a 25 year old patient with past medical history (PMH) of endometriosis presenting with 10/10 Right lower quadrant pain and fever

a. Antibiotics
b. Conservative medical treatment

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c. Scheduled laparoscopy
d. Emergent laparoscopy

Ans. is (d) i.e. Emergent laparoscopy

Explanation: Both endometriosis and acute appendicitis was found in 5.5% of patients presenting with a past medical history of endometriosis and RLQ pain.

(**choice a)** This is not the treatment of choice for either pathology. Though perioperative antibiotics have been shown to reduce the rates of complications.

(Choice b) Not appropriate in this situation.

(Choice c) Not appropriate in this situation.

(Choice d) This is the treatment of choice for most cases of acute appendicitis. Though open appendectomy has lower rates of fetal loss in pregnant patients and lower incidence of postoperative abscesses in children with ruptured appendix.

CASE STUDY # 3

Patient Introduction

- Ms. Tina an 18-year-old (G0 P0) patient comes to your office for counselling 12 hours after unprotected intercourse with her boy-friend.
- As usual, they used a condom but realized that the condom was broken during intercourse.

History of Present Illness

- Tina has been sexually active for six months and has had only one sexual partner. They have intercourse 2-3 times per week.
- Her last Pap smear was two months ago and was normal. She has never had a sexually transmitted disease.

Patient History

Menstrual History

- **Menarche:** 13 years

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- **Menstrual Cycles:** Were regular, 28/5
- **LMP:** 14 days ago, she states that she is likely in the peri-ovulatory period.

Pat Medical History

Unremarkable

Current Medications

None

Family History

Non-contributory

Social History

- She is a college student and lives with her parents. She does not smoke, does not consume alcohol, and reports no recreational drug use.

1. There are many different types of contraception and each type has a different method of preventing pregnancy. Many adolescent patients use barrier contraception. Which of the following is not a form of barrier contraception?

a. Male condoms
b. Diaphragms
c. Cervical cap
d. Copper intrauterine device
e. Contraceptive sponge

Ans. is (d) i.e. Copper intrauterine device

(Ref: Shaw 15/e, p 224-226)

Explanation: The correct answer is copper intrauterine device. Contraception mechanism of IUD involves sterile inflammatory reaction caused by the presence of foreign body in the uterus. It does not physically block the sperm from entering the cervix. Therefore, it is not a barrier method of contraception **(choice D)**.

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(Choice a) Male condoms are sheaths made of latex or other materials that are placed over the penis and prevent sperm from entering the vagina.

(Choice b) A diaphragm is a device that is placed in the vagina and acts as a barrier to physically block sperm from gaining access to the cervix.

(Choice c) A cervical cap is a device which is placed in the vagina and then tightly fits over the cervix to physically block sperm from entering the cervix.

(Choice e) The contraceptive sponge is a 2-inch wide, 0.75 inch thick circular disk that is moistened with water then deeply inserted into the vagina. The disk contains 1000 mg of nonoxynol-9 spermacide.

2. Condoms are a widely used form of contraception. They are often distributed to adolescents as a form of birth control. Like every contraceptive method, condoms have both advantages and disadvantages associated with their use. Which of the following statements is a disadvantage that pertains to condom use?

a. Relatively cheap
b. Protects against sexually transmitted diseases
c. Reversible form of contraception
d. Few side effects
e. Requires partner cooperation

Ans. is (e) i.e. Requires partner cooperation

(Ref: Shaw 15/e, p 224)

Explanation: One disadvantage to the use of male condoms is that their use requires cooperation from both partners. Some men refuse to wear condoms **(choice e)**. Other disadvantages associated with male condoms include: potential breakage during intercourse, interruption of foreplay to place the condom, decreased sexual sensitivity, and potential latex allergy.

(Choice a) Condoms are a relatively cheap source of contraception and some programs distribute them for free.

(Choice b) Condoms protect partners from contracting STDs if used properly.

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(Choice c) Discontinuing condom use allows the couple to immediately return to possible fertility.

(Choice d) Condoms have few side effects, unlike forms of hormonal and surgical contraception.

3. Another form of barrier contraception is the diaphragm. The diaphragm is utilized by countless women as their primary form of birth control. Which of the following statements is an advantage of using a diaphragm for contraception?

a. Diaphragms are easily placed.
b. Diaphragms decrease the risk of acquiring sexually transmitted diseases.
c. Diaphragms are a reversible form of contraception.
d. Diaphragms can immediately be removed after intercourse.
e. Diaphragms reduce the risk of urinary tract infections.

Ans. is (c) i.e. Diaphragms are a reversible form of contraception.

(Ref: Shaw 15/e, 225-226)

Explanation: Diaphragms are widely used. But they have some limitations along wit their advantages. One advantage to using diaphragms is that fertility can immediately be reinstated with discontinued use **(choice c)**. Other advantages include that they may be used by women that cannot use estrogens, such as those who are breast feeding, and that they have no systemic side.

(Choice a) Diaphragms require some skill and teaching on proper insertion.

(Choice b) Diaphragms do not prevent the transmission of STDs unlike condoms.

(Choice d) Diaphragms should be left in place for 6 hours after intercourse.

(Choice e) Diaphragms have been found to increase the risk of UTIs.

4. Male condoms, a barrier method for contraception, offer protection against STDs. One potential disadvantage to condom use is that they may slip off or break during inter-

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course, thus diminishing their protection. Which of the following is the failure rate, or percentage in which pregnancy occurs, with the use of condoms?

a. Less than 1/HWY
b. 14/HWY
c. 5/HWY
d. 50/HWY

Ans. is (b) i.e. 14/HWY

(Ref: Shaw 15/e, p 224)

Explanation: The failure rate of male condoms is nearly 14% **(choice b)**.Contributors to such a high failure rate include user error. Condoms are to be used throughout the entire sexual encounter. Oftentimes, people mistakenly do not use properly sized condoms and do not place them correctly. Errors such as these lead to condoms having such a high failure rate. If used appropriately, condoms would be much more effective in preventing pregnancy.

5. Which of the following is incorrect regarding the use of condoms?

a. Oil-based lubricants are recommended for use with latex condoms.
b. Do not use a condom that is too loose or too tight for the size of the penis.
c. It is important to use condoms during every sexual encounter.
d. Prematurely removing the condom at anytime during intercourse can result in pregnancy.
e. Condom should not be inflated for testing before using.

Ans. is (a) i.e. Oil-based lubricants are recommended for use with latex condoms.

(Ref: Shaw 15/e, p 224)

Explanation: The use of oil-based lubricants on condoms can disrupt the composition of a latex condom, allowing holes to form in the material. With this loss of integrity, the condom is no longer efficacious is preventing pregnancy **(choice a)**.

(Choice b) It is important to find the correctly sized condom according to penis length and girth, to help prevent pregnancy during sexual intercourse. A condom should not fit too tightly or

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loosely around the penis. Female condoms should also be sized appropriately.

(Choice c) A decrease in the frequency of condom use can increase the frequency of pregnancy. When using condoms for birth control, they should be worn for the duration of the sexual intercourse, every sexual encounter.

(Choice d) Removing a condom before the sexual encounter is finished, even after ejaculation and orgasm has occurred, can result in increased rates of pregnancy. Condoms should be removed before the penis becomes soft to avoid leakage.

6. Ms. Tina started her periods at age 13. We call precocious puberty when menarche occurs before the age of

a. 8 years
b. 9 years
c. 10 years
d. 11 years

Ans. is (c) i.e. 10 years

(Ref: Shaw 15/e p 56)

Explanation:

Precocious pu berty:

- Appearance of breast budding before the age of 8 years or Menarche before 10 years of age
- M/c cause of precocious puberty–Idiopathic/constitutional. DOC for precocious puberty = GnRH analogues.
- Delayed puberty–When secondary sexual characteristics donot appear by age of 14 and menarche not established by 16 years of age.

7. When taking an age appropriate history, which of the following is not an appropriate question to ask a female college student?

a. Do you have sex with men, women, or both?
b. Do you smoke cigarettes?
c. Do you participate in oral sex?
d. Do you use illegal/illicit drugs?
e. None of the above

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Ans. is (e) i.e. None of the above

Explanation: None of the listed questions are inappropriate or too sensitive to ask **(choice e)**. When taking a sexual history, it is important to ask about the types of sexual encounters. Having sex with men or women, and participating in different types of sex, including oral sex, are all normal variations of sexual relations. All activities should be screened for so that you may address healthcare concerns specific to your patients' behaviors, and all patients should be treated in a respectful manner. It is also important to screen for risky behaviors, including cigarette use, alcohol use, and use of illicit/illegal drug **(choice e)**.

8. A 26 year old female presents to the clinic one day after the accidental rupture of a condom during intercourse with her boyfriend. She is interested in a medication that will prevent her from getting pregnant, but wishes to continue utilizing barrier contraception afterward. The patient has never been pregnant, has no remarkable past medical or surgical history, and does not smoke or drink. You dicide to prescribe her levonorgestrel prevent pregnancy. What is the mechanism by LNG–Energency contraceptive acts

a. Disrupts integrity of the sperm cell membrane
b. Creates a local inflammatory reaction within the endometrial cavity and directly hinders sperm transport and viability
c. Causes decidual necrosis
d. Inhibits ovulation

Ans. is (d) i.e. Inhibits ovulation

(Ref: Shaw 15/e, p. 237)

Explanation: The high dose progestin-only contraception pill, levonorgestrel, can be administered either as a single dose or in two doses given twelve hours apart. It is recommended that levonorgestrel be administered within 72 hours of unprotected intercourse but can be used up to 120 hours after. Levonorgestrel, when used as a form of emergency contraception. Works by inhibiting or postponing ovulation and causing desynchronesation of endometrium thtough its receptions but does not seem to prevent fertilization or implantation **(choice d)**.

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(Choice a) Spermicidal agents contain a surfactant, typically nonoxynol-9, that immobilizes or kills sperm on contact by disrupting their cell membrane. Spermicides are not effective as an emergency contraceptive and are only moderately effective when used before intercourse.

(Choice b) The copper IUD is an extremely effective method of emergency contraception that may be used up to eight days after unprotected intercourse, but is typically used up to 5 days after. Soon after the insertion of the copper IUD within the endometrial cavity, a local, sterile, inflammatory reaction occurs in response to the foreign body. The increased phagocytosis of spermatozoa, as well at toxic effects upon the spermatozoa. Additionally, copper interferes with sperm transport and viability within cervical mucus. Implantation of the blastocyst may also be hindered.

(Choice c) Mifepristone (RU-486), is a selective progesterone receptor modulator (SPRM), and is an effective form of emergency contraception that maybe used up to 120 hours after intercourse; however, is not used as an emergency contraceptive within the United States. In the U.S., it is used in combination with a prostaglandin analogue as an abortifacient. It works by causing necrosis of the decidua.

As of 2010 another selective progesterone receptor modulator, uliprostal acetate (UPA), has been approved for use as an emergency contraceptive within the United states. UPA is administered as a single dose up to 120 hours after unprotected intercourse. UPA prevents pregnancy by inhibiting or delaying ovulation, as well as by altering the endometrium to deter implantation.

9. A 30 year old female presents to the clinic five days after unprotected intercourse. The patient is married with three children and wishes to avoid becoming pregnant for at least four more years. Currently, she is not using any contraceptive to prevent pregnancy. The patient has no significant past medical history and has been pregnant on three occasions, with all of the pregnancies proceeding to term deliveries. What form of emergency contraception is most appropriate for this patient?

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a. COCs (Combined oral contraceptive pills)
b. Copper IUCD
c. Cervical cap
d. Levonorgestrel

Ans. is (b) i.e. Copper IUCD

(Ref: Shaw 15/e, p. 237)

Explanation: The copper IUD is an extremely effective method of emergency contraception that may be used up to eight days after unprotected intercourse, but it is typically used up to five days post coitus. After placement of the IUD, it may be left in place as form of birth control for up to ten years. The patient in this vignette desires long term contraception, so placement of the copper IUD in this situation may serve for both emergency and regular use contraception **(choice b).**

(Choice a) Large dose combination estrogen and progestin oral contraceptive pills used as an emergency contraceptive is referred to as the "Yuzpe method." This method was introduced by Alfred Yuzpe in the 1970s. Use has fallen out of favour due to pronounced side effects, such as nausea and vomiting, as well as a lower efficacy than the progestin-only emergency contraceptive.

(Choice c) A cervical cap is a form of barrier contraception that covers the cervix and acts by preventing semen from entering the uterine cavity. It must be placed before intercourse and therefore is ineffective as a form of emergency contraception. Other forms of barrier contraception include: male condoms, female condoms, diaphragms, and sponges. Barrier contraceptives may be used in conjunction with spermicides to increase efficacy. However, they are not useful for emergency contraception.

(Choice d) Levonorgestrel, a synthetic progestin, works by inhibiting or postponing ovulation but does not seem to prevent fertilization or implantation. It is recommended that levonorgestrel be administered within 72 hours of unprotected sex and would be provided protection from an unwanted pregnancy by the placement of the copper IUD.

10. A 23 year old female presents to you two days after unprotected intercourse requesting advice about how to prevent an unwanted pregnancy. In obvious distress, she states that she was curious about using a form of

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emergency contraception but is deeply religious and does not want to "Take an abortion pill." She has no past medical or surgical history and denies alcohol or tobacco use. You intend to recommend one dose of levonorgestrel as an effective means of emergency contraception. Before you do, what is the best way of addressing her concerns?

a. State that levonorgestrel will cause an abortion so she should just wait and see about becoming pregnant.
b. State that she should not worry as the medication you intend to prescribe works by interfering with implantation of the fertilized egg.
c. State that the medication you intend to prescribe works b preventing the egg from ever getting fertilized by sperm, not by destroying an implanted fertilized egg.
d. State that she should ask her partner what he wants and return in a week.

Ans. is (c) i.e. State that the medication you intend to prescribe works b preventing the egg from ever getting fertilized by sperm, not by destroying an implanted fertilized egg.

Explanation: It is important for a physician to adequately understand the mechanism of action of emergency contraception in order to properly address patient fears and concerns. The American college of obstetrics and gynecology asserts that pregnancy is established at the time of implantation of the embryo, and by this definition, levonorgestrel does not act as an abortifacient (a drug or device that cause the termination of a pregnancy). Levonorgestrel, when used as a form of emergency contraception, works by inhibiting or postponing ovulation but does not seem to prevent fertilization or implantation **(choice c)**.

11. A 27 year old female presents to the clinic after a positive at home pregnancy test. She states that this pregnancy was unitended and does not wish to follow the pregnancy to term. An office pregnancy test confirms that the patient is indeed pregnant. According to the patient's LMP, the gestational age of the embryo is seven weeks. After a history, physical, and sonographic study, you discuss the

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risks of pregnancy termination. Which of the following is not a common complication of induced abortion?

a. Infection
b. Uterine perforation
c. Hemorrhage
d. DVT

Ans. is (d) i.e. DVT

(Ref: Shaw 15/e, p 246-248)

Explanation: The most common complications of induced abortions include uterine perforation, cervical lacerations, haemorrhage, and retained products of conception **(choice d)**. The likelihood of these complications occurring is dependent upon numerous factors including how far along the pregnancy is and the method used to induce abortion. There are both medical and surgical abortion methods.

Methods for surgical abortion include: Manual vacuu aspiration (used at 4-10 weeks gestation), suction curettage (used at 6-14 weeks gestation), sharp curettage (used at 4-14 weeks gestation), and dilation and extraction (used at 14-24 weeks gestation). Sharp curettage is not currently recommended due to the increased risk for blood loss and retained products of conception as compared with suction curettage.

Medications used for terminating pregnancy include mifepristone (RU-489), methotrexate, and prostaglandin E1 analog misoprostol, or a combination of both mifepristone and misoprostol. Medical methods for pregnancy termination are typically reserved for early abortions (<8 weeks gestation).

12. 33 year old woman came into your clinic. Last night she went out to a club and cannot remember the evening after 10 p.m. She has some vaginal discomfort this morning and believes that she may have been the victim of a rape. In cases where unprotected sex has occurred recently, which of the following is the next step in management should the patient not wish to become pregnant?

a. Oral contraceptive pills
b. Emergency contraception
c. Mifepristone
d. Dilatation and curettage

Ans. is (b) i.e. Emergency contraception

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Explanation: In the first hours following unprotected sex, the appropriate method to prevent pregnancy is the use of the emergency contraceptive pill, otherwise known as plan B **(choice b)**. It is prescribed as 2 tablets of 0.75 mg levonorgestrel, either in a single dose or taken 12 hours apart. The first tablet should be used as soon as possible, ideally within the first 72 hours after unprotected intercourse. In addition, the patient should be screened for STDs, HIV, and HSV (herpes simplex virus). Antibodies to hepatitis B surface antigen (HBsAg) should be performed, as well as cervical citology.

(Choice a) Oral contraceptive pills are used on an everyday basis to prevent pregnancy.

(Choice c) Mifepristone (RU 486) is an alternative to surgical abortion for patients in early pregnancy.

(Choice d) Dilation and curettage is a surgical method used in the termination of a pregnancy.

13. For patients wishing to prevent pregnancy in the first few days following unprotected sex, there are a few options. Which of the following is not a type of emergency contraception?

a. Copper IUD
b. Progesterone agonist
c. Methotrexate
d. Nifepristone

Ans. is (c) i.e. Methotrexate

(Ref: Leon Speroff 7/e, p 927, Novak 14/e, p 283-285)

Explanation: Methotrexate is a method used in medical abortion **(choice c)**. All other options are examples of emergency contraception.

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Drugs used for Emergency Contraception

Drug	Dosage
1. ***OCP's (Morning after pill)***	**Yuzpee's method** 2 tablets of ovral (EE=50 mg and Levonorgestrel 0.25 mg) followed by 2 tablets 12 hours later. *Remember* a total of 200 mg EE and 1mg of Levonorgestrel is required as Emergency contraception. They should be started within 72 hours and for best results within 12 hours of exposure. High dose estrogen has replaced this method.
2. ***High dose Estrogen***	0.5 mg of EE daily for 5 days starting within 72 hours of exposure.
3. ***Levonorgestrel alone-*** **Most appropriate drug / progestrone for Emergency contraception**	New and Better alternative 0.75 mg is taken initially within 72 hrs followed by another 0.75 mg 12 hours later. Available by name *E pill* under the national family welfare programme. Other brands available are : I pill/Ecee2/unwanted 72
4. ***Copper Intrauterine device***	Insertion of an IUCD within maximum period of 5 days-7 days after accidental unprotected exposure. It prevents implantation but is not suitable for women with multiple sex partners and for rape victims.
5. ***Mifepristone/RU-486***	A single dose of 10 mg given within 5 days is effective in preventing in pregnancy in 95% cases. Mifepristone is also highly effective in inducing menstruation when taken on day 27 of the menstrual cycle (well beyond 72 - 120 hrs window which is usually considered for postcoital contraception).
6. ***Danazol***	600 mg and repeated after 12 hours. It is a weak androgen. **Other methods are more desirable than danazole.**

As far as Danazol is concerned, amongst the given options it is used the least.

"The use of danazol for emergency contraception is not effective".

... Leon Speroff 7/e, p 927

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ALSO KNOW

- Emergency contraception should be initiated as soon as possible **after exposure** and the standard recommendation is that it should not be initiated later than 72 hours.
- Greatest protection occurs if it is started within 12 hours of exposure.
- Emergency contraception will be ineffective in the presence of an established pregnancy.

14. An 18 year old G0P0 college student who is living with her parents comes to your office 24 hours after sexual intercourse that involved a broken condom. After a productive counselling session, you and shed decide on a plan of emergency contraception. After you walk out of the room you remember to counsel her on follow up care. You have prescribed the least invasive, first line emergency contraception choice. Which of the following is the most appropriate counselling and follow up related to her prescription?

a. No need to schedule a follow up visit even if the patient will experience vomiting less than two hours after initiating the treatment.
b. Return to the office for dilatation and curettage.
c. Intense abdominal pain and prominent bleeding are normal side effects of emergency contraception.
d. Return to the office if severe nausea and vomiting occurs less than two hours after initiating treatment.

Ans. is (d) i.e. Return to the office if severe nausea and vomiting occurs less than two hours after initiating treatment.

Explanation: The best recommendation to this patient is to return to the office if severe nausea and vomiting occurs less than two hours after initiating treatment **(choice d)**. Many practitioners premedicate with an antiemetic and send patients home with an extra dose of emergency contraceptive in case the patient vomits before two hours have passed, as this may render the treatment ineffective. Any patient who develops severe vomiting and is unable to tolerate the contraceptive orally should return to the office for vaginal administration of levonorgestrel.

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(Choice a) There is no need to schedule a follow up visit following uncomplicated administration of levonorgestrel as an emergency contraceptive.

(Choice b) Emergency contraception is very effective with failure rate of less than 1% in women who use it correctly. Therefore, D and C is not a correct option.

(Choice c) Intense abdominal pain and abdominal bleeding should prompt the patient to seek an immediate attention to evaluate for a possible ectopic pregnancy.

15. A patient takes levonorgestrel emergency contraception and wants to know when she will have her next menstrual period. After taking levonorgestrel, when can a patient expect her next menses?

a. One week after treatment
b. On her regular schedule
c. One week later than expected
d. Varies according to timing of treatment

Ans. is (d) i.e. Varies according to timing of treatment

Explanation: If the emergency contraceptive, levonorgestrel, is taken in the early part of the menstrual cycle, the menstruation will be early. If taken towards the end of the menstrual cycle,the menstruation will be later **(choice d)**. In general, the next menstrual period will occur within one week of the patient's normal schedule. Any patient who does not experience a normal menstrual period in three to four weeks should perform a pregnancy test.

(Choice b) Regularly spaced periods normally resume one cycle after the use of levonorgestrel for emergency contraception.

16. What is the "best" form of contraception for a sexually active 18 year old G0P0 monogamous college student who lives with her parents and does not want children for many years?

a. Male condoms only
b. Hormonal contraception
c. Hormonal contraception and male condoms
d. Female sterilization

Ans. is (c) i.e. Hormonal contraception and male condoms

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Explanation: In young sexually active patients with no desire for conception in the next few years, hormonal contraception and male condoms is the most appropriate contraceptive choice **(choice c)**.

(Choice a) The use of male condoms only is not an ideal option for ourpatient because of a relatively high failure rate. Common errors in usage of condoms are failure to use them with every act of intercourse and throughout intercourse. In correct placement of the condom on the penis and poor withdrawal technique are also associated with failure of this contraceptive method. The advantage of male condoms is that they are readily available and they efficiently protect the cervix from STDs and HIV infection.

(Choice b) The most popular type of hormonal contraception is oral contraception, which contain either an estrogen/progestin combination or a progestin component alone. There are numerous types of hormonal contraceptives, to include transdermal patch, contraceptive vaginal ring, injectable progestin only contraceptives and levonorgestrel implant. The advantage of this method is low failure rate for perfect users. However, patients should be informed that hormonal contraception provides only minimal protection against STD (due to increased viscosity of cervical mucus).

(Choice d) irreversible method of contraception, such as female sterilization is inappropriate for young patient who was never pregnant.

Physicians should always discuss all available contraceptive methods with their patients and include a discussion of the risks/benefits, cost, typical use/actual use effectiveness, and side effects of each method. This allows women the opportunity to find the method best suited to their individual contraceptive needs and desires.

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CASE STUDY # 4

Patient Introduction

- Mrs. Singh is a 65-year-old Caucasion, GOPO who presents to the clinic with history of vaginal discharge and abnormal vaginal bleeding.

History of Present Illness

- The patient started experiencing sporadic vaginal bleeding around two months ago. She has also experienced a heavy white discharge, off and on during the past month.
- Her last menstrual period was 12 years ago.

Patient History

Menstrual History

- **Menarche:** 12 years
- **Coitarche:** 23 years
- **Menstrual cycles:** Always irregular, every 24-90 days menses lasting 8-10 days
- **LMP:** 12 years ago

Past Medical History

The patient has significant medical history for type 2 diabetes mellitus and hypertension, currently medicated for both. She has a history of breast cancer, first diagnosed at age 42. She was diagnosed with a recurrence of breast cancer at age 64 and has since been on tamoxifen.

Family History

Her father died of complications of colorectal cancer.

Social history: Mrs. Singh is widowed. She lives by herself and is a retired elementary school teacher. She has had two sexual partner in her lifetime. She is not currently sexually active. She denies any other symptoms, and review of systems is negative.

1. **Mrs. Singh is a 65 year old Caucasian, GOPO who presents to the gynecology clinic with history of vaginal discharge and abnormal vaginal bleeding. In woman of this**

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age, with is the most common cause of abnormal vaginal bleeding?

a. Endometrial polyps
b. Leiomyomata
c. Endometrial cancer
d. Atrophic endometrium/vaginal mucosa
e. Endometrial hyperplasia

Ans. is (d) Atrophic endometrium/vaginal mucosa

(Ref: Novak 14/e, p 1349)

Explanation: In postmenopausal women, it is abnormal to have uterine bleeding. This is because they no longer produce sufficient estrogen due to their anovulatory state. The lack of estrogen also causes atrophic changes. If a postmenopausal woman presents with vaginal bleeding, the most common cause will be atrophy of the vaginal mucosa, which results in friable tissue that is more likely to bleed. On one study, greater than 80% of abnormal bleeding in postmenopausal women was caused by atrophic endometrium and/or vaginal mucosa (choice d). The other choices are also causes of abnormal bleeding in postmenopausal women, but not the most common. One cause, endometrial cancer, should be the first differential diagnosis ruled out in the case of abnormal uterine bleeding in the postmenopausal woman.

2. Avariety of etiologies can be the cause of abnormal uterine bleeding in a postmenopausal woman, including polyps, endometrial hyperplasia, atrophic endometrium, fibroids, and endometrial carcinoma, If 100 postmenopausal patient present with abnormal uterine bleeding, how many patients would likely be diagnosed with endometrial carcinoma?

a. 1
b. 5
c. 10
d. 20
e. 40

Ans. is (c) i.e. 10

(Ref: Novak 14/e, p 1349)

Explanation: While endometrial cancer is not the most common cause of abnormal uterine bleeding in a postmenopausal woman,

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it carries the gravest outcome. Every postmenopausal woman who presents with abnormal uterine bleeding should have an immediate workup for endometrial cancer. Several studies have found the if 100 postmenopausal patients present with abnormal uterine bleeding, about 10 of the patients would go on to be diagnosed with endometrial carcinoma **(choice c).**

Causes of Post Menopausal Uterine Bleeding with their frequency of occurrence. *... Novak 14/e, p 1349*

Cause	Percentage
• Endometrial atrophy (MC)	60 - 80%
• Estrogen Replacement therapy	15 - 25%
• Endometrial Polyps	2 - 12%
• Endometrial hyperplasia	5 - 10%
• Endometrial cancer	10%

3. For women, gynaecological cancers such as cervical, endometrial, fallopian tube, ovarian, and vulva cancers, are often overlooked due to the high prevalence of breast cancer. Some gynaecological cancers have specific screening tests to help to facilitate early treatment, while other gynaecological cancers have very few signs and symptoms. Which of the following types of gynaecological cancer is the most common in India.

a. Cervical cancer
b. Endometrial cancer
c. Fallopian tube cancer
d. Ovarian cancer
e. Vulvar cancer

Ans. is (a) i.e. Cervical cancer

(Ref: Textbook for PG's by Bijoy Sree Sen Gupta p 156-157)

Explanation: Endomentrial cancer is the most common type of gynaecological cancer wordwide. In fact, it is the fourth most prevalent cancer in women. In the United State, uterine cancer is the most common gynecologic malignancy, with approximately 46, 470 new cases and 8,120 deaths from the disease occurred in 2011.

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"In the developed world postmenopausal bleeding (PMB) is frequent presentation of endometrial cancer. The scenario is different in the developing world where carcinoma cervi is still the leading malignancy of the genital tract and the leading cause of PMB."

...Bijoy Sree 2/e, page 156

4. Endometrial cancer is a very common form of cancer and physicians should take special care to identify risk factors and recognize presenting symptoms of the dease. Risk factors for endometrial cancer include excess unopposed estrogen, tamoxifen use, obesity, and chronic anovulation, among others. Which of the following represent a risk for cerpus cancer syndrome: A combination of diabetes, obesity and hypertension is association with endometrial carcinoma is called as the corpus cancer syndrome.

- Obesity
- Tamoxifen use
- PCOS
- Hypertension
- Diabetes

a. (i), (iii), (iv), (v)
b. (i), (iii), (iv), (v)
c. (i), (iv), (v)
d. All of the above

Ans. is (c) i.e. (i), (iv), (v)

(Ref: Jefficoates 7/e, p 504, Dutta Gaynee 5/e, p 351)

Explanation: "A combination of diabetes, obesity and hypertension in association with endometrial carcinoma is called as the corpus cancer syndrome."

5. Which of the following symptom patterns is most likely associated with advanced stage endometrial calcinoma?

a. Abdominal pain, bloating, diarrhea
b. Headaches, nausea, vomiting
c. Fever, chills, abdominal pain
d. Weight loss and muscle fatigue

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Ans. is (a) i.e. Abdominal pain, bloating, diarrhea

(Ref: Williams Gaynee 2/e, p 823)

Explanation: Of the answer choices, the symptoms that are most likely to indicate advanced endometrial carcinoma include abdominal bloating and pain, as well as changes in bowel habits, such as diarrhea (choice a). Other symptoms, such as weight loss and fatigue may be indicative of cancer, but are less specific for endometrial carcinoma.

6. A postmenopausal patient comes to your office complaining of vaginal bleeding and abdominal pain. Which of the following is the most important diagnosis to consider on your differential?

a. Irritable bowel syndrome
b. Endometrial carcinoma
c. High grade cervical dysplasia
d. Pelvic inflammatory disease

Ans. is (b) i.e. Endometrial carcinoma

Explanation: Any postmenopausal patient who is experiencing bleeding first be evaluated for cancer, particularly endometrial cancer. Ruling out uterine or cervical cancer is of utmost importance, as these are life-threatening conditions **(choice b).**

7. Which of the following mechanisms of action of tamoxifen is most likely to thicken the endometrium, theraby increasing the potential for endometrial carcinoma?

a. Antagonism of estrogen receptors in the endometrium
b. Antagonism of progesterone receptors
c. Agonist of the estrogen receptors in the endometrium
d. Antagonism of GnRH

Ans. is (c) i.e. Agonist of the estrogen receptors in the endometrium

Explanation: Tamoxifen is an example of a drug that causes increased endometrial thickness, and can predispose to endometrial carcinoma. Tamoxifen is often prescribed in the treatment of breast cancer. The mechanism of action of tamoxifen is two-fold. It is an antagonist of estrogen receptors in the breast

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(useful for treating hormone receptive breast cancer), and it is a partial agonist at the estrogen receptors in the endometrium. This partial agonist mechanism of tamoxifen causes thickening of the endometrial layer and can lead to an increased risk of endometrial carcinoma **(choice c).**

(Choice a) Tamoxifen does indeed antagonize estrogen receptors in the breast. However, this is not the mechanism of action by which Tamoxifen can increase the risk of endometrial cancer.

(Choice b) Antagonism of progesterone receptors is the mechanism of acton of mifepristone, which is often used to induce abortion.

(Choice d) Antagonism of GnRH is the mechanism of action for drugs that may decrease the release of gonadotropins. Such drugs do not play a role in the increased risk of endometrial cancer.

8. Which of the following mechanism of genetic defect causes Lynch Syndrome?

a. Mutation in DNA synthesizing proteins
b. Mutation in p53
c. Mutation in the RB gene
d. Mutation in DNA mismatch repair genes

Ans. is (d) i.e. Mutation in DNA mismatch repair genes

Explanation: Lynch syndrome, also called hereditary nonpolyposis colorectal cancer (HNPCC) is a type of hereditary cancer of the gastrointestinal tract. People with Lynch Syndrome have an increased risk of cancers of the Gl tract, biliary tract, and urinary tract, as well as of the brain, skin, prostate, endometrium, and ovaries. Lynch syndrome is caused by a mutation in DNA mismatch repair genes. Such genes include MSH1, MSH2, and MSH6 (choice d). None of the other mutations listed are causes of Lynch syndrome.

9. A 71-year-old patient, G3P2 comes to your office after some unexpected vaginal bleeding and discharge. Menopause was 22 years ago and she never received systemic hormone replacement therapy. She did use estrogen topical cream for vaginal atrophy, until her

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husband passed away six years ago. She has had no traumatic insults or UTI symptoms in the last few months. On further work up, it is determined that she does in fact have an intrauterine lesion with malignant potential. What is the most common histological type of uterine lesion with malignant potential?

a. Adenocarcinoma
b. Adenosquamous carcinoma
c. Clear cell carcinoma
d. Papillary serous carcinoma

Ans. is (a) i.e. Adenocarcinoma

(Ref: Novak 14/e, p 1354; Shaw 15/e, p 418)

Explanation: Sixty percent of endometrial carcinomas are endometrioid adenocarcinomas, Which can be described as neoplastic glandular tissues of varying architecture that is generally well defined, closely packed endometrial glandular tissue with no stroma in-between (choice a, Figures 20-1 and 20-2).

Other histological subtypes include adenosquamous carcinoma (that has both squamous and glandular features), clear cell carcinoma (that can be tubular cystic, solid, or papillary, all with glycogen causing clear cell features), and papillary serous carcinomas (that are generally poorly differentiated papillary architectures sometimes with psammoma bodies). Sarcomas make up about 4% of uterine corpus malignancies and include the following: carcinosarcomas or mixed homologus mullerian tumors, 48-50%; leiomyosarcomas, 38-40%; and endometrial stromal sarcomas, 8-10%. Adenosquamous variants account for variable percentages due to controversy in classification criteria. Clear cell variants account for less than 10% of all uterine lesions. Papillary serous carcinomas account for less than 5% of all uterine lesions.

(Choice b) Adenosarcoma variants account for variable percentages due to controversy in classification criteria.

(Choice c) Clear cell variants account for less than 10% of all uterine lesions.

(Choice d) Papillary serous carcinomas account for less than 5% of all uterine lesions.

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NOTE:
- M/C Endometrial cancer = Adenocarcinoma
- Most malignant = Clear cell carcinoma/papillary serous variety

10. An 80-year-old, G3P2 patient with a BMI of 23 comes to your office after some unexpected vaginal bleeding and discharge. Menarche occurred at 15 years of age, and she experienced menopause 25 years ago. She has had no traumatic insults or UTI symptoms in the last few months. On further work up it is determined that she does in fact have a lesion with malignant potential. What is the most common lesion associated with this particular scenario?

a. Type I estrogen dependant
b. Type II estrogen independent
c. Type I estrogen independent
d. Type II estrogen dependant

Ans. is (b) i.e. Type II estrogen independent

(Ref: John Hopkins manual of Obs and Gynae 4/e, p 564, Novak 14/e, p 1354)

Explanation: Type II endometrial cancers are thought to be estrogen independent, occurring in older women, with high-grade histology such as uterine papillary serous or clear cell. This is an older patient with no history of hyper-estrogenic exposure. Until pathology results return we have to assume this patient has type II endometrial cancer with poorper prognosis than type I (choice b).

(**Choice a)** More than 80% of endometrial carcinomas are type I and are due to unopposed estrogen stimulation **(**estrogen dependent), resulting in a low-grade histology. It is often found in association with atypical endometrial hyperplasia, which is thought to be a precursor lesion. Type I lesions are the majorityof endometrial cancers. They are generally in younger patients with history of overt-estrogen exposure: POCS, HRT, early menarche, late menopause, nulliparity, etc.

11. Raj, a 39-year-old, G3P2 African American patient, with a BMI of 25, comes to your office after some unexpected vaginal bleeding and discharge. Menarche occurred at 15

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years of age and she has a history of regular menstrual periods. She has had no traumatic insults or UTI symptoms in the last few months. During the subsequent visit it is determined that she has fibroids. Almost as an afterthought, she mentions that her 3-year-old daughter evaluated. It is determined that the child does in fact have a lesion with malignant potential. Evaluation of the biopsy specimen indicates that the histological features are not of uterine origin. What is the most common lesion associated with the child's presentation?

a. Osteosarcomas
b. Neuroendocrine tumor
c. Rhabdomyosarcomas
d. Chondrosarcomas

Ans. is (c) i.e. Rhabdomyosarcomas

(Ref: Williams Gynae 1/e, p 683)

Explanation: This case of a young (3-year-old) female with a protruding vaginal lesion is the classic presentation of embryonal rhabdomyosarcoma (sarcoma botryoides) **(choice c).** These mesenchymal tumors are of embryonic origin, often polyploidy, and with mucinous and/or bloody discharge. In older girls, these lesions are often uterine or cervical in location. Sarcomas make up 4% of uterine malignant neoplasia. 98% of sarcomas have tissue types of uterine origin. The remaining sarcomas are made up of heterogonous tumors, tumors that contain hstological components foreign to the uterus, to include: rhabdomyosarcomas, osteosarcomas, and chondro-sarcomas.

(Choice a) Osteosarcomas are mesenchymal tumors with osteoid features. As a uterine lesion they are exceptionally rare, generally presenting in older patients with calcified lesions and sometimes ascites.

(Choice b) Neuroendocrine tumors of the uterus, such as carcinoid tumors are exceptionally rare.

(Choice d) Chondrosarcomas are mesenchymal tumors with cartilaginous features. They are also exceptionally rare.

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ALSO KNOW

Embryonal Rhabdomyosarcoma is the most common malignancy of the vagina in infants and children.

MIC subtype of embryonal Rhadomyosarcoma is **Sarcoma Botyroides**

Seen in infants and children less than 5 years of age.

"This rare tumor develops almost exclusively in girls younger than 5 years, although vaginal and cervical sarcoma botryoides have been reported in females aged 15 to 20 years."

...William gynae 1/e, p 683

"Sarcoma botryoides are usually seen in patents who are younger than 5 years of age." *COGDT 10/e, p 831*

In infants and children, sarcoma botyroides is usually found in vagina, in reproductive age females rhadomyo sarcoma is seen within the cervix and after menopause within the uterus.

The gross appearance of the tumor resembles pinkish bunch of grapes—it can be in the form of multiple polyp like structures or can be a solitary growth with pedunculated appearance.

Histologically–its characteristic finding is "**rhabdomyoblast**."

Clinical features:

The presenting features are:

- Blood stained vaginal discharge
- Anaemia and cachexia

Management

Chemotherapy—Vincristine Actinomycin D and cyclophasphamide followed by conservative surgery to excise residual tumor is the treatment of choice. Newer studies have revealed that primary chemotherapy without surgery is adequate for most patients.

12. Your patient presents with a history of abnormal uterine bleeding for the last six months. She has used OCPs in the past for both birth control and to help her menstrual cycles become more regular; however, she hasn't taken them since undergoing menopause five years ago. Her pap smears have all returned normal and her physical exam is unremarkable. What is the next step in her management?

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a. Reassurance
b. Pelvic ultrasound
c. CT pelvis
d. Measure CA-125

Ans. is (b) i.e. Pelvic ultrasound

Explanation: Ultrasonography helps exclude other pelvic pathology that might contribute to postmenopausal bleeding. Endometrial stripe thickness, which can be determined using ultrasound, helps in determining which postmenopausal women with negative findings on in office endometrial biopsy samples should have a formal curettage. If the stripe is >5 mm, further evaluation is warranted, even if endometrial biopsy is without abnormal pathological results. If the stripe is <5 mm, and Pap smear is within the normal limits, the patient may be sent home with reassurance. If the bleeding and symptoms continue, additional diagnostic methods should be applied. Because performance of an endometrial biopsy in the office is relatively easy and cost-effective, and because it can be performed at the visit when patients initially present with bleeding, most physicians choose to perform this test first. That said, either pelvic ultrasound, or endometrial biopsy, are considered appropriate initial tests in the evaluation of postmenopausal bleeding, and as discussed are best used in conjunction **(choice b).**

(Choice a) Postmenopausal bleeding should be evaluated to find a cause and not just by Reassurance

(Choice c) CT pelvis is not the correct step at this time.

(Choice d) CA-125 level is not an appropriate scree-ning test, nor is it used in the diagnosis of endometrial cancer.

13. Your postmenopausal patient with abnormal vaginal bleeding has pathology results describing receptor negative, low grade endometrial carcinoma. She presented with complaints of dysmenorrhea for the last three months, but has no other complaints. What is the next step in treatment?

a. Hormonal therapy
b. Chemotherapy
c. Exploratory surgery
d. CT scan

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Ans. is (c) i.e. Exploratory surgery

Explanation: The first-line therapy for the vast majority of early-stage endometrial cancer patients includes exploratory surgery. i.e. Surgery staging as Endometrual Cancer is staged surgically and not clinically. Local extension and metastatic disease, requiring comprehensive staging, can be predicted using clinical evidence, including obvious cervical disease and high tumor grade on the endometrial biopsy specimen **(choice c).**

(Choice a) Hormonal therapy has a role in adjuvant therapy in receptor-positive endometrial cancers.

(Choice b) Chemotherapy plays a role in adjuvant therapy for metastatic endometrial cancer. This patient has no red flags signalling metastatic cancer at this point.

(Choice d) CT scan is typically not necessary in the workup of apparent early-stage endometrial cancer.

14. A long time patient of yours comes in for an unscheduled visit "for counselling" according to your receptionist. She is a 66-year-old G2P2, and when she arrives you begin with open ended questions. You discover that one of her closest friends recently died of endometrial cancer. She is sad and scared. After screening her for depression with the recommended two question screen, you delve into a discussion of her fears. You find that she would like you to screen her for endometrial cancer. What is the appropriate screening tool for endometrial cancer in an asymptomatic patient?

a. Endometrial biopsy
b. Transvaginal ultrasound
c. Transabdominal ultrasound
d. Currently there is not a recommended screening test.

Ans. is (d) i.e. Currently there is not a recommended screening test.

(Ref: Wiliam Gaynee 2/e, p 823)

Explanation: For a screening exam to be recommended and widely employed, it needs to be sensitive, cost effective, easy to use/access, and significantly impact outcomes. For example, Pap smear tests saves lives, as they meet the expectations for screening exams. A screening for ovarian cancer would save lives but is not

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available in any manageable form. The screening for endometrial cancer could be performed by any of a number of methods but would not significantly affect the course of disease of therapy for most patients. As most cases of uterine cancer present with signs and symptoms at a vary early pathological stage, and because of the very high survival rates associated with uterine cancer, any effective screening method is simply impractical. Thus, currently no screening exam for endometrial cancer is recommended for use in asymptomatic patients (choice d).

However annual screening by endometeral sampling should begin at age 35 years is a woman at high risk for endometrial cancer due to heriditary non polyposis colorectal cancer/lynch syndrome.

(Choice a) Biopsy showing glandular or squamous atypia would be considered positive, but endometrial biopsy is not employed as a screening exam in asymptomatic women.

(Choice b) Trans-vaginal ultrasound could show a thickened stripe indicative of possible atypia in postmenopausal women, but earlier than the emergence of symptoms in most patients.

(Choice c) Trans-abdominal ultrasound is less sensitive than transvaginal ultrasound for intrauterine pathologies.

15. A G5P3 patient in her mid sixties comes to your office for your opinion of a recent pathology report from an endometrial biopsy she had done elsewhere. On reading the report, you realize that she has stage II moderately differentiated endometrial adenocarcinoma. She wants to know if she should seek treatment or simply live out the rest of her life, allowing the natural progress of the pathology to run its course. This is a request of your professional opinion and knowledge of survival rates with and without treatment are needed to facilitate an informed professional response. Generally, the five year survival rate for patients with stage II endometrial adenocarcinoma is approximately?

a. 95%
b. 75%
c. 50%
d. 20%

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Ans. is (b) i.e. 75%

(Ref: Williams Gynae 2/e, p 833)

Explanation: There is generally a favourable response to treatment of endometrial adenocarcinoma if caught in stage I or II. The five year survival rate is lower in stage III and IV. Generally, the five year survival rate for patients with Stage II endometrial adenocarcinoma is approximately 75% **(choice b).**

(Choice a) A 95% five year survival rate correlates to stage I endometrial adenocarcinoma.

(Choice c) A 50% five year survival correlates to stage III endometrial adenocarcinoma.

(Choice d) A 20% five year survival correlates to stage IV endometrial adenocarcinoma.

16. A 59 year old patient of yours is having terrible trouble sleeping at night because of hot flashes. She requests estrogen replacement therapy (ERT) to alleviate her symptoms. The one snag in her past medical history is that she is in complete remission from endometrial cancer initially found in stage I, for which she had hysterectomy 6 years ago. You are familiar with both the Women's Health Initiative study and the Gynecologic Oncology Group study designed to evaluate estrogen replacement therapy in patients with a history of early-stage endometrial cancer. According to the evidence presented by these and similar studies what is the definitive answer for your patient?

a. She is a good candidate for ERT
b. She is not a candidate for ERT
c. She is a good candidate for pre-pro therapy
d. There is no definitive data but she could be a candidate for ERT

Ans. is (d) i.e. There is no definitive data but she could be a candidate for ERT

(Ref: Williams Gynae 2/e, p 583)

Explanation: The use of estrogen replacement therapy (ERT) in women with a history of endometrial cancer is controversial for stage I, grade 1 endometrioid adenocarcinoma. The results of

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the recent Women's Health initiative (WH) have only clouded this issue. Although data are limited, patients who are in complete remission or who have surgical stage I disease and have undergone optimal treatment may be candidates for ERT. The Gynecologic oncology group study designed to evaluate ERT in patients with a history of early-stage endometrila cancer was closed prematurely due to release of the WHI results. Consequently, it is hard to draw any conclusions from the limited data (choice d).

(Choices a and b) Unfortunately, there is no set and authoritative data right now. Due to her complete remission she may be a candidate for ERT.

(Choice c) Patient who has had hysterectomy does not need to take progesterone.

CASE STUDY # 5

Patient Introduction

- Smt Rani a 72-year-old moderately obese, G5 P5 woman presents complaining of the sensation of "fullness" in the vaginal area. She reports that the "fullness" becomes more noticeable when she is standing for a long period of time.
- She does not complain of any urinary or fecal incontinence, and she has no other urinary or gastrointestinal symptoms.

History of Present Illness

- Smt Rani symptoms began 5 years ago and are gradually getting worse.
- There has been no vaginal bleeding.
- Her past medical history is significant for well-controlled hypertension and chronic bronchitis.
- She has never had surgery.

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Patient History

- Menarche: 12 years
- Menstrual cycles: were regular, 28/5
- LMP: 23 years ago

Past Medical History

Unremarkable

Current Medications

Antihypertensive therapy

Family History

Unremarkable

Social History

- She used to smoke 1 pack of cigarettes per day since she was 18. She quit 7 years ago. She does not drink alcohol. There is no history of substance abuse.

Investigations

- General physical examination was normal.
- BMI = 28
- **Pelvic exam** revealed normal appearing external genitalia. The vagina and cervix were without lesions. A second-degree cystocele and rectocele were noted. The cervix descended to the introitus with the patient in an upright position. The uterus was of normal, non-gravid size. Right and left ovaries were not palpable.
- No rectal masses were noted. Rectal sphincter tone was slightly decreased.
- Following the pelvic examination, the patient tells you that she prefers non-surgical treatment options because she is very busy taking care of her husband who recently had a stroke.

1. **A 72 year old postmenopausal patient G7P5A2 complains of fullness in her vagina. Based on her symptoms, our**

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patient could be suffering from pelvic floor relaxation. When assessing a patient with these symptoms, which of the following patient information is NOT a risk factor that is necessary to discuss?

a. Age of the patient
b. Parity
c. BMI
d. History of uterine anomalies
e. History of connective tissue disorder

Ans. is (d) i.e. History of uterine anomalies

(Ref: Shaw 15/e, p 331-332)

Explanation: All of the other answer choices are risk factors for developing pelvic floor relaxation except for a history of uterine anomalies (choice d).

(Choice a) As a patient ages, the likelihood that she develops pelvic floor relaxation increases due to a decease in the elasticity of support tissues.

(Choice b) The likelihood that a woman has pelvic floor relaxation symptoms increases with increasing parity. The birthing process causes stretching of pelvic floor architecture which can lead to future dysfunction.

(Choice c) A high BMI is a risk factor for developing pelvic floor relaxation. This is due to the increased intra-abdominal pressure exerted on the pelvic floor by the excess abdominal weight. As pelvic floor relaxation increases over time, pathologic conditions such as uterine prolapse, rectocele, cystocele, or enterocele may occur.

(Choice e) Connective tissue disorders such as marfan's disease can contribute to pelvic floor relaxation, as abnormal tissue composing the pelvic floor support are more prone to dysfunction.

2. A 72 year old postmenopausal patient tells you that she experiences a greater feeling of fullness after "standing for a long period of time." Why might this phenomenon occur?

a. Standing for a prolonged period of time increases the abdominopelvic blood flow.
b. Standing for a prolonged period of time decreases cardiac preload.
c. Standing for a prolonged period of time causes an increase in intra-abdominal pressure.

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d. Standing for a prolonged period of time causes increased blood flow to the legs, thereby decreasing abdominopelvic blood flow.

Ans. is (c) i.e. Standing for a prolonged period of time causes an in crease in intra-abdominal pressure.

Explanation: Patients with pelvic floor relaxation often that the bulging feeling they experience worsens the longer they stand up. This is caused by the downward force of gravity which increases intraabdominal pressure. In turn, the increased intra-abdominal pressure can slowly cause pelvic organs to protrude into the vaginal canal. As pelvic floor relaxation worsens over time, pathologic conditions such as uterine prolapse, rectocele, cystocele or enterocele can develop **(choice c).**

(Choice a) Standing does not increase the abdominopelvic blood flow.

(Choice b) A decrease in cardiac preload can be the cause of reflex tachycardia, but it is not the cause of the patient's increased "fullness".

(Choice d) Decreased blood flow is usually not a factor in pelvic floor relaxation.

3. Mrs. Rani is a 72 year old postmenopausal patient with a history of five vaginal deliveries. The stress put on the pelvic floor by these deliveries predisposed her to developing pelvic organ prolapse. However, the next day, you see a G3P3 patient in your clinic who delivered all of her children by C-section. She, too, has pelvic organ prolapse. Which of the following are risk factors for pelvic organ prolapse?

a. Pregnancy
b. C-section delivery
c. Vaginal delivery
d. a and c
e. a, b and c

Ans. is (d) i.e. a. and c.

Explanation: While multiple vaginal deliveries increase the risk of pelvic organ prolapse, pregnancy alone is also a risk factor (**choice a**). Therefore, patients who have had all their babies delivered by C-section are still predisposed to the development of pelvic organ prolapse (choice b). Vaginal delivery leads to stretching and tearing of the endopelvic fascia, levator muscles, and perineal

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body, leading to decreased pelvic muscle tone of the pelvic muscles (choice c). Pregnancy alne stretches the levator muscles and endopelvic fascia, also resulting in pelvic floor weakening. Therefore **choice d** is considered the most appropriate answer.

(Choice b) While C-section delivery does not increase risk of pelvic floor dysfunction, pregnancy alone does increase risk of pelvic organ prolapse.

4. With the progression of pregnancy, the levator ani muscles stretch both in mechanical accommodation of the growing uterus and in response to maternal hormones. This results in the weakening of the pelvic floor. What three muscles make up the levator ani?

a. Pubococcygeus, iliococcygeus, obturator internus
b. Pubococcygeus, piriformis, isciococcygeus
c. Puborectalis, pubococcygeus, iliococcygeus
d. Pubococcygeus, iliococcygeus, gracilis

Ans. (c) Puborectalis, pubococcygeus, iliococcygeus

Explanation: The levator ani muscle group is made up of the puborectalis, pubococcygeus, and iliococcygeus (choice c). These muscles are named for where they insert on the pelvic viscera. The function of the levator ani muscle group is to provide support to the pelvic organs. Therefore, as these muscles weaken, pelvic organs begin to descend from their original locations.

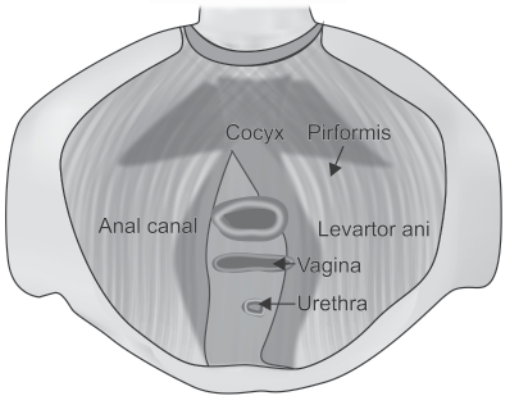

Fig. 5: Pelvic floor musculature. Note the position of the levator ani and understand its function in supporting the pelvic organs within the pelvic cavity.

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Endopelvic connective tissue lies superior to the pelvic floor muscles and connects to the pelvic side walls and sacrum. This endopelvic fascia, which contains the cardinal and uterosacral ligaments, helps to stabilize the organs that the pelvic floor supports. There are also connective tissue attachements along the wall of the vagina that aid in stabilization. Also important, is the group of muscles that lies inferior and external to the pelvic floor. These muscles include the bulbocavernosus, transverse perineal, and ischiocavernouse muscles. This muscle group is known as the urogenital diaphragm, or perineal membrane.

(Choice a) The obturator internus is a pelvic floor muscle; its larger role is in movement of the lower extremity. It is not part of the levator ani.

(Choice b) The piriformis is also a pelvic floor muscle; it contributes to the movement of the lower extremity. It is not part of the levator ani.

(Choice d) The gracilis adducts the thigh.

5. Ms. Rani is 72 years and has reached menopause 23 years ago. Why does this put her at increased risk for pelvic organ prolapse?

a. The connective tissue in the pelvic floor is estrogen dependent.
b. Postmenopausal patients are more prone to constipation.
c. Geriatri, postmenopausal women have decreased energy production with a resultant decrease in pelvic muscle strength.
d. The energy production of the pelvic floor muscles is progesterone dependent.

Ans. is (a) i.e The connective tissue in the pelvic floor is estrogen dependent.

Explanation: Postmenopausal women have decreased levels of estrogen. Connective tissue and collagen in the pelvic floor are known to be estrogen dependent. As less estrogen is available in postmenopausal women, weakened connective tissue and pelvic floor relaxation can result in pelvic organ prolapse **(choice a)**.

(Choice b) While constipation is a risk factor for pelvic organ prolapse, it may occur at any age for various reasons including fiber deficiency, malignancy, etc.; however, constipation is not caused by menopause.

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(Choice c) While geriatric, postmenopausal patients may be more prone to fatigue; fatigue is not the direct cause of pelvic organ prolapse.

(Choice d) While postmenopausal patients also produce less progesterone, the pelvic floor tissues are estrogen dependent; thus, they weaken with lower levels of estrogen.

6. Which of the following chronic conditions are likely to increase a patient's risk for pelvic organ prolapse?

a. Hypertension
b. Polycystic ovarian syndrome (PCOS)
c. Hypothyroidism
d. Chronic bronchitis

Ans. is (d) i.e. Chronic bronchitis

Explanation: A patient with chronic bronchitis, or any condition which leads to chronic coughing, puts extra strain on the pelvic floor as the coughing mechanism requires transiently increased abdominal pressure. As previously explained, increased abdominal pressure puts excessive strain on the pelvic floor, which eventually weakens. This can lead to pelvic organ prolapse **(choice d).**

(Choices a, b, and c) do not directly cause pelvic floor relaxation or pelvic organ prolapse.

7. 62 year old G4P4 presents to clinic with a three month history of feeling some increased pelvic pressure. She also describes the sensation of a bulge against her underwear. Her past medical history is significant for stage III endometrial cancer, now in remission, for which she received radiation to her pelvis. She has 20 pack-year history of smoking. Upon further questioning, the patient describes that at times she must use her finger to "push against the bulge" to help achieve a bowel movement. On physical examination, a mucosal out pouching is seen protruding from the vaginal introitus. Upon transillumination of the protrusion, characteristic shadows are apparent within the mucosal sac. The defect discovered on physical examination is most closely associated with the descent of small bowel between which pair of the following ligaments during its decent into the space normally occupied by the posterior vaginal wall?

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a. Uterosacral ligaments
b. Round ligaments
c. Cardinal ligaments
d. Sacrospinous ligaments

Ans. is (a) i.e. Uterosacral ligaments

Explanation: This patient is presenting with signs and symptoms consistent with pelvic organ prolapse. Smoking and pelvic radiation are both risk factors for pelvic floor relaxation and eventual pelvic organ prolapse. The need for digital decompression to achieve rectal evacuation is a complaint commonly associated with posterior vaginal wall prolapse (rectoceles and enteroceles). Trans-illumiantion facilitates the clinical differentiation of enteroceles from rectoceles through the visualization of small bowel shadows. An enterocele involves the prolapse of small bowel between the uterosacral ligaments into the rectovaginal septum (choice a). The uterosacral ligaments pass from the cervix and uterine body and attach to the sacrum posteriorly forming the lateral boundaries of the posterior cul-de-sac of Douglas; they can be palpated on rectal exam. In order to enter the pouch of Douglas, any herniation of peritoneal viscera must thus pass between the uterosacral ligaments thereby arriving at the posterior vaginal wall.

(Choice c) Both the cardinal and uterosacral ligaments represent condensations of endopelvic fascia and smooth muscle that help support the cervix. The cardinal ligaments attach the lower uterine segment (the cervix above the vagina) and the lateral parts of the vaginal fornix to the lateral pelvic wall at the level of the ischial spines. Posteriorly, some of the cardinal ligament fibers interdigitate with those of the uterosacral ligaments; however, given their more anterior position with respect to the pouch of Douglas and the uterosacral ligaments, they are not as closely associated with enteroceles.

(Choice b) The round ligaments originate from the upper uterus and sweep laterally to the pelvic side wall within the broad ligament, eventually entering the deep inguinal ring before terminating in the mons pubis. The round ligaments do not contribute significantly to uterine support and are situated too anterior-laterally to play any role in the development of an enterocele.

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(Choice d) Extending from the lateral sacrum to the ischial spine, the paired sacrospinous ligaments are closely associated with the coccygeus muscle. While an important landmark in defining the greater sciatic foramen, te sacrospinous ligament serves no role in supporting the uterus, nor does it influence the development of an enterocele.

8. A 65 year old G3P3 is referred to your clinic by a primary care physician for evaluation of suspected pelvic organ prolapse. The patient complains of a feeling of heaviness in her pelvic region for a year and occasional urinary frequency for the past few months. Uterine prolapse is diagnosed. Your attending states that laxity of the levator ani muscles plays a large role in uterine prolapse. Probing your knowledge of pelvic anatomy he asks, "The nerve innervating the levator ani muscles courses through which of the following paths?"

a. Arinsing from the sacral plexus, it exits the pelvis through the greater sciatic foramen below the piriformis muscle, curves in front of the ischial tuberosity, pierces the fascia lata and travels forwards beneath the superficial fascia of the perineum.

b. Arising from the sacral plexus, it exits the pelvis through the greater sciatic foramen between the piriformis and coccygeus muscles, crosses the sacrospinous ligament close to its attachment to the ischial spine, and reenters the pelvis via the lesser sciatic foramen and before traveling forwards to the perineum.

c. Arising from the lumbar plexus, it emerges from the lateral border of the psoas major, passes obliquely across the iliacus, perforates the transversus abdominnis and then descends through the superficial inguinal ring heading towards the perineum.

d. Arising from the lower lumber plexus, it descends through the psoas major, emerges near the brim of the pelvis to pass behind the common iliac vessels and lateral to the internal iliac vessels, descends along the lateral border of the lesser pelvis, and exits the pelvis through the obturator canal.

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Ans. is (b) i.e. b. Arising from the sacral plexus, it exits the pelvis through the greater sciatic foramen between the piriformis and coccygeus muscles, crosses the sacrospinous ligament close to its attachment to the ischial spine, and reenters the pelvis via the lesser sciatic foramen and before traveling forwards to the perineum.

Explanation: The levator ani, forming a large portion of the pelvic floor, consists of a broad sheet of muscle. Its muscle fibers are subdivided according to their attachments and the pelvic viscera with which they are associated, the typical divisions being into the pubococcygeus, the puborectalis, and the iliococcygeus. As they approach the ano-rectal junction, they form a supportive sling for the pelvic viscera, maintaining such support through a constant state of contraction.

Innervation of these muscles is best described as coordinated effort of direct efferents from sacral nerve roots (S2-s5) along with the pudendal nerve. **Choice B** describes the route of the pudenal nerve as it arises from the ventral divisions of S2-S4. Its close association with the sacrospinous ligament makes this ligament an important, palpable landmark when performing pudendal nerve blocks for anesthesia during labor. Upon re-entry to the pelvis via the lesser sciatic foramen, the pudendal nerve courses through the pudendal cnal to innervate the levator ani. Nerve injury secondary to trauma during childbirth may contribute to decreased muscle tone of the levator ani and thus decreased support to pelvic viscera.

(Choice a) This description matches the course of the posterior femoral cutaneous nerve as it arises from the sacral plexus (S1-S3) to innervate the skin of parts of the posterior thigh and leg, as well as the skin of the perineum. In addition, it participates in innervating the skin of the posterior scrotum in the male. Serving as a nerve of superficial tissue, it does not contribute to innervation of deeper structures such as the muscles of the levator ani.

(Choice c) This description matches the course of the llioinguinal nerve as it arises from the lumbar plexus (L1). The llioinguinal nerve contributes to motor and sensory inervation of the transversus abdominins and the internal oblique, as well as providing sensor innervation of the medial thigh, skin over the

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root of the penis in males, and skin covering the mons pubis and labia majora in females.

(Choice d) This description matches the course of obturator nerve as it arises from the lumber plexus (L2-L4), eventually dividing into an anterior and posterior parts as it exits the obturator foramen. It serves chiefly to innervate medial thigh muscles. Though it courses through the pelvis, it does not innervate any pelvic structures.

9. A 54 year old G5P5 has a 6 month history of persistent urinary stress incontinence. She complains of worsening urinary urgency, frequency and having to get up to go to the bathroom multiple times each night. With physical examination she is found to have a significant pelvic organ prolapse involving both a cystocele and urethrocele. After a discussion of treatment options, she devides to pursue surgical management. Routine surgical repair of cystoceles and urethroceles involves manipulation of the part of the anterior vaginal wall, referred to as the:

a. Ligamentous attachments to the arcus tendineus
b. The endopelvic fascia
c. The uterosacral ligament
d. The pubocerivcal fascia

Ans. is (d) i.e. The pubocerivcal fascia

Explanation: The patient's complaints of urinary symptoms consistent with a mixed incontinence (symptoms of both stress urinary incontinences and urge urinary incontinence) point towards anterior vaginal wall involvement in the prolapse. Weakness of the anterior vaginal wall is often permissive for the descent of the urethra (urethrocele), the bladder neck, or the bladder itself (cystocele), which can lead to the development urinary symptoms.

The anterior vagingal wall is known clinically as the pubocervial fascia. Anterior wall weakness is responsible for the development of either an urethrocele or cystocele and repair of this anterior wall (colporrhaphy) underlies surgical management of these conditions (choice d). In short, a longitudinal incision along the anterior wall of the vagina is followed by isolation of the pubocervical fascia, which is drawn together from both sides to

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recreate support, with possible reinforcement using mesh or biomaterial.

(Choice a) The arcus tendineus, a condensation of fascia overlying the obturator internus muscle, serves as the site of attachment of the levator ani muscles. The levator ani muscles serve as primary support structures of the pelvic floor, are important in anal continence, and are sometimes manipulated during repair of enteroceles; however, they are not manipulated in the repair of anterior vaginal wall defects.

(Choice b) The endopelvic fascia is not independently manipulated in the repair of pelvic organ prolapses.

(Choice c) During the repair of enteroceles, the uterosacral liagments may be brought together in the midline to help support the pelvic viscera.

10. Pelvic floor muscles weaken for the same reasons other muscles weaken such as inactivity. However, pelvic floor muscle weakness due to inactivity is less likely as common since all of the following are functions of pelvic floor muscle contraction Except:

a. Sexual response
b. Controlling bowel and bladder function
c. Defecation
d. Supporting the pelvic contents

Ans. is (c) i.e. Defecation

Explanation: Defecation occurs through the relaxation of the pelvic floor muscles, not contraction (choice c).

(Choices a, b, and d) are all functions of pelvic floor muscle contraction.

Pelvic muscle exercises, referred to as kegel exercises, can be performed to improve mild to moderate urge and stress incontinence. Pelvic floor muscles are the ones you use to hold back gas or stop a urine stream. One way to help patients 'find' these muscles is to instruct them to stop urinating mid-stream once or twice. To fully workout the pelvic floor, sets of both short and long contractions should be performed daily. Patients can be referred to physical therapists that specialize in working with women to strengthen pelvic floor muscles. Once these muscles have been strengthened, patients should be instructed to tighten the pelvic

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floor muscles just before doing anything that increases intra-abdominal pressure, such as sneezing, coughing, or blowing their nose to decrease episodes of minor urinary incontinence.

11. A 35 year old G2P3 presents to your office complaining of abdominal fullness and irritation of the genital area since giving birth to twins three months ago. She occasionally experiences urinary incontinence but only with strenuous exercise. Upon pelvic exam, the cervix is visible at the vaginal introitus when the perineum is depressed. What pessary type will be most effective for this patient?

a. Gellhorn
b. Ring
c. Cube type
d. Gehrung

Ans. is (b) i.e. Ring

Explanation: The ring type pessary is commonly used for mild uterine prolapse **(choice b)**. It is easy to insert and remove, as long as patients have preserved digital dexterity. Pessaries are fit by a physician in the outpatient clinic. The largest pessary that is comfortable and still allows the examiner's finger to pass between the pessary and the vaginal wall is generally the most effective. The patient should also attempt to void prior to leaving the office; if unable to urinate, the patient should be fitted with the next smaller size. The patient should also stand, sit, squat and perform a valsalva maneuver to ensure the device is large enough to maintain its position.

12. A 65 year old female patient presents complaining of vaginal irritation, itching, discharge and odor. She has a history of an abdominal hysterectomy there years ago. A year after her surgery, she was diagnosed with a rectocele and fitted with a pessary. The patient states that she does not remove the pessary often, as she is uncomfortable with toughing herseld "down there". All of the following are possible complications related to pessary use Except:

a. Altered vaginal pH
b. Uterine herniation
c. Vaginal ulceration
d. Vaginal cancer

Ans. is (d) i.e. Vaginal cancer

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Explanation: While pessary use may induce inflammatory changes of the vaginal epithelium, it does not increase the risk of developing vaginal cancer **(choice d).**

(Choice a) A pessary is a foreign device in the vagina, with the most common side effect of use being altered vaginal pH, increased vaginal discharge, and vaginal odor. These side effects can be minimized with the use of an acidic vaginal gel or by douching with dilute vinegar.

(Choice b) The cervix and lower uterine segment can herniate through the open center of an improperly fit, ring type pessary. The herniation can in turn become incarcerated. If not recognized, over time this incarceration can lead to strangulation and necrosis of the cervix and the uterus.

(Choice c) A pessary that is neglected can lead to infection, ulceration, or more rarely fistula formation. A pessary should be routinely removed and washed with soap and water prior to reinsertion. Hypoestrogenic women with thin vaginal mucosa are more susceptible to vaginal ulceration with the use of a pessary. Treatment with an estrogen cream can make the vaginal epithelium more resistant to erosion.

13. Your patient, who is about to undergo surgical correction of prolapse, worries that she will not have the option of wearing a pessary if the surgery provides unsatisfactory results. What would be the most appropriate reply?

a. Previous surgical repair is a relative contraindication to pessary use.
b. Previous surgical repair makes fitting a pessary more difficult.
c. Previous surgical repair is not a contraindication to pessary use.
d. Surgery is 100% curative and she should not worry.

Ans. is (c) i.e Previous surgical repair is not a contraindication to pessary use.

Explanation: Successful pessary placement is generally not effected by previous attempts at surgical correction of the prolapse (choice c). Factors that may negatively affect pessary placement include: a narrow vaginal introitus and/or a long vaginal canal. Patients that choose to undergo surgical repair of should be informed of the potential for unsatisfactory results. No surgical

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procedure can guarantee satisfactory results and future pessary use is valid concern.

14. During discussion of a severe, symptomatic, and progressing prolapse, you feel that colpocleisis would be the most appropriate therapy for one of your elderly patients. Colpocleisis is an obliterative surgery with very high satisfaction rates. In a patient who has failed conservative management for uterine prolapse, which of the following factors would be your first consideration when considering colpocleisis?

a. Presence of chronic disease
b. Patient age
c. No longer interested in vaginal intercourse
d. Allergy to mesh materials

Ans. is (c) i.e. No longer interested in vaginal intercourse

Explanation: Colpocleisis is an obliterative surgery with very high satisfaction rates in women who are no longer interested in vaginal intercourse, as it involved shortening of the vagina to the extent that vaginal intercourse is no longer possible **(choice c)**. This procedure can be performed with and without the presence of the uterus and/or cervix. Other reconstructive surgical procedures are often too extensive to perform on very frail, elderly women; thus, making them the major population that undergoes colpocleisis.

(Choice a) Many chronic diseases are compatible with sexual activity; hence, this is not the first consideration when offering colpocleisis to patients.

(Choice b) Elderly women may be sexually active; therefore, age should not be the first consideration when offering colpocleisis to patients.

(Choice d) Reconstructive procedures can involve multiple materials and methods; an allergy to a type of mesh would not prevent reconstructive surgery.

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CASE STUDY 6

Patient Introduction

- Rajo Devi G5 P5, is a 34-year-old patient, presenting with heavy menstrual flow and pain that is not relieved with NSAIDs. Her last menstrual period started two weeks ago and she is still bleeding in clots.

History of Present Illness

- Mensrual cycle of Rajo Devi is regular, every 28-30 days. During her periods she has 7 to 8 days of flow, usually in clots.
- She complains of dysmenorrhea and menorrhagia of one year's duration.
- In the past her menstrual cycles were minimally uncomfortable at most.

Patient History

Menstrual History

- **Menarche:** 13 years
- M**enstrual cycles:** Regular, 28-30/menses 7-8 days
- **LMP:** 2 weeks ago
- **Past medical history:** Unremarkable.
- **Current medications:** None.
- **Family history:** Unremarkable.
- **Contraception:** Bilateral tubal ligation (BTL) three years ago.
- Social history Rajo is a housewife. She is sexually active only with her husband.
- She does not use tobacco, alcohol, or illicit drugs.
- She exercises three times per week.

Investigations

Vital Signs

- **BP:** 135/80 mmHg
- HR 80 bpm
- **T:** 98°F

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Physical and Pelvic Examinations

- On **physical examination**, the lung and heart examinations are normal. Abdomial examination reveals a midline lower abdominal mass.
- On **pelvic examination**, the cervix is anteriorly located. An irregular, midline mass of approximately 16 weeks' gestational size is palpable and moves in conjunction with the cervix. No adnexal masses are appreciated.

1. Ms. Rajo had not experienced painful menstrual cycles before the start of these episodes one year ago. What is the most likely cause of her painful menstrual cycles at this stage in her life?

a. Primary dysmenorrhea
b. Fibromyalgia
c. Menopause
d. Secondary dysmenorrhea
e. Oral contraceptive pill use

Ans. is (d) i.e. Secondary dysmenorrhea

(Ref: Shaw 15/e, p 294)

Explanation: Because Ms. Rajo has not suffered from dysmenorrhea before this past year, it is unlikely that she suffers from primary dysmenorrhea **(choice d).** Primary dysmenorrhea is defined as recurrent, colicky, pelvic pain that occurs during menses with no definable pelvic disease. Secondary dysmenorrhea happens when painful menstruation occurs concurrently with pelvic pathology. These pathologies can include chronic pelvic inflammatory disease, endometriosis, uterine fibroids, and adenomyosis.

(Choice a) Primary dysmenorrhea is defined as recurrent, colicky, pelvic pain that occurs during menses. There is no definable pelvic disease. Rajo would likely have experienced pain at an earlier age if her diagnosis was primary dysmenorrhea.

(Choice b) Fibromyalgia can cause chronic pain in certain parts of the body, but is not related to the menstrual cycle.

(Choice c) Menopause may case menorrhagia and/or oligomenorrhea, but it is unlikely to cause dysmenorrhea. Menopause is also unlikely for Mrs Rajo at age 34.

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(Choice e) Oral contraceptives actually decrease menstrual pain and are often used for treatment of dysmenorrhea, so it is unlikely that oral contraceptive pill use would cause Mrs. Rajo painful periods.

2. M/s. Rajo menstrual period started 14 days ago and she is still bleeding in clots. What is the average length of a typical menstrual period and how long does the bleeding have to last to be considered menorrhagia?

a. 2-6 days, >5 days
b. 2-4 days, > 6 days
c. 3-5 days, > 5 days
d. 3-6 days, > 7 days
e. 1-4 days, > 6 days

Ans. is (a) i.e. 2-6 days, >5 days

(Ref: Novak 14/e, p 461)

Explanation: The length of a normal menstrual cycle is defined as ranging from 21 to 35 days, with bleeding lasting 2 to 6 days and blood loss less than 80 mL per cycle. Menorrhagia is defined as excessive or prolonged bleeding (choice a). That means any blood loss in excess of 80 ml, or periods lasting longer than 7 days, meet the criteria for menorrhagia.

3. Mrs. Rajo had previously used NSAIDs to relieve her menstrual pain, but now the medication is not effective. Why are NSAIDs often used to relieve pain associated with dysmenorrhea?

a. NSAIDs inhibit ovulation due to feedback inhibition at the hypothalamus.
b. NSAIDs inhibit the production of thromboxane A2, increasing platelet aggregation, decreasing bleeding, and thereby decreasing pain.
c. NSAIDs thin the uterine lining, thereby decreasing pain.
d. NSAIDs decrease the production of prostaglandins which are thought to be the cause of menstrual pain.

Ans. is (d) i.e. NSAIDs decrease the production of prostaglandins which are thought to be the cause of menstrual pain.

(Ref: Shaw 15/e, p 296, William Gyanee 2/e, p 254)

Explanation: NSAIDs decrease the production of prostaglandins which are thought to be the cause of menstrual pain. NSAIDs

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are first line therapy for the treatment of dysmenorrhea. For example, 400 to 600 mg of ibuprofen is recommended every four to six hours beginning with the onset of menstrual symptoms. The medication can be continued for 2-3 days depending on the severity of the dysmenorrhea **(choice d)**.

(Choice a) OCPs inhibit ovulation due to feedback inhibition at the hypothalamus. If NSAIDs are ineffective, OCPs may be used to decrease the pain associated with menses.

(Choice b) Aspirin inhibits the production of thromboxane A2, actually decreasing platelet aggregation, which makes it a good choice for decreasing thrombotic events but it also increases bleeding risk. It is not used to treat dysmenorrhea.

(Choice c) Levonorgestrel, like that found in Norplant or the Miena IUD, can help thin the lining of the uterus and may help with dysmenorrhea. NSAIDs do not do this.

4. Dysmenorrhea, or pain during menstruation, can be classified as secondary or primary. Which of the following is considered primary dysmenorrhea?

a. Dysmenorrhea associated with fibroids of the uterus
b. Dysmenorrhea associated with endometriosis
c. Dysmenorrhea not likely due to an identifiable cause
d. Dysmenorrhea associated with a woman's first period, or menarche

Ans. is (c) i.e. Dysmenorrhea not likely due to an identifiable cause

(Ref: Shaw 15/e, p 294)

Explanation: When classifying dysmenorrhea, there are two categories: primary and secondary. Primary dysmenorrhea is pain during menstruation that is not associated with underlying cause or pathology. Secondary dysmenorrhea is pain due to an underlying cause or pathology, such as uterine fibroids or endometriosis **(choice c)**.

(Choice a) Dysmenorrhea associated with fibroids of the uterus is secondary dysmenorrhea.

(Choice b) Dysmenorrhea associated with endometriosis is secondary dysmenorrhea.

(Choice d) Dysmenorrhea associated with the first menarche

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that would make it primary dysmennorhea, if not associated with underlying pathology. However, it is not the fact that it is associated with the first menarche that would make it primary dysmennorhea, but that there is no unidentifiableunderlying cause.

5. Which age group is particularly likely to experience secondary dysmenorrhea?

a. Ages 13-20
b. Ages 30-40
c. Ages 50-60
d. Ages 60 and above

Ans. is (b) i.e. Ages 30-40

Explanation: Women aged 30-40 are most likely to develop secondary dysmenorrhea, or pain associated with the menstrual cycle due to underlying cause or pathology **(choice b).** This is the age range that most commonly develops underlying pathology such as fibroids, PID and endometriosis.

6. Ms. Rajo is experiencing dysmenorrhea. Which of the following is NOT a risk factor for developing uterine fibroids (leiomyomas) which are a common cause of secondary dysmenorrhea?

a. Obesity
b. Reproductive age
c. Early menarche
d. Heredity
e. Oral contraception
f. African American race

Ans. is (e) is Oral contraception

(Ref: Shaw 15/e, p 352, William Gyanae 2/e, p 249)

Explanation: Risk factors for the development of leiomyomas include reproductive age, African American race, obesity, longer exposure to estrogen (nulliparity and menarche at an early age), and other conditions such as hypertension. However, there are strong data demonstrating that women on oral contraceptive have a lower risk of uterine fibroids **(choice e)**.

7. Women who suffer from uterine fibroids can have a family history of this pathology. If a woman has a family history of first degree relatives with uterine fibroids, how much increased risk do they have for developing them as well?

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a. 1.5 fold increased risk
b. 2.5 fold increased risk
c. 10 fold increased risk
d. No increased risk

Ans. is (b) i.e. 2.5 fold increased risk
(Ref: William Gynae 2/e, p 249)

Explanation: Women with a family history of uterine fibroids in a first degree relative have a 2.5 fold increased risk of developing uterine fibroids as well (**choice b**).

8. A 34-year-old female present to the clinic complaining of painful, heavy menstruation and painful sexual intercourse. She is in a monogamous relationship, denies ever having a sexually transmitted disease or urinary tract infection, and has no medical problems. The patient has never smoked cigarettes. Physical exam is significant for uterine enlargement, and the presumptive diagnosis of fibroids is made. What is the cause of her menorrhagia?

a. Thinned endometrial lining
b. Increased endometrial surface area
c. Increased uterine contractility
d. Decreased estrogen receptors

Ans. is (b) i.e. Increased endometrial surface area
(Ref: Shaw 15/e, p 357)

Explanation: Uterine fibroids may cause menorrhagia due to increased endometrial surface area **(choice b).** Contractility of the uterus is also impaired, which disrupts the hemostatic mechanisms of the uterus. Additionally, the fibroid has a higher concentration of estrogen receptors than normal uterine tissue; this causes a thickening of the endometrium overlying the fibroid.

9. A 43-year-old G4P4 patient presents to your clinic with heavy menstrual bleeding and dyspareunia. The menorrhagia disrupts her everyday life, as she gets episodically dizzy, weak, and short of breath throughout the month. A uterus of 20 weeks' gestational size is palpable on physical exam. Her CBC shows iron deficiency anemia and the decision is made to perform a hysterectomy. Slides of the uterus are sent to pathology.

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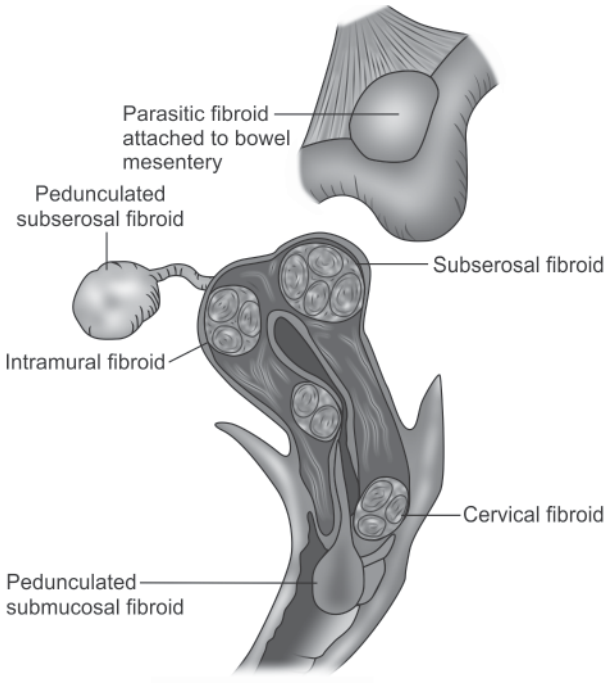

Fig. 6: Various anatomical sites of fibromyomas.

What is the histological pattern expected in a uterine leiomyoma?

a. Elongated spindle cells
b. High nuclear to cytoplasmic ratio
c. Mitotic activity
d. Polymorphic cells

Ans. is (a) i.e. Elongated spindle cells

Explanation: Leiomyomas are most commonly expected to show a whorled appearance on histological examination **(choice a)**. As this is smooth muscle tissue, the normal appearance involves elongated, or spindle-shaped, cells with cigar-shaped nuclei. The cells are uniform in size and shape, with rarely observable mitotic activity. Although there are bizarre types of leiomyomata, cellular and mitotically active variants, these are fairly rare presentations.

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(Choice b) High nuclear to cytoplasmic ratio is a finding commonly associated with a more malignant pathology. Leiomyomata are benign.

(Choice c) Rampant mitotic activity, indicative of frequent cell division, is more commonly associated with malignant pathology.

(Choice d) The cells expected to be found in a uterine fibroid are of uniform shape and size.

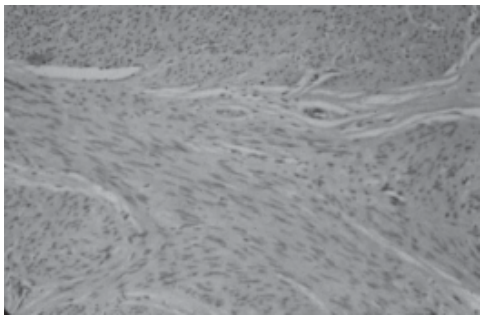

Fig. 7: Uterine Leiomyoma. Microscopy shows characteristic whorls of spindle-shaped smooth muscle cells.

10. A 38 year old G0P0 patient presents for painful uterine uterine bleeding that interferes with her life. She is physically active (BMI of 20). She doesn't drink alcohol or smoke and uses condoms for protection during sex. You suspect secondary dysmenorrhea. Which of the following is not included in your differential?

a. Endometriosis
b. Pelvic inflammatory disease
c. Intrauterine device
d. Endosalpingiosis

Ans. is (d) i.e. Endosalpingiosis

Explanation: Endometriosis, pelvic inflammatory disease, IUDs, fibroids, and adenomyosis are all common causes of secondary dysmenorrhea. Endosalpingosis is the abnormal location of uterine-tube like epithelium. Also described as ectopic fallopian tube epithelium, it is not associated with dysmenorrhea **(choice d)**. Primary dysmenorrhea would not be in the differential, as it is a diagnosis of exclusion.

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11. A 26 year old G0 woman has been diagnosed with uterine fibroids. She has two intramural fibroids visualized on ultrasound that appear to be distorting the uterine cavity. For the past three year she has been attempting to get pregnant with a partner who has a child from a previous relationship. She has had an infertility workup that did not identify another explanation for her infertility. What is the best next step in management for this patient?

a. Gonadotropin-relasing hormone (GnRH) agonist for one year
b. Hysterectomy
c. Myomectomy
d. Uterine artery embolization

Ans. is (c) i.e. Myomectomy

(Ref: Shaw 15/e, p 360)

Explanation: Myomectomy is warranted in younger patients whose fertility is compromised by the presence of fibroids causing significant distortion of the uterine cavity (choice c). A myomectomy may be indicated in infertility patients when the fibroids are of sufficient size or location to be a probable cause of infertility and when no more likely explanation exists for the failure to conceive.

(Choice a) Treatment with GnRH agonists can be useful to reduce symptoms and reduce fibroid size. It works by hormonally induces a menopause state in patients. This patient desires future childbearing; therefore, its use for one year would not be an appropriate option. The use of GnRH agonists 3 months prior to surgery reduces firoid's size and uterine volume, help correct any existing anemia. Also, GnRH agonists reduce blood lose during surgery.

(Choice b) Hysterectomy would not allow the patient to have future fertility.

(Choice d) Uterine artery embolization should only be recommended for women who have completed child-bearing because of the unclear long-term effects on fertility.

12. A 52 year old woman complains of heavy menstrual bleeding that lasts for seven days and causes her to miss work. She has had anemia in the past and takes iron pills daily with a multivitamin. Physical exam reveals slightly

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enlarged, irregularly shaped uterus. Her haematocrit is 30%. There are no adnexal masses. What is the most appropriate next step in management?

a. GnRH analogue treatment
b. Hysteroscopy
c. Hysterectomy
d. Adnecectomy
e. Endometrial sampling

Ans. is (e) Endometrial sampling

Explanation: If patients present with menstrual abnormalities, the endometrial cavity must be sampled to rule out endometrial hyperplasia or cancer **(choice e)**. This is most important in patients in their late reproductive years or postmenopausal years. The majority of patients with small uterine fibroids in perimenopausal years do not require surgical treatment. If the patient's bleeding is not heavy enough to cause iron deficiency anemia. Reassurance and observation may be all that are necessary.

(Choice a) Treatment with GnRH analogues to inhibit estrogen secretion may be used as a temporizing measure. Treatment with GnRH analogues can be used for three to six months prior to a hysterectomy to decrease the uterine size and increase a patient's haematocrit. This may also lead to technically easier surgery and decreased intraoperative blood loss. Treatment with GnRH analogue can also be used in perimenopausal women as a temporary medical therapy until natural menopause occurs.

(Choice b) Hysteroscopy is not indicated prior to endometrial sampling.

(Choice c) Hysterectomy is a definitive treatment for women who have completed childbearing. Particularly in a perimenopausal woman, it is important to first rule out an underlying endometrial malignancy with endometrial sampling.

(Choice d) On palpation adnexal masses were not appreciated. Therefore, adnexectomy is not an option for treatment of this patient.

13. A 48 year old patient with a very large uterine fibroid was placed on 3 months of a GnRH agonist therapy in order to decrease fibroid's size in preparation for surgery. Two

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weeks before she is scheduled for surgery, she is no longer having severe menorrhagia and can no longer tolerate the GnRH side effects. She would like to stop taking the GnRH agonist. What will the fibroid response be to the cessation of therapy?

a. Growth is stopped
b. Growth will resume at prior rate
c. Growth will resume at a more rapid rate
d. Growth will resume until fibroid reaches previous size

Ans. is (b) i.e. Growth will resume at prior rate

(Ref: Williams Gynae 2/e, p 255)

Explanation: Hot flashes are experienced by >75% of patients, usually in 3-4 weeks after the start of treatment with GnRH agonists. After cessation of treatment, menses return in 4-10 weeks, and myomata re-grow at their previous rate **(choice b)**.

(Choice a) GnRH therapy doesn't kill cells, so cell growth is not permanently stopped. Once therapy is discontinued, growth will resume when exposed to endogenous estrogen.

(Choice c) it is not true that secondary to the GnRH agonist withdrawal they will grow at a more rapid rate.

(Choice d) Growth resumes at the same pace as before treatment initiation. The size it will attain is only limited by the amount of endogenous estrogen it is exposed to.

Treatment Options for Patient with Uterine Fibroids

Treatment	Description	Advantages	Disadvantages
Gonadotropin releasing hormone agonists	Preoperative treatment to decrease size of tumors before surgery	Decreases blood loss and operative and recovery time	Long-term treatment associated with high cost, menopausal symptoms, and bone loss
Hysterectomy	Surgical removal of the uterus (transabdominal, transvaginal or laparoscopic)	Definitive treatment for women who do not wish to preserve fertility	Surgical risks

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Treatment	Description	Advantages	Disadvantages
Myomectomy	Surgical or endoscopic excision of tumor (s)	Resolution of symptoms with preservation of fertility	Fibroid recurrence rate of 15 to 30 percent at five years
Uterine artery embolization	Interventional radiologic procedure to occlude uterine arteries	Minimally invasive; avoids surgery/short hospital stay	Symptom recurrence of more than 17 percent at 30 months; post procedural pain

14. One of your patients, who previously elected not to treat an essentially asymptomatic fibroid, is in for her annual exam. She mentions that one of her friends had cancer of the female parts and wants to know if there is any chance of cancer with her condition. You know that the most appropriate response should include the chance of malignant transformation. Concerning the risk of leiomyomata undergoing malignant transformation, which of the following answers is correct?

a. There is no association between leiomyomata and leiomyosarcoma
b. There is less than 1% risk of malignant transformation
c. There is less than 5% risk of malignant transformation
d. There is less than 10% risk of malignant transformation

Ans. is (b) i.e. There is less than 1% risk of malignant transformation

(Ref: Shaw 15/e, p 355)

Explanation: It is currently unknown whether leiomyosarcoma represents de novo growth or malignant transformation from benign uterine fibroids. In several series of symptomatic patients undergoing hysterectomy for presumed fibroids, rates of uterine sarcoma have been quoted to be between 0.13% and 0.29%. In light of the large percentage of patients who have asymptomatic

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fibroids, the rate of uterine malignancy is probably significantly <1 in 1000 **(choice b)**. However, rapid growth of uterine fibroids, especially following the onset of menopause, requires surgical exploration to exclude malignancy.

(Choice a) The relationship is unproven but should not be discounted at this time.

15. A 34 year old patient comes to your office complaining of 6 month history of increased bleeding during menses in clots. Her periods are regular, but there is a mild discomfort during menstruation. She denies any bleeding history. A CBC reveals microcytic hypochromic anemia. A coagulation profile is normal. Pelvic exam demonstrates enlarged and bulky uterus. You propose her to perform pelvic ultrasound. During a follow up conversation, your patient wants to know why pelvic ultrasound and not MRI is recommended in her case. What would be the most accurate response to her question?

a. MRI, not ultrasound, is the most common imaging modality used for evaluation of pelvic pathology
b. Ultrasound is more available, but MRI is more cost effective than ultrasound
c. Ultrasound is the first line imaging method for visualization and follow up of the uterine fibroids
d. MRI produces less accurate measurements

Ans. is (c) i.e. Ultrasound is the first line imaging method for visualization and follow up of the uterine fibroids

Explanation: It is generally accepted that pelvic ultrasound is more cost effective than MRI and that transvaginal ultrasound is considered first line imaging for pelvic organs and structures. Ultrasound is the first line imaging modality for most patients with leiomyomata **(choice c)**.

However, MRI is less dependent on operator experience and can produce more accurate measurements, especially if following changes in fibroid size that need to be tracked very carefully. Therefore, in some patients the physician may decide to perform additional imaging.

(Choice a) Ultrasound, not MRI, is the first line imaging for most pelvic pathologies.

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(Choice b) Ultrasound is much more cost effective than MRI.

(Choice d) MRI produces more accurate measurement, and is no operator dependent.

16. One of your patients (35 years, G2P2) does not want treatment for her minimally symptomatic fibroids. She does want to follow up with your office to watch the progress of the pathology. What would be the most appropriate timing and imaging modality for follow up?

a. Pap smear every 6 months
b. Annual endometrial biopsy
c. Annual pelvic exam and ultrasound
d. Serum CA-125

Ans. is (c) i.e Annual pelvic exam and ultrasound

(Ref: Williams Gynae 2/e, p 253)

Explanation: For asymptomatic or symptomatic leiomyoma patients who do not want treatment, the follow up recommendations generally consist of annual pelvic examination according to ACOG. However, assessment of the adnexa may be hindered by uterine size or contour and patient besity. In these cases annual ultrasonographic examination can be done.

(Choice a) Endometrial biopsy is not indicated in reproductive age patients with uterine fibroids.

(Choice b) Pap smear exams should follow age and risk factor guidelines.

(Choice d) Serum CA-125 is used to follow recurrence of ovarian cancers after treatment and has no role in fibroid treatment or follow-up.

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LAST MINUTE REVISION TOOLS

A. Gynaecological Cancers
B. Last Minute Revision

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	Cancer Cervix	Cancer Endometrium	Cancer Ovary
• Commonest genital tract cancer world wide		✔	
• MIC genital tract cancer in India	✔		
• Socio economic status	Low socio economic status	High socio economic status	
• Age	35-39 years and 55-60 years	55-65 years	>60 years
• Etiology	Human papilloma virus High risk — Low risk 16 (s) — 6 18 (a) — 11 31, 33 s-m/c in squamous cell carcinoma a-M/c in adenocarcinoma	**Family=** family history **Has** –hypertension **O** = Obesity **L** = late menopause and Early menarche **D** = Diabetes	No proper etiology (?-Theory of incessant ovulation = the more he ovulation more the risk).

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	Cancer Cervix	Cancer Endometrium	Cancer Ovary
	• **Sexually transmitted diseases:** – Multiple partners – Multiparty – Younger age of sexual intercourse, low personal hygiene, low socio economic status, Immunocompromised state • **Smoking** • **In utero exposure to DES**	**A** = Atypical endometrial hyperplasia **U**- unopposed estrogen like (HRT, PCOD) **N**- Nulliparity **T**- Radiotherapy - Tamoxifen therapy (Family Has OLD AUNT)	• Ovulation inducing drugs eg clomiphene citrate • Nulliparity

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	Cancer Cervix	Cancer Endometrium	Cancer Ovary
PROTECTIVE	**HPV VACCINES** Cervirax (06) Bivalent / Gardasil (09) Quadrivalent HPV 16, 18 / HPV 16,18,6, 11 0, 1, 6 months Protect against Ca cervix / 0, 2, 6, months Protects against cancer cervix & Genital warts	**Smoking**	• Use of OC pills, DMPA – Multiparity – Breast Feeding • Pregnancy • Anovulation
FAMILIAL INHERITANCE	N/S	Lynch type II syndrome Endometrial, ovary, breast CA + hereditary Non polyposis coli	A/w Familial breast, ovarian cancer BRCA -1 (Chr 17) & BRCA 2 (CHR13) mutation

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	Cancer cervix	Cancer Endometrium	Cancer ovary
Premalignant Leison	Dysplasia /Cervical Intra epithelial Neoplasia. **Bethseda system classification** CIN I LSIL CIN II HSIL CIN III HSIL Ca insitu HSIL Invasive Cancer CIN/Ca cervix begins in transformation zone	**ENDOMETRIAL HYPERPLASIA** Simple / Complex Without atypia / with atypia / Without atypia / with atypia	
Investigation	Screening = papsmear Diagnostic = ≥ 8 mm in reproductive age group or Lesion Visible ↓ Punch Biopsy / Lesion not visible ↓ colposcopy guided biopsy	– TVS (If endometrial thickness ≥ 4mm in menopausal age group, it is considered abnormal and should be followed by biopsy. –	IX –CA 125 levels ↓ ↓ Post meno- pausal ↓ >95 miu/l / Premenopausal) ↓ >200 miu/l But it is NON specific. Screening with TVS is recommended only in high risk females

NOTE:
- LSIL = Low grade squamous intraepithelial leisons.
- HSIL = High grade squamous intraepithelial leions.

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	Cancer cervix	Cancers Endometrium	Cancer ovary
Mgt of Precancerous Condition -	**CIN I – observation Mgt - CIN II/III** Ablative Methods • Cryotherapy • Laser Excisional method **LEEP** Conisation Hysterectomy **Major disadvantage of ablative method** • Tissue not available for HPE after therapy **Ca insitu** Young females ↓ Conization Completed Family ↓ Simple Hysterectomy	**Atypical cells are present-** (simple or complex) Hysterectomy **Atypical cells are absent-** DOC= progesterone (Medroxy progesterone acetate)	

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	Cancer cervix	Cancers Endometrium	Cancer ovary
M/C histological variety	M/C- Squamous cell CA. (site = Transformation Zone) Adeno CA - site –Endo cervix Seen in Young females taking OCP + associated with HPV18 Adenoma malignum is extremely well differentiated adenocarcinoma	**M/C**-Adeno CA /Endo metriod variety **Most malignant variety—** is Clear cell CA and papillary serous carcinoma	Epithelial ovarian cancer (Serous cyst adeno carcinoma)
Symptom (mostly post coital bleeding)	Vaginal bleeding	Post menopausal bleeding	Vague symptoms
General Examination	Cachexic look	Obese look	Cachexic look
Local examination	Ulcer/growth seen	Bulky soft uterus (rarely enlarged d/t pyometra)	
Investigation	Cervical Biopsy	FIRST Ix— Endometrial aspiration IOC- hysteroscopy & biopsy • Fractional curettage • Dilatation & curettage	FNAC & Tumor markers

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	Cancer cervix	Cancer Endometrium	Cancer ovary
Staging	Clinical	Surgical (TAH + BSO+ any enlarged LN resected or selective pelvic & paraaortic lymphnode sampling+ Peritoneal cytology. In Non endometroid cancers- appendicectomy, omentectomy and peritoneal biopsies should also be performed	Surgical (TAH + BSO + omentec-tomy)

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CANCER CERVIX /CIN

DIAGNOSIS

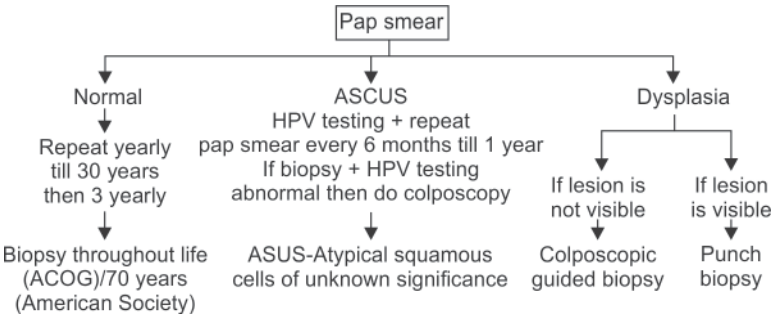
Screening Procedure Pap smear (Exfoliative cytology)

- *Time for initiating pap smear = 21 years of age*
- *Instrument used* – Ayers spatula and Endo cervical brush
  Method: Ayers spatula is rotated through 360° over portio vaginalis of cervix and 1st Slide is prepared

  With cytobrush – 2nd slide is prepared from Endo Cervix

  Control slide is made from: Post wall/fornix of Vagina

  (∴ If asked for cytology, sample is collected from which wall of vagina – Answer is posterior wall)
- Fixative-95% ethyl alcohol & ether



NOTE: Liquid base cytology is being used now. Preservative used in liquid based cytology is Methanol. If liquid based cytology is being done it should be repeated every 2 years till female is 30 years of age are then repeated 3 yearly.

Screening guidelines for cancer cervix are formulated by American Society for Colposcopy and Cervical Pathology (ASCCP) and have been revised by the American College of Obs and Gynae in 2009

- Yearly screening can reduce risk of Cancer cervix by 91%.
- A single smear in a lifetime decreases the risk by 50%

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Regular screening should begin at 21 years regardless of the age of first sexual intercourse

Screening should be done annually till 30 years of age and then every 3 yearly provided there is no H/o HIV infection, CIN2/3, in utero DES exposure

Women donot meet the criteria for less frequent screening or those who have important risk factors present should continue to be s creened annually

Women who have had a total hydterectomy done for benign indications donot require further screening unless they have a H/O CIN 2,3

In HIV positive patients screening is done at 6 months for 1 year after the diagnosis and then annually

Colposcopic Directed Biopsy

- Colposcope is a binocular microscope
- It cannot visualize endo cervix (Maxm limit is 5 mm above the canal).
- Done after application of 3-5% aceticacid.

Abnormal Patterns on Colposcopy

Aceto white epithelium
Punctuation
Mosacism
Atypical vessels.
Leukoplakia-Literal meaning of leukoplakia is white plaque-In colposcopic terminology this plaque is white epithelium, visible before application of acetic acid.

Colposcopy

Satisfactory
If entire TZ is Visible

Unsatisfactory
If TZ is not visible
↓
should be followed by Cone biopsy

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CERVICOGRAPHY

- Iodine used in schillers = 0.3%
- Iodine used in lugols = 5%
- Down staging of ca cervix is done by simple speculum examination.

NOTE: In case of adenocarcinoma of the cervix

It does not have any specific colposcopic appearance, all the abnormal blood vessels can be seen in adenocarcinoma. Because adenocarcinoma tend to develop within the endocervix, endocervical curettage is required as a part of colposcopic examination. They are best diagnosed by conization

Cone biopsy / conization Indications

Diagnostic	**Therapeutic**	
– Entire limit of lesion not seen	Ca in Situ Cancer cervix Stage IA1	in young female
– Normal colposcopic finding with abnormal cytology or whenever there is a discrepancy in the findings of papsmear and colposcopy.		
– Endo cervical curettage/histologic findings are positive for CIN 2 or CIN 3.		
– Microinvasion is suspected based on biopsy, colposcopy or cytology results.		

M/C Complication–Post op bleeding seen 10% patients

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Other Complications–Cervical incompetence which can lead to recurrent 2nd trimester abortions

Figo Staging of Cancer Cervix

Stage I

Carcinoma confined to cervix (extension to corpus is disregarded)

A = Microscopic cancer (<51 mm depth and <7 mm wide)
A1 = <3 mm deep.
A2 = 3-5 mm deep.
B = Clinically visible lesion
B1 = < 4 cms in size
B2 = > 4 cms in size

Stage II

Involves upper 2/3rd of Vagina

A = Parametrium not involved
B = Parametrium involved

Stage III

Involves lower 1/3 of Vagina

A = Pelvic side wall not involved
B = Pelvic sidewall involved/non functioning kidney, hydronephrosis, hydroureter

Stage IV

Metast asis

A = Regional Metastasis (bladder and/or rectum involved)
B = Distant metastasis

Revised Staging for Ca Cervix

Stage I

No change

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Stage II

A without parametrial involvement is further divided into-

A1	A2
Tumor size < 4 cms size	Tumor size > 4 cms size

IB–With parametrial involvement (No change)

Stage III/IV = No Change

MANAGEMENT OF CIN

Ablative Techniques for CIN Management

Cryotherapy	Laser
• Destroys the surface epithelium of cervix by crystallising intra cellular water	• Best method to treat CIN I/II if it extends to Vaginal fornices
• Temp = – 20 to – 30°C Agent used = N_2O = CO_2	
• Depth of destruction = 5 mm. (Method = freeze – thaw – freeze = 3 min- 5 min- 3 min	• Depth of destruction = 7 mm.
• Can be used only if, lesion is on ecto Cervix. (Not Endo Cervix.)	• Major advantage: It can be used if vaginal extension is present.
• No microinvasive/invasive Cancer	• Vagina is not involved

LEEP (LOOP ELECTRO EXCISIONAL PROCEDURE)/ LLETZ (LARGE LOOP EXCISION OF TRANSFORMATION ZONE)

- Best management of CIN II / CIN III in all age groups
- Earlier in female < 40 years → LEEP was the management of choice and in > 40 years → Hysterectomy.
  But Now in all age groups–management of CIN III is LEEP
- **Advantage:** Tissue is available for histopathological examination after procedure
- 1 year after procedure – do colposcopy.

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Hysterectomy: Indications

1. Microinvasive cancer / CA insitu (in females > 40 years)
2. CIN III at the limit of conization specimen
3. Poor compliance with follow up
4. Other associated gynecological problems (Fibroid, prolapse)
5. Adeno CA insitu in females
6. Recurrent / Repetitive CIN 2/3 despite less invasive treatment in females who have completed their family.

Remember: Management of CIN

- CIN I – observation. Do yearly HPV - DNA testing or Papsmear every 6–12 months. If HPV DNA testing is negative or 2 consecutive papsmear are negative → return to routine screening.
- If HPV DNA is positive or Pap smear show lesions as ASC – US (atypical squamous cells of unknown significance) ASC-H (Atypical squamous cells – HSIL cannot be ruled out) or higher lessons like CIN, 2 then do colposcopy.

NOTE :
- If CIN I occus in adolescent age group:
  Follow up with annual cytology. In these patients fol low up with HPV – DNA is not useful.
  - CIN 1 persists for 2 years – cryotherapy/LEEP.
  - CIN II – LEEP or cryotherapy
  - CIN III – LEEP (any age group)
  - Recurrent CIN III – Hysterectomy
  - CIN extending to vaginal fornices – Laser ablation

MANAGEMENT OF CANCER CERVIX

Principle

- All stages (I-IV) are radiosensitive
- Stages of Ca cervix that are operable (radical /Wertheim's hysterectomy) are 1A1, 1A2, IB, and IIA
- Stages IIB-IV are not operable and have to be treated with radiotherapy only
- In squamous cell cancers, before giving radiotherapy, a chemotherapeutic agent is given to increase the sensitivity of the cells to

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radiation called as radiosensitiser. In Ca Cervix Cisplatin is used as a radiosensitiser, so from stages 11B-1V A-mgt of choice is Chemoradiation.

- Use of Cisplatin has resulted in reduction in local recurrence and distant metastasis.
- 1a1, 1A2, IB, IIA are radiosensitive and surgically operable, but surgery is preferred over RT for these stages because of the following reasons:
  a. Preservation of ovarian function
  b. Preservation of vagina for coital function
  c. Psychological benefit to the patient
- Other indications for the selection of radical surgery over radiation:
  a. Concomitant inflammatory bowel disease.
  b. Previous radiation for any other disease
  c. Presence of simultaneous adenexal neoplasm.
- Ca cervix almost never spreads to ovary so when radical hysterectomy is done, oophorectomy is not required in young females
- Radical trachelectomy-involves removal of 80% cervix, parametria (mackenrodts ligaments) and vaginal cuff + pelvic lymphadenectomy
- Radical trachelectomy is an option for women with stage Ia^2 and Ib1 disease who desire uterine preservation and fertility.
- **Indication of doing trachelectomy:**
  – Low risk disease
  – Absence of lymph vascular space invasion
  – Size of tumor <2 cms

Radiation Treatment in Cancer Cervix Plan Consists of a Combination of:

- ***External teletherapy*** to treat the regional lymphnodes and to decrease the tumour volume.
- ***Brachytherapy*** delivered by intracavitary application to provide a treatment boost to the central tumour.
  – Intracavitary therapy alone may be used in patients with early disease with negligible incidence of lymph node metastasis
  – Low-dose rate technique uses Cs-137
  – High-dose rate techniques uses Ir-192.

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- *Intensity Modulated Radiation Therapy* Computer-generated algorithms that accurately distinguish between target treatment volumes and normal tissue

Two important reference points in the radiotherapy of cancer cervix are

	Point A	**Point B**
Location	2 cm above and 2 cm lateral to external os	2 cm above and 5 cm lateral to external os
Structure present	Paracervical/ parametrial lymph node	Obturator lymph node 4000-6000 cGy
Dose of radiation	7000 – 8000 cGy	

Radiation therapy should not be used in patients with diverticulosis, pelvic or tubo ovarian abscess

Stage Wise Management

Stage 1A1 and Ca in situ	• Young female-conization • Old females-simplehysterectomy
Stage 1A1-11A	• Surgery-Werth eims/radical hysterectomy • In stage 1a2 and 1b1-In young females radical trachelectomy can be done.
Bulky stages 1b2 and 11	• Chemoradiation or surgery both are equivalent. After surgery if risk factors are present patients require radiation, thereby increasing morbidity

Stage 11b-IVa-	• Chemoradiation
Stage IVb-	• Chemtherapy-cisplatin based alone or in combination with local radiation
Adenocarcinoma in situ	• Hysterctomy is the treatment of choice • Diagnostic excisional procedure can be performed in women who want to preserve there fertility. An endocervical curettage needs to be performed at the time of resection.

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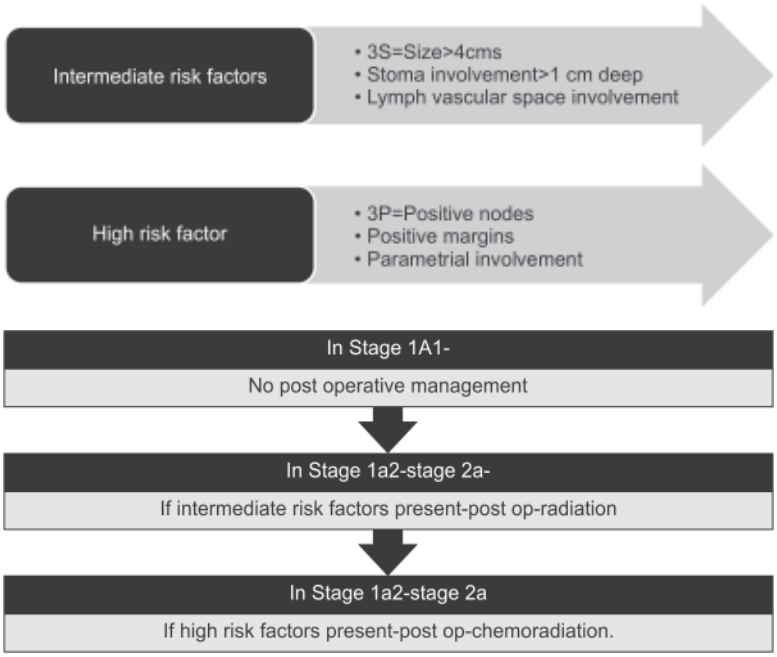
Post Operative Management of Cancer Cervix



Comparison between the Two Modalities of Treatment for Ca Cervix

	Surgery	Radiation
Survival	85%	85%
Serious complications	Urological fistulas 1-2%	Interstinal and urinary strictures and fistulas 1.4-5.3%
Vagina	Initially shortened but may lengthen with regular intercourse	Fibrosis and possible stenosis, particularly in postmenopausal patients
Ovaries	Can be conserved	Destroyed
Chronic effects	Bladder atony in 3%	Radiation fibrosis of bowel and bladder in 6-8%
Surgical	1% mortality embolism	1% (from pulmonary during intracavitatory therapy)

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Carcinoma Cervix In Pregnancy–Cancer Cervix is the Most Common Malignancy in Pregnancy

- PAP smear should be performed ideally on all pregnant women at the first anternatal visit and if required colposcopy and biopsy should be done. Punch biopsy can also be performed any time during pregnancy
- If there is a need to perform a diagnostic cone biopsy, it should be done in second trimester (12-20 weeks)
- **CIN 1, 2 & 3** can be managed after pregnancy, vaginal delivery is possible
- Treatment modalities for Ca cervix are the same as in nonpregnant women
- Cervical stage is the most important prognostic factor for cervical cancer during pregnancy
- **Stage 1A1:** Vaginal delivery and then simple extrafascial hysterectomy or therapeutic conization after 6 weeks postpartum. If cesarean is being done it can be followed by hysterectomy directly.
- **Stage 1A2:** vaginal delivery and then wertheims hysterectomy and pelvic lymph node dissection after 6 weeks or immediately after cesarean section.
- **Stage, 1B, IIA:**
  - If detected in first trimester = immediate Wertheim's hysterectomy on pregnant uterus.
  - **If detected in late second or third trimester:** Wait (treatment can be delayed up to 4-6 weeks) for fetal lung maturity and then classical caesarean section followed immediately by Wertheim's hysterectomy
- **Stage IIB-IV**

  If detected in first trimester:
  - Immediate radiotherapy (patient will spontaneously abort before 4000 cGY are delivered.
  - If detected in late second or third trimester wait for fetal maturity, classical caesarean section and then radiotherapy begun postoperatively

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- **Recurrent Cervical Cancer:**
  - Cervical cancer detected within first 6 months of treatment is termed as persistent cancer. Disease diagnosed >6 months later is recurrent cancer, Treatment of recurrent cervical cancer depends on the mode of primary therapy and the site of recurrence.
  - Patients who were treated initially with surgery should be considered for radiation therapy and those who had radiation therapy should be considered for surgical treatment. Patients with central recurrence and no evidence of disease outside the pelvis should undergo pelvic exenteration.
  - Chemotherapy is palliative only and is reserved for patients who are not considered curable by either surgery or radiation therapy

Stump Carcinoma

- Rare these days
- Earlier it was common when subtotal hysterectomy was done.
- It developed 2 years after hysterectomy
- Incidence =1%

Treatment

- Early stages – surgery – Radical parametrectomy with upper vaginectomy and pelvic lymphadenectomy, i.e. cervix + upper vagina + parametrium + LN removed
- Advanced stages – Radiotherapy

CANCER ENDOMETRIUM

Figo Staging for Ca Endometrium

Stage I

Confined to uterus:
A = Only endometrium involved
B = < ½ of myometrium involved
C = > ½ of myometrium involved

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Stage II

Tm involves cervix:

A = Glands involved.

B = Stroma Involved.

Stage III

Local spread:

A = Serosa/adenexa/positive peritoneal cytology

B = Vaginal metastasis

C = Pelvic & para aortic LN involved

Stage IV

Metastases:

A = Regional metastasis (bladder/bowel)

B = Distant metastasis including abdominal metastasis and inguinal lymphnode metastasis

Each stage has 3 grades:

- G1-well differentiated
- G2-moderately differentiated
- G3-poorly differentiated

Revised staging of Ca Endometrium-2008

- Stage I A = Endometrium and ½ of myometrium involved
  IB = > ½ of myometrium involved
- Stage II = Endocervical stroma involved
- Stage IIIA Tumor invades serosa or adnexa
  - IIIB Vaginal and/or parametrial involvement
  - IIIC1 Pelvic node involvement
  - IIIC2 Para-aortic involvement
- Stage IV = No change

Prognostic Factors in Cancer Endometrium

- Age at diagnosis (increased risk at older age group)
- Stage of tumour

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- Grade of tumour
- Histological subtype
- Myometrial penetration
- Estrogen and progesterone receptor status (if tumor is positive for these receptors, patients have better prognosis) positive for these receptors, patients have better prognosis)
- **Lymph node metastasis (most important prognostic factor)**
- Peritoneal cytology (in itself it is not a prognostic marker but if associated with other bad prognostic markers, makes the prognosis worse)

Management

Remember–General principles in the management of ca Endometrium.

In cancer endometrium, staging is surgical, i.e. already we have performed TAH+BSO + dissected any enlarged lymph node/ selective pelvic and paraoartic lymphadenectomy has been performed.

(Indication for doing selective pelvic & paraaortic lymphadenectomy given at the back)

(Stage II uterine cancer significantly increases the risk of vaginal recurrence. If cervical involvement is known preoperatively, radical/ wertheims hysterectomy is preferred)

Thus treatment is mainly post operative management

Post operative management of choice in patients with endometrial cancer is radiotherapy only

Patients with stage IA grade 1 and 2 donot require post operative radiotherapy

Stagewise Management of Ca Endometrium

Stage	Management
Stage I A grade 1 and 2	Surgery –TAH + BSO + LN sampling. (No other post Operative therapy required).
Stage IA grade III and IB (all grades)	Surgery–TAH + BSO + LN sampling followed by radiotherapy

Contd...

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Contd...

Stage	Management
Stage II	Modified radical Hysterectomy with LN Dissection followed by radiotherapy
Stage III & stage IV	Debulking surgery followed by radiotherapy "In case of advanced disease chemotherapy is now standard Treatment. " Novak 15/e1p 1279 CT agent used – Doxorubicin and cisplatin

Indications for adjuvant Radiotherapy in Ca Endometrium

- Grade III tumor (poor histology differentiation)
- Papillary serous / clear cell histology

Rest

- Lower uterus / cervical involvement
- Myometrial involvement > than ½
- Pelvic Lymph node involved
- Extra uterine involvement

Choice of Radiotherapy

Radiation Type	Used in
Vaginal vault Radiation	Grade 3 tumor and Lymph vascular space invasion
Whole pelvis external beam radiation (Radiation field encloses upper half of vagina inferiorly, Lower border of L4 vertebral body superiorly and 1 cm lateral to margins of bony pelvis)	Extrauterine pelvic disease including adnexal spread, parametrial involvement and pelvic lymphnode metastases, in absence of extrapelvic disease
Extended field radiation includes entire pelvis, co-mmon iliac lymphnodes and para aortic lymph nodes	Endometrial cancer with positive para aortic lymphnodes

Contd...

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Contd...

Radiation Type	Used in
Whole abdomen radiation therapy	• Done in stage III /IV • Serous or carcinosarcoma "*after the publication of GOG122, demonstrating the superiority of chemotherapy over whole abdo-minal radio-therapy in advanced endometrial cancer, the utili-zation of whole abdomen RT is not common*" Novak 15/ e, p1278

Recurrent Endometrial Cancer

- M/c time of recurence = within first two years
- M/c Symptom of local recurrence – vaginal bleeding
- M/c symptom of pelvic recurrence – pelvic pain
- For all patients with recurrent endometeriod tumors with hormone receptors positive, initial treatment is progestin along with radio-therapy for patients with isolated or regional recurrence or surgery + RT in case of pelvic recurrence.
- Failure to respond to hormone therapy is as indication for chemo-therapy

Uterine Sarcoma

Constitute 3-5% uterine malignancy. Mostly seen in pos menopausal age group M/c varieties are:

Endometrial stromal sarcoma (ESS)	Leiomyosarcoma	Carcinosarcoma
↓ - Arises from stromal cells - Least aggressive of the sarcomas. - M/c age= Perimenopausal & postmenopausal females	↓ Occurs - when fibroid becomes malignant - (0.1-0.5%) fibroids undergo malignancy - M/c age = 43-53 years - Differentiating feature is>10 mitosis/HPF	↓ - M/c variety - M/c age = 62 years - M/c symptom- post menopausal bleeding - M/c mode of spread – blood borne - Most aggressive sarcomas.

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Treatment

First step is exploration always.

TAH+ BSO (done in all patients except premenopausal females with leiomyosarcoma) followed by chemotherapy. (Doxorubicin, Ifosfamide, Paclitaxel, carboplatin)

- **NOTE: Leiomyosarcomas are diagnosed on the basis of ten or more mitotic figures per ten** high power fields (HPFs). Those tumors with 5 to 10 mitotic figures per 10 HPF s are referred to as smooth muscle tumors of uncertain malignant potential. Tumors with < 5 mitotic figures per 10 HPFs and little cytological atypia are classified as cellular leiomyosarcomas.

Staging of Sarcoma

Uterine sarcomas were staged previously as endometrial cancers, which did not reflect clinical behavior. **Uterine Sarcomas (Leiomyosarcoma, Endometrial Stromal Sarcoma, and Adenosarcoma):**

- **Stage** IA Tumor limited to uterus < 5 cm
- **Stage** IB Tumor limited to uterus > 5 cm
- **Stage** IIA adnexal involvement
- **Stage** IIB Tumor extends to extra-uterine pelvic tissue
- **Stage** IIIA Tumor invades abdominal tissues, one site
- **Stage** IIIB More than one site
- **Stage** IIIC Metastasis to pelvic and/or para-aortic lymph nodes
- **Stage** IVA Tumor invades bladder and/or rectum
- **Stage** IVB Distant metastasis

Sarcoma botryoides (Embryonal rhabdomyosarcoma) Mixed Mesodermal Tumor

- Common sites – Vagina, cervix, Uterus
- Usual age group – Child < 5yrs
- Commonest symptom – Blood stained discharge
- Treatment of choice – Chemotherapy – VAC – (Vincristine, Actinomycin D, Cyclophosphamide)

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CANCER OVARY

FIGO STAGING FOR CA OVARY

Stage I

Limited to ovaries:

A = One ovary involved

B = Both ovary involved

C = A or b with capsule ruptured so either ascites present or peritoneal washing positive.

Stage II

Pelvic extension:

A = Fallopian tube or uterine serosa involved

B = Other pelvic tissues involved

C = A/B with capsule rupture

Stage III

Omentum / small bowel involved:

A = Microscopic implants

B = <2 cms implarts

C = >2 cms or inguinal LN involved or superficial liver in volvement

Stage IV

Distant metastasis / parenchymal liver metastases.

NOTE: Inguinal lymph nodes are involved in Ca ovary in stage 111c, in Ca Endometrium in stage 4 b and not at all involved in Ca cervix

- **Staging for ovarian cancer is surgical i.e. TAH + BSO + Infracolicomentectomy is done for staging purpose. Hence management in ovarian cancer is basically post operative.**
- **Remember:** Post operative treatment of choice in ovarian cancer is chemotherapy (Carbolpatin+paclitaxel based therapy)

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- **Stage I A Grade I and Grade 11**
  - No post operative therapy is required.
  - In young patients who want to preserve fertility, uterus and contralateral ovary can be preserved and such females should be carefully followed by Ca 125 levels and routine pelvic examination and once childbearing is complete, they can be removed.
- **Stage I A Grade III,** post operative therapy is chemotherapy (carboplatin and paclitaxel for three-six cycles).
  - Rest all stages-cyto reductive surgery (TAH+BSO + Complete omentectomy+resection of any metastatic lesion from intestines or peritoneal surface) followed by carboplatin and paclitaxel based chemotherapy.

Some Authors Recommend in Advanced Cases

Cyto reductive
↓
Chemotherapy (6 cycles)
↓
2nd look surgery
↓
Continue CT × 6 cycles if microscopic disease is present

Newer concept is Neo Adjuvant Chemotherapy-In advanced cases, i.e. Stage III and Stage IV disease with large volume of ascites and pleural effusion another option is to give chemotherapy prior to debulking surgery, this is called as neoadjuvant chemotherapy.

OVARIAN TUMORS IN PREGNANCY

- M/C detected ovarian tumor in pregnancy is dermoid cyst (Benign cystic teratoma)
- M/C complication of ovarian tumors in pregnancy is torsion (M/C time of torsion-8-10 weeks or early puerperium)
- M/C ovarian tumor to undergo torsion in pregnancy is dermoid cyst.

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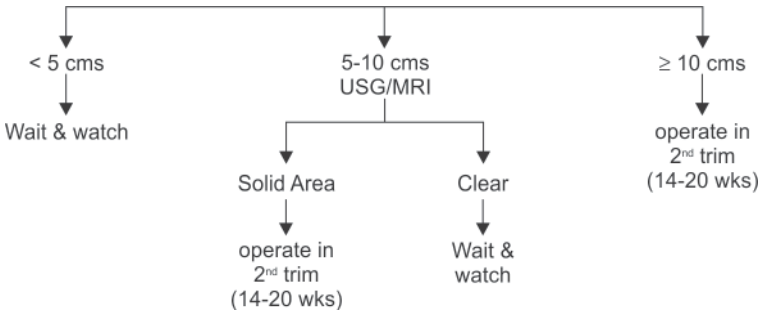
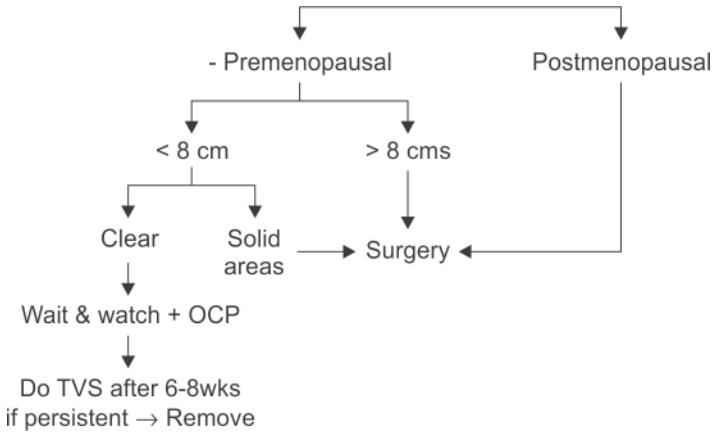
Management



- In case of complication – remove irrespective of gestational age.
- During Labour if it leads to obstruction: Do cesarean section + tumour removal.
- During puerperium Remove as early as possible.

Management of Adnexal Mass



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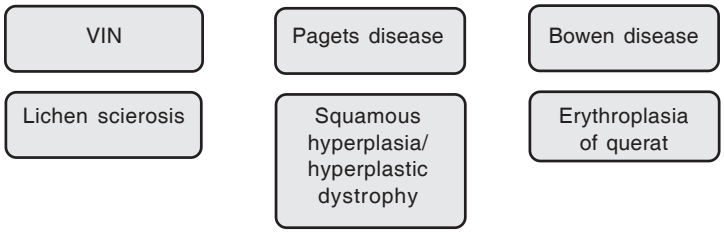
Vulva

Premalignant lesions of Vulva



Classification of Epithelial Vulvar Diseases

- *Non neoplastic epithelial disorders of skin and mucosa*
- Lichen sclerosis
- Squamous hyperplasia (earlier called as hyperplastic dystrophy)
- *Mixed neoplastic and non neoplastic epithelial disorders*
- *Intra epithelial neoplasia*

Squamous intraepithelial neoplasia	Non squamous intraepithelial neoplasia
• VIN 1 • VIN 2 • VIN 3 *Invasive Tumors*	• Paget's disease • Tumour of melanocyte, Non invasive

Treatment of VIN

- **Treatment of choice – Surgery**
  - Wide local excision done in – Young patient with localized lesion
  - Skinning vulvectomy – (Remove epidermis, not the underlying fibro fatty tissue) done in–Young patient with multi centric lesion
  - Simple vulvectomy done in Elderly patient with extensive lesion
- CO_2 laser-can be used in multicentric lesions
- Topical 5FU

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Pagets Disease of Vulva

Mostly confined to epithelium

Two forms:

- Intraepithelial pagets disease
- Invasive pagets disease
  - M/C in postmenopausal women
  - Patients c/o, itching, irritation and bleeding
  - The lesion has slightly raised margins, it is erythematous, with islands of white epithelium.
  - Histologically it is characterized by Paget cells, Velvety red lesion
  - *10-15% patients with vulvar paget's disease have an underlying adenocarcinoma of sweat glands.*
  - *10% patients of vulvar pagets disease also have associated breast, colon or genitourinary cancer.*
  - *So workup of pagets disease should include colonoscopy, cystoscopy, mammography and colposcopy.*

Treatment

- Intraepithelial paget – Wide local excision
- Invasive paget – Radical vulvectomy with Lymph node dissection
- Recurrence rate is very high.
- Mgt of recurrence- laser ablation

Vulval Cancer

- M/C variety- Squamous cell carcinoma
- Commonest symptom of vulval cancer - pruritis
- Commonest site – Labia majora and minora
- Commonets type of spread–Lymphatics (First lympnode involved- Superficial Inguinal lymphnode, and then Deep inguinal LN and femoral group of lymphnodes).
- For lateral tumors only ipsilateral lympnodes involved whereas for midline leisons, B/L lymphnodes are involved Sentinel lymphnode biopsy is helpful in vulval cancer
- Most important prognostic factor- Lymph node status.

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FIGO Staging of Vulval Cancer

Stage I

- Tumor confined to vulva or perineum, (No nodes)
- Ia – Size </= to 2 cms Stromal invasion <1mm
- Ib – Size >2 cms Stromal invasion > 1mm

Stage II

- Tumor of any size with
- Spread to lower urethra, lower vagina or anus, with negative nodes.

Stage III

- Tumor of any size
- Spread to lower urethra, lower vagina or anus and regional lymphnode metastasis (i.e. inguinalfemoral lymphnodes involved)

Stage IVa

Tumor invades upper urethra, upper vagina, bladder mucosa, rectal mucosa or fixed or ulcerated inguinofemoral nodes

Stage IVb

Any distant metastasis including pelvic lymphnode

Treatment of Vulval Cancer

- Microinvasive cancer- i.e. Stage 1a or invasion <1 mm-Wide local excision/simple partial vulvectomy, no need for lymphadenectomy
- **Stage Ib and II and Stage III:** Radical vulvectomy/modified radical vulvectomy with thorough inguinofemoral lymphadenectomy.
- If lesion is central do B/L lymphnode dissection otherwise if it is >2 cms from midline do ipsilateral inguinofemoral lymphadenectomy.
- Post operative radiotherapy to be given if 2 or more groin nodes involved or disease free margin is <8 cms

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NOTE:
- In simple partial vulvectomy dissection is carried uptil the superficial layer of urogenital fascia.
- In modified radical/radical vulvectomy- dissection done uptil the deep fascia of urogenital diaphragm, i.e the perineal membrane.

Vaginal Cancer

- Most common malignancy of vagina – Squamous cell Carcinoma (90-92%)
- Mostly occurs in upper 1/3rd posterior wall. (m/c site)
- Lower 1/3rd – anterior wall.

Staging of Vaginal Cancer (clinical)

- Limited to vaginal wall
- Involving subvaginal tissues but not reaching pelvic wall
- Extending on to pelvic wall
  - Beyond true pelvis or Bladder, rectum involvement
  - Distant organs involve
- Clear cell adenocarcinoma occurs due to DES exposure to mother in first trimester
- Commonest lesion due to DES exposure is vaginal adenosis (Benign lesion)

Management

- **Stage I**
  - **Upper 1/3rd:** Radical hysterecectomy + partial vaginectomy + bilateral pelvic lymphadenectomy
  - **Lower 1/3rd:** Radical vulvectomy + Bilateral inguino femoral lymphadenectomy + partial vaginectomy.

NOTE:
- Carcinoma involving the distal third of the vagina necessitates dissection of groin nodes
- Middle 1/3rd – External. RT + Brachytherapy

- **Stage II & III:** RT and concurrent cisplatin chemosensitisation
- **Stage IV:** Pelvic exenteration + RT

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Last Minute Revision

Important Landmarks in Fetal Development:

- Fetus starts swallowing by 10–12 weeks
- Fetal breathing movts begin by 11 weeks
- Fetus starts producing urine by 12 weeks
- Ovaries and testis are 1st recognised by 8weeks.
- External genitalia are first recognised by 12 weeks
- On USG sex be determined by 14 weeks
- Placental circulation is established by 17–21 days after fertilisation.
- Insulin secretion in fetus begins by-12 weeks

Lung Maturity Tests:

- Lecithin/Sphingomyelin ratio >2:1 lungs are mature
- Phosphatidyl glycerol if it is present in amniotic fld it indicates lung maturity-Best test in diabetic females
- Bedside test-Bubbles/Shake test
- Nile blue sulphate test-fetal skin cells stained with 0.1% nile blue sulphate dye-if >50% orange coloured cells it indicates lung maturity
- Management–Antenatal steroids
- Steroids-accelerate lung maturity–decrease the incidence of RDS
- Decrease incidence of intraventricular haemorrhage
- Decrease incidence of necrotising enterocolitis
- Dose-12 mg 24 hrs apart
- Minimum waiting period after giving is 24 hrs
- Only contraindication for giving steroid injection-Chorioam-nionitis

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Procedure	Done under
Internal podalic version	GA
External cephalic version	No anaesthesia
Manual removal of placenta	GA
Breech extraction	GA
Focal placenta accreta-piecemeal removal	NEVER GA, uterus should be contracting
Inversion of uterus-replacement manual, hydrostatic measure	GA

Cordocentesis

- Done after 18 weeks
- Indications-
- Rapid karyotyping in fetuses with structural anomaly on USG
- Fetal hemolytic disease
- Suspected fetal thrombocytopenia
- Suspected viraL infection
- Diagnosis of TTTS
- Risk of fetal loss 1-5%

Management of ectopic pregnancy:

Ruptured ectopic	Unruptured ectopic
• Immediate laparotomy	• Either -Medical mgt or Expectant management or Surgical management - laparoscopy/laparotomy
• Surgery-Salpingectomy	• Surgery if female has comlpleted her family-salpingectomy
• Laparoscopy is never done in ruptured ectopic.	• and female has not completed her family-Linear salpingostomy

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Drugs used in medical management of ectopic pregnancy:

- Mnemonic-
- mostly – methotrexate(M.C)
- Post – PGF-2alpha
- Graduate – hyperosmotic glucose
- Males – mifepristone(RU486)
- Are – actinomycin D
- Very – vasopressin
- Knowledgeble – KCl

Criteria for Medical MGT

- Drug most commonly used : Methotrexate[Q]
- Methotrexate: It is a folic acid analogue which inhibits dehydrofolate reductase[Q] and prevents synthesis of DNA[Q]
- Candidates for methotrexate: *Leon Speroff 7/e, p 1290*

  Absolute requirements
- Hemodynamic stability[Q]
- No evidence of acute intra-abdominal bleeding[Q]
- Reliable commitment to comply with required follow-up care[Q]
- No contraindications to treatment viz woman should not be breast feeding /renal/hepatic dysfunction.

Preferable Requirements:

- Absent or mild pain
- Serum beta HCG level less than 10,000 IU/L (best results seen with HCG < 3000 IU/L)[Q] . It is the single best prognostic indication of treatment success.
- Absent embryonic heart activity[Q]
- Ectopic gestational mass less than 4 cms in diameter[Q]

Instructions given to Candidate of Ectopic Preg in med MGT:

- Medical therapy fails in atleast 5-10% patients
- If tubal rupture occurs- emergency sx is done
- Signs and symptoms of tubal rupture must be promptly reported

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- Until ectopic pregnancy is resolved, sexual intercourse is prohibited, alcohol s/b avoided and folic acid supplements including vitamins s/b avoided

Methotrexate Therapy for Primary t/t of Ectopic Preg

- Single dose-50mg/m2 im is given .
- Measure Bhcg at days 4 and day7
- If diff is > 15%, do nothing just repeat b hcg levels weekly till undetectable
- If diff <15%, repeat methotrexate inj and begin a new day1
- If cardiac activity is present- repeat methotrexate inj and begin a new day1.
- Surgical t/t shd be odne if b hcg levels are not decr or if cardiac act is present after three doses of methotrexate.

Criteria for Expectant Management:

In expectant management -only observation is done in hope of spontaneous resolution.

- **Indication:**
  - Decreasing serial b HCG titres
  - Tubal pregnancies only
  - No evidence of intra-abdominal intra-abdominal bleeding or rupture assessed by vaginal sonography
  - Reliable commitment
  - Diameter of the ectopic mass < 3.5 cms.
- **Additional criteria:**
  - Baseline HCG < 1000IU/L and falling for best resutls.

Ectopic Pregnancy at other Sites

Studiform criteria	Spigelberg criteria	Paalman and Mc Elin criteria/Rubin
Abdominal ectopic	Ovarian ectopic	Cervical ectopic

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Manoeuvres used in OBS

Shoulder dystocia	Breech Ritgen manouvre	Normal del
Mc. Roberts	• Lovsets	
Woods cork skrew	• Pinards	
	• Kristellar-suprapubic pressure	
Zavaneilli	• Mauriceu smillie viet tech	
	• Burn Marshall tech	
	• Prague-in dorsoposterior breech	

Scores to Remember

BPS/manning score	Bischop score
• T-fetal Tone	• Delhi-cx Dilatation
• B-fetal Breathing movt	• Police-cx Position
• Meningitis-gross body Movts	• Employed-cx effacement
• Always – AFI	• Special-Station of fetal head
• Notorius – NST	• Commandos-cx consistency

PROM

- Spontaneous rupture of membranes before onset of labor.
- M/C etiology- infections f/b decreased tensile strength
- 1st step in examination- sterile speculum examination(P/V examination incrs chances of infection)
- Test for Diagnosis:
  - Nitrazine test/Fern test
  - USG
  - Fetal fibronectin protein

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MGT of PROM

- If fetal/maternal infection is present deliver
- If pregnancy is b/w 34–36 wks give steroids, antibiotics and deliver after 24 hrs
- If pregnancy is 24–34 weeks:

Antibiotics	Steroids	Try to carry uptil 36 wks

Vaccines in Pregnancy

Safe	May be used in epidemics
• H–hepatitis	• Tab–Typhoid
• I–influenza	• P–pnuemococcus
• T–tetanus	• C–cholera
• Rabies-rabies	• M–meningococcus

Vaccines in Pregnancy

Can be used if travelling to endemic area	Absolutely c/i
• Yellow fever	• MMR
• Japanese encephalitis	• BCG
• Polio(IPV)	• Small pox
	• Varicella

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Single Liner Previous Year DNB Questions

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Single Liner Previous Year DNB Questons

SET –1

1. **Net weight gain in pregnancy is:**
   A. 1-5 kg B. 2-7 kg
   C. 10-12 kg D. 12-17 kg
   (Ref: Dutta 7th Edn Page 50, Williams Obstretics 23rd Edn Page 112, 846, 200)

2. **Weight of nulliparous uterus is:**
   A. 30-40 gms B. 40-60g ms
   C. 50-80 gms D. 80-100 gms
   (Ref: Williams Obs 23rd Edn Page 107)
   Weight of nulliparous uterus is 70 gms and during pregnancy at term it is 1100 gms

3. **Late deceleration is due to:**
   A. Head compression B. Cord compression
   C. Abdominal compression D. Placental insufficiency
   (Ref: Williams 23rd Edn Page 421-422, Dutta Obs 7th Edn Page 612)

4. **Definitive treatment of Adenomyosis is:**
   A. Hormone Therapy B. Cryotherapy
   C. Curretage D. Hysterectomy
   (Ref: Shaws 15th Edn Page 475)

Answers: 1. (C) 10-12 kg 2. (C) 50-80 gms 3. (D) Placental
4. (D) Hysterec...

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5. In a smear of vaginal discharge budding yeasts are seen, Causative agent is:

A. Trichomonas B. Chlamydia
C. Candida D. HSV

(Ref: Shaws 15th Edn Page 146)

6. Total iron requirement in pregnancy is:

A. 500 mg B. 1000 mg
C. 1500mg D. 2000 mg

(Ref: Dutta 7th Edn Page: 55)

7. Whiff test is done for

A. Trichomonas B. Chlamydia
C. Candida D. Vaginosis

(Ref: Shaw 15th EDn Page 131-132, COGDT 10th Edn Page 670, Williams Gyane 1st Edn Page 50-51)

8. Amniocentesis is done at weeks:

A. 10-12 B. 14-20
C. 20-25 D. 25-30

(Ref: Williams Obs 23rd Edn Page 299-300, Dutta 7th Edn Page 647, Fernando Arias 3rd Edn Page 46-47)

9. Percentage of breech presentation at term is:

A. 1 B. 3
C. 7 D. 10

(Ref: Dutta 7th Edn Page 374)

10. Mc cause of perinatal mortality in twins:

A. Single fetal demise
B. Twin twin transfusion syndrome
C. Prematurity
D. IUGR

(Ref: Dutta 7th Edn Page 204, 206)

Answers: 5. (C) Candida 6. (B) 1000 mg 7. (D) Vaginosis
8. (B) 14-20 9. (B) 3 10. (C) Prema...

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11. Supine hypotension is characteristic of :

A. First trimester of pregnancy
B. 2nd trimester of pregnancy
C. 3rd trimester of pregnancy
D. Twin pregnancy
(Ref: Dutta Obs 23rd Edn Page 53)

Answers: 11. (C) 3rd trimester of pregnancy

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SET–2

1. **Ovulation is characteristically associated with:**
   A. Decreased FSH B. Decreased LH
   C. LH Surge D. Prolactin surge
   (Ref: Shaw 15th Edn Page 30)
   A peak level of 75ng/ml of LH is required for ovulation

2. **Defenitive treatment of preeclampsia is:**
   A. Anti hypertensive B. Anti epileptic
   C. Magnesium sulphate D. Delivery of fetus

NOTE: Preeclampsia/PIH/Gestational HT/Eclampsia are ↑ BP during pregnancy due to placental pathology and hence their definitive management is always termination of pregnancy

3. **Billings method of contraception is:**
   A. Barrier B. Natural method
   C. IUCD D. Emergency contraceptive
   (Ref: Park 20th Edn Page 437, Sheila Balakrishnan 1st Edn Page 362-363)

4. **Not a tocolytic is:**
   A. Ritodrine B. Atosiban
   C. Prostaglandins D. Dexamethasone
   (Ref: Fernando Arias 3rd Edn Page 227, COCDT 10th Edn Page 275 Dutta Obs 7th Edn Page 508)

Answers: 1. (C) LH Surge 2. (D) Delivey .... 3. (B) Natural....
4. (C) Prosta....

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5. Classical caesarean section is done for:

A. Small fibroid in upper segment
B. Severe degree of Placenta previa
C. Previous caesarean
D. Failed trial of labour

(Ref: Dutta 7th Edn Page 590-591, Williams 23rd Edn Page 555)

6. Preeclampsia is not predisposed by:

A. Molar pregnancy
B. Oligohydramnios
C. Diabetes
D. Multiple pregnancy

(Ref: Dutta 7th Edn Page 220)

7. Diagnosis of PID is by:

A. Histology
B. Diagnostic laproscopy
C. USG
D. Triad of pain, fever, cervical tenderness.

(Ref: Dutta Shaw 15th Edn Page 451)

8. All are true about placenta praveia except:

A. Bright red blood loss
B. Painless vaginal bleeding
C. Increased uterine tone
D. Malpresentations frequent.

(Ref: Dutta Obs 7th Edn Page 243)

9. Fetal cardiac activity is detected with transvaginal USG as early as:

A. 6 weeks
B. 8 weeks
C. 10 weeks
D. 12 weeks

(Ref: Dutta obs 7th Edn Page 642)

Answers: 5. (B) Severe 6. (B) Oligo..... 7. (D) Triad
8. (C) Increa... 9. (A) 6 weeks...

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10. Hydrops fetalis is associated with:

A. Parvovirus infection
B. Mycobacterium tuberculosis
C. Plasmodium infections
D. Hepatitis B

(Ref: Dutta Obs 7th Edn Page 497)

11. HSG is done during:

A. Follicular phase
B. Secretory phase
C. Luteal phase
D. During menstruation

(Ref: Shaws 15th Edn Page 211)

12. OCP are contraindicated in:

A. Heart disease
B. Thromboembolism
C. Breast cancer
D. All of above

(Ref: Leon Speroff 7th Edn Page 906)

13. Most commonly associated human pappiloma virus with cancer cervix is:

A. HPV 16
B. HPV 24
C. HPV 32
D. HPV 36

(Ref: Novak 15th Edn Page 581, COGDT 10th Edn Page 843)

14. Neurological defect pathogonomic of fetus of diabetic mothers is:

A. Caudal regression syndrome
B. Closed Neural tube defects
C. Spina Bifida
D. All of the above

(Ref: Fernando arias 3rd Edn Page 454)

Answers: 10. (A) Parvo.... 11. (A) Follicu.... 12. (D) All of....
13. (A) HPV 16 14. A Caudal...

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15. Progestrone of choice in emergency contraception is:

A. DMPA B. Levonorgestrol
C. Norgestrone D. Micronised progesterone
(Ref: Leon Speroof 7th Edn Page 925-926)

16. Treatment of choice for genital warts in pregnancy is:

A. Salicyclic acid with lactic acid solution
B. Imiquimod C. Podophylotoxin
D. Cryotherapy

17. Vaccine contraindicated in pregnancy is:

A. Diptheria B. Hepatitis-B
C. MMR D. Rabies
(Ref: Williams Obstretics 23rd Edn Page 208 Table 8-10, Shaila Balakrishnan Page 696-697)

18. Tocolytic of choice in heart disease is:

A: Alcohol B. Atosiban
C. $MgS0_4$ D. Nifedipine
(Ref: Internet Search)

19. In premature menopause FSH levels are:

A. 35 m IU/ml or more B. 40 IU/ml or more
C. 45 IU/ml or more C. 75 IU/ml or more
(Ref: Shaw 15th Edn Page 62)
Hormone levels in menopausal woman
E2 = 5-25 pg/ml
Oestrone = 20-70 pg/ml
FSH - > 40 mIU/ml
Androgen 0.3–1 ng/ml
Testosterone = 0.1–0.5 ng/ml
LH – 50-100 m IU/ml
Androstenedione – 800 pg/ml

Answers: 15. (B) Levono... 16. (D) Cryothe... 17. (C) MMR
18. (B) Atosiban 19. (B) 40 IU/ml ...

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20. Uterine blood flow at term is:

A. 50-75 ml/min B. 150-200 ml/min
C. 350-400 ml/min D. >500 ml/min
(Ref: COGDT 10th Edn Page 161)

21. Not a predisposing factor for endometrial cancer is:

A. Obesity B. Hypertension
C. Nulliparity D. Early menopause
(Ref: Jeffcoate 7th Edn Page 503-505, Shaw 15th Edn Page 416-418, Nowak 15th Edn Page 1256-1257)

Answers: 20. (D) >500... 21. (D) Early menopause

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SET–3

1. Centrochoman is a:

A. Male contraceptive B. Female contraceptive
C. Tocolytic D. Abortifacient

(Ref: Dutta 6th Edn Page 585, Shaws 14 th Edn Page 213)

2. Internal podalic version is done for:

A. Transverse lie of first fetus in twin pregnancy
B. Transverse lie of second fetus in twin pregnancy
C. Breech D. Footling

(Ref: Dutta 7th Edn Page 585)

3. M/c cause of spontaneous first trimester abortion is:

A. uterine malformation B. chromosomal aberration
C. infection D. genetic causes

(Ref: Dutta 7th Edn Page 159-160, COGDT 10th Edn Page 259 Williams obs 23rd Edn Page 215)

4. Most common tumor in pregnancy is:

A. Sex cord tumor B. Epithelial cell tumor
C. Dysgerminoma D. Dermoid

(Ref: Dutta 6 th Edn Page 310, Williams gynae 1st Edn Page 214)

5. Infertility by Chlamydia is due to:

A. Endometritis B. Oophritis
C. Cervicitis D. Salpingitis

(Ref: Shaws 13 th Edn Page 209)

Salpingitis due to Chlamydiae and gonoccus are common cause of tubal block resulting in infertility.

Answers: 1. (B) Female 2. (B) Transve... 3. (B) chromo...
4. (D) Dermoid 5. (D) Salpingi...

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6. Management of stage II b CA cervix is:

A. Radiotherapy
B. Radiotherapy + chemotherapy
C. Surgery
D. Chemotherapy

(Ref: Novak 14th Edn Page 1436-1437, Shaw 15th Edn Page 414)

7. Vestibule of vagina develops from:

A. Wollfian duct
B. Mullerian duct
C. Genital tubercle
D. Urogenital sinus

(Textbook of Gynae Shiela Balakrishnan, pg 5)

The vestibule is derived as the urogenital groove. It receives opening of urethra, vagina, bartholins ducts.

8. Pearl index is

A. Failure rate/1 women years
B. Failure rate/10 women years
C. Failure rate/100 women years
D. Failure rate/1000 women years

(Ref: SPM Park 20th Edn Page 439, Dutta Obs 6th Edn Page 531-532)

9. IVF and Embryo transfer is done in infertility due to:

A. Azoospermia
B. Tubal cause
C. PID
D. Uterine agenesis

(Ref: Leon speroff 7th Edn Page 1216 John Hopkins Manual of Obs and Gynae 4th Edn Page 432, Shaw 15th Edn Page 214)

Answers: 6. (B) Radio.... 7. (D) Urogeni... 8. (C) Failure... 9. (B) Tubal....

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10. Length of Umblical cord is:

A. 10-30 cms B. 30-100 cms
C. 100-250 cms D. 250-400 cms

(Ref: Williams 23rd Edn Page 61-62)

11. Management of 3rd degree UV prolapse in woman desirous of children is:

A. Le Fort repair B. Fother gill operation
C. Manchester operation D. Sling surgery

(Ref: Williams Gynaecology 1 Edn Page 533, Shaws 15th Edn Page 341-342, Textbook of Gynae Sheila Balakrishnan 1st Edn Page 322)

12. Placenta in which vessels separate before reaching margin is:

A. Circumvallete B. Velmentous
C. Marginata D. Battledore

(Ref: Dutta 7th Edn Page 218)

13. Children born to Diabetic mothers can develop all except:

A. Macrosmia B. Caudal regression
C. Hypercalcemia D. CVS Defects

(Ref: Williams 23rd Edn Page 1115-1116, Dutta Obs 7th Edn Page 285, Sheila Balakrishnan Obs1st Edn Page 291 Fernando Arias 3rd Edn Page 445)

14. Clotting factor decreased in pregnancy is:

A. VIII B. X
C. Factor XIII D. Fibrinogen

(Ref: Dutta 7th Edn Page 52)

Answers: 10. (B) 30-100 11. (D) Sling... 12. (B) Velment... 13. (C) Hyper... 14. (C) Factor XIII

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15. Mc cause of vaginal bleeding in a neonate is:

A. Sarcoma botyrides
B. Trauma
C. Bleeding disorder
D. Hormonal

(Ref: Shaws 15th Edn Page 51)

16. Screening test for gestational diabetes is:

A. Glucose challenge test
B. Glucose tolerance test
C. HB1AC
D. Random blood sugar

(Ref: Fernando Arias, 3rd Edn page 440, 442-443)

17. Karyotype of complete mole is:

A. 46 XX
B. 46 XXY
C. 69 XXX
D. 69 XY

(Ref: Dutta 7th Edn Page 191)

Answers: 15. (D) Hormo... 16. (A) Glucose... 17. (A) 46 XX

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SET–4

1. After how many days of ovulation embryo implantation occurs:

A. 3-5 days B. 7-9 days
C. 10-12 days D. 13-15 days

(Ref: Dutta Obs 7th Edn Page 22, Guyton 10th Edn Page 936, 937 Leon Speroff 7th Edn Page 120)

2. Which drug is given to prevent HIV transmission from mother to child:

A. Nevirapine B. Lamivudine
C. Stavudine D. Abacavir

(Ref: Williams Obs 23 rd EDn Page 1251, (Ref: Textbook of Obs Shiela Balkrishnan Page 360)

3. Red degeneration most commonly occurs in:

A. 1st trimester B. 2nd trimester
C. 3rd trimester D. Puerperium

(Ref: Still searching)

4. HRT is useful in all except:

A. Flushing B. Osteoporosis
C. Vaginal atrophy D. Breast cancer

(Ref: Jeffcoate 7th Edn Page 105-106, John Hopkins manual of Obs and Gynae 4th Edn Page 508-511)

Answers: 1. (B) 7-9 days 2. (A) Nevirapine 3. (B) 2nd trim... 4. (D) Breast...

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5. Ovarian tumour which is bilateral in 10 percent cases is:

A. Dysgerminoma
B. Endodermal sinus tumour
C. Immature teratoma
D. Embryonal cell carcinomas

(Ref: Jeffcoate 6th Edn Page 522, Novak 14th Edn Page 1519, 1517, 1514)

6. The most common site of ligation in Pomeroys female sterilisation is:

A. Isthmus B. Ampullary
C. Cornual D. Fimbrial

(Ref: Jeffcoate 7th Edn Page 825, Novak 14th Edn Page 294)

7. Polyhydramnios is not associated with:

A. Renal agenesis B. Anencephaly
C. Open spina bifida D. Tracheo esophageal fistula

(Ref: Dutta 7th Edn Page 215, Williams Obs 23rd Edn Page 495-496)

8. Asherman syndrome can be diagnosed by all except:

A. Hysterosalpingoraphy B. Saline sonography
C. Endometrial culture D. Hysteroscopy

(Ref: Williams Gynaecology 2nd Edn Page 444)

9. Most valuable diagnostic test in a case of suspected ectopic pregnancy:

A. Serial b-hCG levies
B. Transvaginal USG
C. Prosgesterone measurement
D. Culdocentesis

(Ref: Dutta Obs 7th Edn Page 182-183, Williams Gynae 1st Edn Page 162, Novak 14th Edn Page 611, Williams Obs 23rd Edn Page 242-243)

Answers: 5. (A) Dysge... 6. (A) Isthmus 7. (A) Renal ....
8. (C) Endom... 9. (B) Trans...

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10. A lady with CA ovary in follow up with raised CA 125 level, next step:

A. CT
B. PET
C. MRI
D. Clinical exam and serial follow up of CA 125
(Ref: Novak 15th Edn Page 1367)

11. Androgen insensitivity syndrome true is:

A. Phenotype may be completely female
B. Predominantly ovarian component in gonads
C. Always in female
D. Testes formed abnormally and receptors are normal
(Ref Shaw 15th Edn Page 111-112, Williams gynae 1st Edn Page 410)

12. Marker for granulosa cell tumor:

A. CA 19-9 B. CA 50
C. Inhibin D. Teratoma
(Ref: Williams Gynaecology, 1st Edn Page 747, Leon Speroff 7th Edn Page 197)

13. Best indicator of ovarian reserve is:

A. FSH B. Estradiol
C. LH D. FSH/LH ratio
(Ref: Novak 14th Edn Page 1203, 1204, Williams Gynaecology 1st Edn Page 434)

Answers: 10. (B) PET 11. (A) Pheno... 12. (C) Inhibin
13. (A) FSH

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14. All are true about polycystic ovarian disease except:

A. Persistently elevated LH
B. Increased LH/FSH ratio
C. Increased DHEAS
D. Markedly decresed prolactin

(Ref: Williams Gyne 1st Edn Page 384-386, Jeffcoates 7th Edn Page 386, Leon speroff 7th Edn Page 472)

15. Mayer-Rokitansky-Kuster-Hauser syndrome consists of:

A. Ovaries, uterus fallopian tubes present
B. Uterus absent, ovaries present
C. All present
D. Uterus present tubes and ovaries absent

(Ref: Jeffcoate 7th Edn Page 196, Shaws 15th Edn Page 95)

16. Normal pregnancy can be continued in:

A. Primary pulmonary hypertension
B. Wolf-Parkinson-White syndrome
C. Eisenmenger syndrome
D. Marfan syndrome with dilated aortic root

(Ref: Williams Obs 23rd Page 980-981,Fernando Arias 3rd Edn Page 507, Dutta Obs 7/e, p 276)

17. High prolactin is associated with:

A. High FSH B. Elevated estradiol
C. Elevated testosterone D. Increased libido

(Ref: Textbook of Gynae, Sheial Balakrishnan 1/e, p 27)

Prolactin gene transcription is principally stimulated by estrogen, TRH & certain other growth factors.

Answers: 14. (D) Markedly... 15. (B) Uterus .... 16. (B) Wolf-.... 17. (B) Elevated...

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18. All of the following are associated with GDM except:

A. Previous H/O macrosomic baby
B. Oligohydraminos
C. Malformations
D. infections
(Ref: Dutta Obs 7th Edn Page 284-285)

19. All are causes of primary amenorrhea except:

A. Kallman's B. Sheehan's
C. Rokitansky D. Turner's
(Ref: Shaw 15th Edn 284, 256-257, Leon Speroff 7th Edn Page 420)

20. Ideal contraception in lactation:

A. Lactational amenorrhea
B. POP' s
C. COP's
D. Barrier Method's
(Ref: Practise of fertility control , SK Chaudhari 7th Edn Page by the same author)
For details see SARS-Gynaecology

21. Evidence based treatment to menorrhagia all except:

A. Ethamsylate B. Tranexemic acid
C. POP's D. COP's
(Ref: Williams gynaecology, 1st Edn Page 187)

22. 35 week pregnant woman, all can be given for SLE except:

A. Methotraxate B. Sulfasalazine
C. Hydroxy chloroquine D. Prednisone
(Ref: Williams Obs 23rd Edn Page 1150, Harrison 17th Edn Page 2083)

Answers: 18. (B) Oligo.... 19. (B) Sheehan's 20. (B) POP's
21. (A) Etham... 22. (A) Methotrexate

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23. Intrahepatic cholestasis, ideal time for termination of pregnancy:

A. 28 weeks B. 36 weeks
C. 38 weeks D. 40 weeks

(Ref: Mgt of High risk pregnancy S Strivedi, Manju Puri, pg 358)

NOTE: In Cholestatic Jaundice–It is terminated at 36 weeks.

24. Biochemical marker increased in open neural tube defects :

A. Acetyl choline esterase B. Phosphatidyl choline
C. Glaumine choline estrases D. Butryl choline esterases

(Ref: Dutta Obs 7th Edn Page 106)

25. Oligohydramnios is seen in:

A. Oesophageal atresia B. Spina bifida
C. Cholangioma of placenta D. Posterior Urethral valves

(Ref: Dutta 7th Edn Page 215)

26. Mifepristone is used in:

A. Early medical abortion B. Sarcoma botyrides
C. Molar pregnancy D. Habitual abortion

(Ref: Dutta Obs 7/e, p 174, 525)

27. Commonest congenital malformation in infants of woman with overt diabetes is:

A. Situs inversus B. CNS defects
C. Renal agenesis D. Caudal regression

(Ref: Fernando arias 3rd Edn Page 454, COGDT 10th Edn Page 312, Sheila Balakrishnan Page 288)

NOTE: If TGA or VSD would have been given I would have gone for it

Answers: 23. (C) 38 Weeks 24. (A) Acetyl... 25. (D) Poste...
26. (A) Early... 27. (B) CNS defe...

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SET–5

1. On per vaginal examination, anterior fontanelle and supra-orbital ridge is felt in the second stage of labour. The presentation is:

A. Brow presentation
B. Deflexed head
C. Flexed head
D. Face presentation

(Ref: Dutta 7th Edn Page 83)

2. Drug causing Gynecomastia:

A. Spironolactone
B. Rifampicin
C. Penicillin
D. Bumetanide

(Ref: KDT 6/e, p 571)

3. All are true about fetal distress except:

A. pH>7.3
B. ↑HR
C. ↓HR
D. Meconium staining of liqour

(Ref: Dutta 7th Edn Page 609, 610, 612)

4. In rupture uterus due to lower segment scar dehiscence, all the following findings can aid in the diagnosis, except:

A. Fetal bradycardia
B. Maternal bradycardia
C. Vaginal bleeding
D. Hemattiria

(Ref: COGDT 10th Edn Page 340, Williams Obs 23rd Page 573)

NOTE: For detailed explanation see chapter on obstructed labour in Self assessment and Review of Obstetrics by Sakshi Arora.

Answers: 1. (A) Brow... 2. (A) Spirono... 3. (A) pH>7.3 4. (B) Maternal...

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5. All of the following drugs are used in the management of post-partum haemorrhage:

A. Ergometrine B Methergin
C. Prostaglandin D. Mifepristone
(Ref: Dutta Obs 7th Edn Page 416)

6. Bandl's ring is seen in which of the following conditions:

A. premature labour B. Precipitate labour
C. Obstructed labour D. Injudicious use of oxytocic
(Ref: Dutta Obs 7th Edn Page 362)

Answers: 5. (D) Mifep.... 6. (C) Obstructed

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SET–6

1. LNG-IUS (Levonorgestrel intrauterine system) is:

A. a non hormone releasing IUCD
B. a hormone releasing IUCD
C. a barrier
D. a behavioural contraceptive
(Ref: Dutta Obs 7th Edn Page 538)

2. Carcinoma Cervix involving upper 2/3 of vagina are classified as:

A. IIA B. lIlA
C. lIB D. IIIB
(Ref: John Hopkins manual of obs and gynae 4th Edn Page 547)

3. The source of HCG is:

A. Syncytiotrophoblast B. Cytotrophoblast
C. Langhan's layer D. Chorionic villi
(Ref: Dutta 7/e, Page 57)

4. 'Peg Cells' are seen in:

A. Vagina B. Vulva
C. Ovary D. Fallopian Tubes
(Ref: Shaws 15/e, Page 12)

5. Beading is seen in case of genital tuberculosis in woman in:

A. Tubes B. Uterus
C. Cervix D. Vagina
(Ref: Shaws 15/e, Page 157)

Answers: 1. (B) a horm... 2. (A) II A 3. (A) Syncy...
4. (D) Fallopian 5. (A) tubes

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6. Commonest site of ectopic pregnancy is:

A. Uterus B. Cervix
C. Abdomen D. Tubes
(Ref: Dutta Obs 7th Edn Page 177)

7. Retention of urine is seen in the following type of cervical fibroid:

A. Anterior B. Posterior
C. Central D. Lateral
(Ref: Jeffcoate 7th Edn Page 493)

8. Commonest site of metastasis of Choriocarcinoma is:

A. Liver B. Lung
C. Brain D. Cervical lymph nodes
(Ref: Shaw 15th Edn Page 259)
M/c site is lungs followed by bran and liver

9. B Lynch suture is applied on:

A. Cervix B. Uterus
C. Fallopian tubes D. Ovaries
(Ref: COGDT 10th Edn Page 482-483)

10. Blood flow in the intervillous space at term approximates:

A. 150 ml B. 300 ml
C. 500 ml D. 700 ml
(Ref: Dutta Obs 7th Edn Page 32)

11. For the treatment of Toxoplasma infection during pregnancy, drug of choice is:

A. Sulphadiazine B. Spiramycin
C. Pyrimethamine D. Clindamycin
(Ref: Dutta obs 7th Edn Page 297)

Answers: 6. (D) Tubes 7. (B) Posterior 8. (B) Lung
9. (B) Uterus 10. (A) 150 ml 11. (B) Spiram...

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12. Twin pregnancy predisposes to all in mother except:

A. Hydramnios
B. Pregnancy induced hypertension
C. Malpresentation
D. Polycythemia

(Ref: Dutta 7th Edn Page 204-205)

Answers: 12. (D) Polycythemia

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SET–7

1. **Commonest type of presentation is:**
   A. Breech B. Shoulder
   C. Brow D. Vertex
   (Ref: Dutta 7th Edn Page 76)

2. **Uterus with two uterine cavities and single cervix is:**
   A. Uterus bicornis unicolis
   B. Uterus unicornis
   C. Uterus bicornis bicolis
   D. Uterus didelphys
   (Ref: Shaw 15th Edn Page 99)

3. **Post-coital test is used to assess:**
   A. Cervical factor B. Vaginal factor
   C. Uterine factor D. Tubal factor
   (Ref: Shaw 15th Edn Page 204)

4. **Uterine artery is a branch of:**
   A. Aorta B. Common iliac
   C. Internal iliac D. External iliac
   (Ref: Dutta 7th Edn Page 7)

5. **The corpus luteum secretes:**
   A. Oestrogens B. Progesterone
   C. Both D. None
   (Ref: Dutta Gynae 5 th Edn Page 85)

Answers: 1. (D) Vertex 2. (A) Uterus... 3. (A) Cervical...
4. (C) Internal ... 5. (C) Both

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6. Best test for tubal patency is:

A. Laproscopy B. Hysterosalpingography
C. Rubin's test D. X-ray pelvis
(Ref: Shaws 15th Edn Page 213)

7. What type of bodies are found in Granulosa cell tumour:

A. Call Exner bodies B. Asbestos bodies
C. Amyloid bodies D. None of the above
(Ref Shaws 15th Edn Page 380)

8. Placenta develops from:

A. Chorion frondosum and deciduas basalis
B. Chorion frondosum and Deciduas capsularis
C. Chorion
D. Amnion
(Ref: Dutta 7th Edn Page 28)

9. Which is the most common type of female pelvis:

A. Gynecoid B. Anthropoid
C. Android D. Platypelloid
(Ref: Dutta 7th Edn Page 345)

Caldwell and mohoy classification of pelvis M/C= Gynae coid>Anthropoid>Android> Platypelloid

10. HCG is a tumor marker for:

A. Gestational Trophoblastic Neoplasia
B. Colon carcinoma
C. Serous cystadenoma
D. Teratoma
(Ref: Shaw 15th Edn Page 256)

Answers: 6. (A) lapros... 7. (A) Call Exner 8. (A) Chorion...
9. (A) Gynec... 10. (A) Gestat...

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SET–8

1. **Bandl's ring is seen in which of the following conditions:**
   A. Undilated Cervix
   B. Premature rupture of membranes
   C. Obstructed labour
   D. Injudicious use of oxytocic
   (Ref: Dutta Obst 7th Edn Page 362-363)

2. **The MTP Act was passed in the year:**
   A. 1971 B. 1976
   C. 1982 D. 1988
   (Ref: Dutta Obs 7th Edn Page 172)

3. **Size of uterus in inches is:**
   A. 5 × 4 × 2 B. 4 × 3 × 1
   C. 3 × 2 × 1 D. 4 × 2 × 1
   (Ref: Shaws 15th Edn Page 6)

4. **Main support of uterus is from — ligament.**
   A. Cardinal B. Broad
   C. Round D. Pubocervical
   (Ref: BD Chaurasia vol 24th Edn Page 320, Grays Anatomy, Lasts Anatomy)

5. **Commonest benign tumor of ovary is:**
   A. Serous type B. Mucinous
   C. Dermoid cyst D. Granulosa cell tumor
   (Ref: Shaws 15th Edn Page 374)

NOTE:
- M/c benign Tm of ovary= serous cystadenoma
- M/c malignant Tm of ovary = serous cystadeno carcinoma

Answers: 1. (C) Obstruc... 2. (A) 1971 3. (C) 3 × 2 × 1
4. (A) Cardin... 5. (A) Serous

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6. Commonest malignancy of ovary is:

A. Serous type B. Mucinous
C. Dermoid cyst D. Granulosa cell tumor
(Ref: Shaws 15th Edn Page 374)

7. Danazol is used for the following, except:

A. Endometriosis B. Fibroadenosis of breast
C. Delayed puberty D. Gynaecomastia
(Ref: Shaw 15th Edn Page 313)

8. Following operations are used for genital prolapse, except:

A. Fothergill's B. Fenton's
C. Ward Mayo D. Le Forte
(Ref: Shaws 15th Edn Page 338, 341)

9. Q Tip test is done for:

A. Stress incontinence
B. Urge incontinence
C. Vesico vaginal fistula
D. Utero vesical fistula
(Ref: Dutta Gynae 5/e, P 366, 367, 368)

10. Persistent occipitoposterior is common in:

A. Android pelvis B. Anthropoid pelvis
C. Gynaecoid pelvis D. Platypelloid pelvis
(Ref: Dutta 7th Edn Page 346 Table 23.1)

11. Commonest twin presentation is:

A. Vertex-brow B. Vertex-face
C. Vertex-breech D. Vertex-vertex
(Ref: Dutta 7th Edn Page 202-203)

Answers: 6. (A) Serous... 7. (C) Delayed... 8. (B) Fenton's...
9. (A) Stress... 10. (B) Anthro... 11 (D) Vertex- ....

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12. Best diagnosis of ovulation is by:

A. Ultrasound B. Laproscopy
C. Endometrial biopsy D. Chromotubation
(Ref: Jeffcoates 7th Edn Page 103, Novak 15th Edn Page 1151)

A combination of hormonal tests and USG should be used for detecting ovulation

13. The amount of blood loss during each menstrual period is about:

A. 10 cc B. 35 cc
C. 50 cc D. 100 cc
(Williams Gynae 1st Edn Page 423)

14. Commonest site of genital tuberculosis in woman is:

A. Tubes B. Uterus
C. Cervix D. Vagina
(Ref: Shaw 15th Edn Page 154)

15. Longest diameter of fetal skull is:

A. Biparietal B. Bitemporal
C. Occipitomental D. Submento vertical
(Ref: Dutta Obs 7th Edn Page 85)

16. Placenta takes over function of corpus luteum for hormone production at:

A. 6 weeks B. 12 weeks
C. 18 weeks D. 24 weeks
(Ref: Williams Obs 23rd Edn Page 67)

NOTE: *"After 6-7 weeks gestation little progesterone is produced in the ovary. Surgical removal of corpus luteum or even B/L Opherectomy during the 7th to 10 week doesnot cause a decrease in excretion of urinary pregnanidiol, the principal urinary metaboic of progesterone."*

... William Obs 23/e, p. 67

Answers: 12. (A) Ultras... 13. (C) 50 cc 14. (A) Tubes
15. (D) Subme... 16. (A) 6 weeks

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17. Amount of amniotic fluid at 12 weeks of pregnancy is:

A. 50 ml B. 100 ml
C. 200 ml D. 400 ml

(Ref: Dutta Obs 7th Edn Page 38)

18. Cornification Index or eosinophilic index indicates:

A. Progesterone effect
B. Estrogenic effect
C. Effect of LH
D. All of the above

(Ref: Shaws 15th Edn Page 129)

19. Infection of Bartholin cyst is caused by:

A. Candida B. Anaerobes
C. Gonococcus D. Trichomonas

(Ref: Shaw 15th Edn Page 120)

Answers: 17. (A) 50 ml 18. (B) Estroge.... 19. (C) Gono...

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SET–9

1. **Shortest diameter is:**
   A. Diagonal conjugate B. Obstetric conjugate
   C. True conjugate D. All are equal
   (Ref: Dutta Obstretics 7th Edn Page 88)

2. **Following agent is implicated in carcinoma cervix:**
   A. Herpes simplex B. Human papilloma virus
   C. EB virus D. Adenovirus
   (Ref: Shaw 15th Edn Page 400)

3. **A patient present with Ca endometrium, more than 50% myometrium and vagina involved, pelvic and para aortic nodes negative and positive peritoneal cytology. Stage the disease:**
   A. II B B. III B
   C. III C1 D. III C2
   (Ref: S Balakrishnan. Textbook of Gyn, 1st edn, Page 235, Novak 15th Page 1265)

NOTE:
- Stape III C_1 refers to positive pelvic nodes
- III C_2 refers to positive para aortic nodes

4. **Which is the most common type of female pelvis:**
   A. Gynecoid B. Anthropoid
   C. Android D. Platypelloid
   (Ref: Dutta Obs 7th Edn Page 346)

Answers: 1. (B) Obste.... 2. (B) Human... 3. (B) III B
4. (A) Gyne...

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5. Alpha fetoprotein is decreased in:

A. Anencephaly

B. Anterior abdominal wall defects

C. Renal anomalies D. Down's syndrome

(Ref: Williams obs 23rd Edn, Page 291 fernardo arias 3rd Edn Page 54)

NOTE: Alpha feto proteins is decreased in:

G = Gestationae trophoblastic disease, Gestational dia betes

O = Obesity, oversestinated gestational age

A = Abortions

T = Trisomy 21 (Downs syndrome)

6. A female patient presents with reddish vagina and greenish discharge, the probable diagnosis is:

A. Herpes infection B. Trichomonas

C. Gonococcal infection D. Candidiasis

(Ref: Shaw 15th Edn Page 145)

7. Commonest type of ectopic pregnancy with rupture is:

A. Isthmic B. Ampulla

C. Interstitial D. Infund ibular

(Ref: Williams Obst 23 rd Edn Page 240)

NOTE: Rupture is M/c in isthmic part and Tubal abortion is M/c in ampulla of fallopian tube

8. The corpus luteum of menstruation persists for:

A. 5 days B. 10 days

C. 22 days D. 30 days

(Ref: Dewhurst OG 6 TH Edn Page 30)

NOTE:
- Hormone mantaining corpus luteum of merstruation = LH
- Hormone mantaining corpus luteum of pregnancy = hCG

Answers: 5. (D) Down's... 6. (B) Tricho... 7. (A) Isthmic 8. (B) 10 days

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9. Commonest site of fertilisation is:

A. Isthmic B. Ampulla
C. Infundibulum D. Interstitial
(Ref: Dutta obs 7th Edn Page 21)

10. Not an Absolute contraindication to use of OCP is:

A. Age over 35 and smoking >15 cigarettes daily
B. Migraine
C. Active hepatitis
D. Diabetes
(Ref: Leon Speroff 7th Edn Page 906)

11. All are true about gestational trophoblastic disease, except:

A. Complete mole genome is Diploidy
B. Choriocarcinoma rarely follows full term pregnancy
C. Suction and currettage remove most of hydatid iform mole.
D. Snowstorm appearance on USG.
(Ref: Dutta obs 7th Edn Page 191, 199)

Although here statement b, i.e chorio carcinoma rarely follows full term pregnancy is also incorrect as 25% cases of chorio carcinoma follow full term pregnancy but option a is absolutely wrong.

12. According to Shaw's classification, lllrd degree is:

A. uterusabove introitus
B. uterus at the level of introitus
C. uterus outside the introitus
D. Procidentia
(Ref: Shaw 15th Edn Page 332)

Answers: 9. (B) Ampu... 10. (D) Diabet... 11. (A) Comp.... 12. (C) uterus

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13. Cystoglandular hyperplasia is seen in:

A. Menorrhagia
B. Polymenorrhoea
C. Oligomenorrhoea
D. Metropathia hemorrhagia
(Ref: Shaws Gynae 15th Edn Page 303)

14. The following is most sensitive to radiotherapy:

A. Serous cystadenoma
B. Dysgerminoma
C. Mucinous cystadenoma
D. Teratoma
(Ref: Novak 15th Edn Page 1395-1397)

15. Twin pregnancy predisposes to:

A. Hydramnios
B. Pregnancy induced hypertension
C. Malpresentation
D. All of the above
(Ref: Dutta 7th Edn Page 206)

16. Artificial rupture of membrane is contraindicated in:

A. Heart disease
B. Hydraminos
C. Pregnancy induced hypertension
D. Intrauterine death
(Ref: Dutta 7th Edn Page 525)

In hydramnios if ARM is done it leads to sudden outflow of amniotic fluid → sudden decompression of uterus → Abruptio placenta. So in hydramnios controlled rupture of membranes is done and not ARM.

Answers: 13. (D) Metro... 14. (B) Dysger... 15. (D) All of... 16. (B) and D....

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17. Drug of choice for bacterial vaginosis is:

A. Metronidazole B. Erythromycin
C. Tetracyc1line D. Nystatin
(Ref: Shaw 15th Edn Page 132)

18. Vaccine routinely given in pregnancy:

A. Influenza B. Oral polio
C. Tetanus D. Rabies
(Ref: Dutta Obs 7th Edn Page 101)

19. All are used in treating dysmenorrhoea, except:

A. Bromocriptine
B. Ibuprofen
C. Mefenamic acid
D. Norethisterone and ethanyl estradiol
(Ref: Shaw 15th Edn Page 296)

20. The sphingomyelin: Lecithin ratio is measured for assessing maturity of:

A. Lung B. Brain
C. Heart D. Spleen
(Ref: Dutta Obs 7th Edn Page 111)
L/S ratio $\geq$ 2 indicates pulmonary maturity

21. HCG is a tumor maker for:

A. Choriocarcinoma B. Colon carcinoma
C. Serous cystadenoma D. Teratoma
(Ref: Shaw 15th Edn Page 260)

Answers: 17. (A) Metro... 18. (C) Tetanus... 19. (A) Bromo...
20. (A) Lung 21. (A) Chorio

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SET–10

1. **Oligohydramnios is associated with all, except:**
   A. Amnion Nodosum B. Polycystic kidney disease
   C. Renal agenesis D. None of the above
   (Ref: Dutta obs 7th Edn Page 215, Williams 23rd Page 495)

2. **Most common fungal infection in 3rd trimester of pregnancy is:**
   A. Epidermophyton B. Aspergillus
   C. Candida albicans D. Tinea
   (Ref: Shiela Balakrishnan Textbook of Gynaecology, Page 206)

NOTE: In pregnancy vaginal ph becomes acidic and the only organism which can survive in acidic medium is candida

3. **All of the following are features of obstructed labour, except:**
   A. Hot dry vagina B. Bandl's Ring
   C. membranes present D. Tonic contracted uterus
   (Ref: Textbook of obs Sheila Balakrishnan Page 474-475)

4. **The antihypertensive which may be used in hypertension in pregnancy is:**
   A. Guanethidine B. Furosemide
   C. Atenolol D. Captopril
   (Ref: John Hopkins manual of obs and gynae 4th Edn Page 188)

   Although diuretics shouldnot be used in pregnancy, particularly in preeclampsia but if required in case of chronic hypertension during pregnancy, it may be used.

Answers: 1. (B) Poly... 2. (C) Candi 3. (C) Mem... 4. (B) Furo...

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5. The most consistent sign in disturbed ectopic pregnancy is:

A. Pain
B. Vaginal bleeding
C. Fainting
D. Vomiting

(Ref: Dutta 7th Edn Page 220)

6. Syphilis is transmitted in which week of pregnancy:

A. 4th week
B. 8th week
C. 16th week
D. 28th week

(Ref: Williams 23rd Edn Page 1235)

NOTE: It is not clear that syphilis is not transmitted before 18 weeks but due to fetal immune competence fetus doesnot manifest the immunological inflammatory response characteristic of clinic disease before this time

7. Causes of lst trimester abortion are all, except:

A. Rubella
B. Syphilis
C. Defective germplasm
D. Trauma

Ans (Ref: Dutta 7th Edn Page 294)

Since fetus manifests syphilis after 18 weeks—first trimester abortions are not caused by syphilis

8. Ventouse is contraindicated in all, except:

A. Fetal distress
B. Face presentation
C. Transverse lie
D. Deep Transverse arrest

(Ref: Dutta obs 7th Edn Page 372, 580-581)

Best management of deep transverse arrest is ventouse

9. Deep transverse arrest is M/c in:

A. Android
B. Gynaecoid
C. Platypelloid
D. Anthropoid

(Ref: Textbook of obs Sheila Balakrishnan Page 426)

Answers: 5. (A) Pain 6. (D) 28th... 7. (B) Syphilis 8. (D) Deep... 9. (A) Android

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10. Following are more common in multipara woman then primipara, except:

A. Anemia
B. Placenta previa
C. PIH
D. None of the above

(Ref: Dutta 7th Edn Page 180)

11. The drug of choice in choriocarcinoma is:

A. Methotrexate
B. Actinomycin-D
C. Vincristine
D. 6 thioguanine

(Ref: Shaw 15th Edn Page 260)

12. RU 486 is used in all of the following, except:

A. Post-coital contraception
B. Threatened abortion
C. Ectopic pregnancy
D. Molar pregnancy

(Ref: Leon Speroff 7 th edn page 69)

NOTE: Mifepristone or RU 486 is an abortifacent and should never be used in threatered abortion, for all other options it may be used

13. Post-ovulation, the cervical mucus:

A. Shows pattern on drying
B. Is thick
C. Is thin and cellular
D. Is thin and alkaline

(Ref: Shaws 15th Edn Page 215-216)

14. Barr bodies are not present in:

A. XO
B. XXV
C. XX
D. XXX

(Ref: Shaws 15th Edn Page 108)

Number of barr bodies = Number of X chromosomes-1

Answers: 10. (C) PIH 11. (A) Metho... 12. (B) Threate... 13. (B) Is thick... 14. (A) XO

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15. A 40 years old lady with CIN Ill. Best management is:

A. No treatment
B. Wertheim's hysterectomy
C. Total abdominal hysterectomy
D. Punch biopsy
(Ref: Novak 14/e, p 584-586, Williams Gynae 1/e, p 635)

This is an old question: here answer is TAH butnow a days managements of CIN III is LLETZ irrespective of age.

16. Which is increased in post-menopausal woman:

A. FSH B. Oestrogen
C. Both of the above D. None of the above
(Ref: Shaw 15th Edn Page 62)

NOTE:
- Both FSH and LH increase during menopause.
- Increase in FSH = 50 folds & LH is 3-4 folds.

17. Pressure symptom is due to which fibroid:

A. Submucous B. Subserous
C. Both of the above D. None of the above
(Ref: Shaws 15th Edn Page 357, Jeffroate 7th Edn Page 493)

18. Laproscopy is the gold standard for detecting:

A. Endometriosis B. Ca uterus
C. Ca cervix D. Ca rectum
(Ref: Shaws 15th Edn Page 470)

19. What type of bodies are found in Granulosa cell tumour:

A. Call Exner bodies B. Asbestos bodies
C. Amyloid body D. None of the above
(Ref: Shaws 15th Edn Page 28)

Answers: 15. (C) Total.... 16. (A) FSH 17. (B) Subser....
18. (A) Endome.. 19. (A) Call.....

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20. Schiller Duvall bodies are seen in:

A. Endodermal sinus tumor
B. Choriocarcinoma
C. Granulosa cell tumor
D. Arrhenoblastoma
(Ref: Jeffcoate 7 th Edn Page 541, Williams Gynaecology 1 st Edn Page 742)

Answers: 20. (A) Endodermal sinus tumor

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SET–11

1. Commonest cause of Post-Partum Haemorrhage is:

A. Vaginal laceration B. Cervical tear
C. Coagulopathy D. Uterine atony
(Ref: DC Dutta Obs 7th Edn Page 410)

2. Longest diameter of fetal skull is:

A. Biparietal B. Bitemporal
C. Occipitomental D. Submento vertical
(Ref: DC Dutta Obstretics 7th Edn Page 85)

NOTE: Longest diameter is mento vertical = 14 cms

3. Obstetric Conjugate is:

A. 8.5 cm B: 9.0 cm
C. 9.5 cm D. 10.0 cm
(Ref: DC Dutta Obstretics 7th Edn Page 88)

4. Commonest cause of Pyometra is:

A. Carcinoma endometrium
B. Carcinoma cervix
C. Carcinoma vagina
D. Uterine myoma
(Ref: Shaw 15th Edn, Page 324)

Remember

- M/c cause of pyometra is malignancy followed by senile endometritis
- M/c cancer causing pyometra–cancer cervix

Answers: 1. (D) Uterine... 2. (D) Submen... 3. (D) 10.0 cm
4. (B) Carci....

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5. Commonest Site of Endometriosis:

A. Vagina
B. Ovary
C. Urinary bladder
D. Peritoneal cavity

(Ref: Shaws 15th Edn Page 466)

6. Precocious Puberty is seen in:

A. Hyperthyroidism
B. Addison's disease
C. McCune Albright syndrome
D. Neuroblastoma

(Ref: Shaws 15th Edn Page 56)

NOTE: M/c cause of precocious puberty is constititutional DOC is GnRH analog.

7. Hegar's sign can be elicited by:

A. 6 weeks
B. 11 weeks
C. 12 weeks
D. 15 weeks

(Ref: Williams Obs 23th Edn Page 192)

8. 'Peg cells' are seen in:

A. Vagina
B. Vulva
C. Ovary
D. Fallopian Tubes

(Ref: Shaws 15th Edn Page 12)

9. Sarcoma botyroides is mostly seen in:

A. Neonates
B. Children under 2 years
C. Adults
D. Post-menopausal

(Ref: Williams Gynae 2nd Edn Page 813)

NOTE: Sarcoma botryeides/Embryonal rhabdomyo sarcoma is the M/c malignanty of the vagina in infants and children. This rare tumor develops almost exclusively in girls less than 5 years of age.

Answers: 5. (B) Ovary 6. (C) McCune ... 7. (A) 6 weeks
8. (D) Fallop... 9. (B) Children....

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10. Uterine artery is a branch of:

A. Aorta B. Common iliac
C. Internal iliac D. External iliac
(Ref: Dutta Obstretics 7th Edn Page 7)

Remember

It is a branch of anterior division of internal iliac artery

11. The pH of vagina in adult woman is:

A. 4.5 B. 6.5
C. 7.5 D. 7.0
(Ref: Shaw 15th Edn Page 5)

12. Polycystic ovary disease is associated with:

A. Pheochromocytoma
B. Endometrial hyperplasia
C. Pancreatic overactivity
D. Thyroid hypofunction
(Ref: Williams Gynae 2nd Edn, Page 468)

13. The symptoms of menopause are best treated with:

A. Oestrogen B. Progesterone
C. Testosterone D. Clomiphene
E. Bladder irritability
(Ref: Williams Gynae 2nd Edn Page 585)

NOTE: Most frequent symptom of menopausal female is hot flushes and estrogen is the most effective and the only approved therapy by FDA for Vasomotor symptoms/hot flushes

Answers: 10. (C) Inter... 11. (A) 4.5 12. (B) Endome... 13. (A) Oestro...

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14. Secondary dysmenorrhoea is seen in:

A. Endometriosis B. DUB
C. Submucus fibroid D. Ovarian cyst
(Ref: Novak 15th Edn Page 484)

"The most common cause of secondary dysmerorrhea is endometriosis followed by adenomyosis and non hormonal IUCD's" Novak 15th Edn Page 484 So although in fibroids also dysmerorrhea occurs, but we will choose endometriosis.

15. A woman is said to be having menorrhagia if the menstrual blood loss is more than:

A. 20 ml B. 40 ml
C. 60 ml D. 80 ml
(Ref: Shaws 15th Edn Page 299)

16. Dysfunctional uterine bleeding is seen in:

A. Metropathia haemorrhagia
B. Polycystic ovary
C. Endometrial TB
D. Hypothyroidism
(Ref: Shaws Gynaecology 15th Edn Page 301 Table 22.2)

17. Red degeneration of fibroid is associated with:

A. Pregnancy B. Aseptic infection
C. Thrombosis D. Leukocytosis
(Ref: Shaws 15th Edn Page 355)

18. Greenish vaginal discharge with severe itching points to a diagnosis of:

A. Candidiasis B. Senile vaginitis
C. Trichomonas D. Pyogenic vaginitis
(Ref: Shaws 15th Edn Page 145)

Answers: 14. (A) Endo... 15. (D) 80 ml 16. (A) Metro...
17. (A) Preg 18. (C) Tricho...

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19. Treatment of choice for senile vaginitis is:

A. Oral pills B. Nystatin locally
C. Oestrogen cream D. Ketoconazole
(Ref: Shaws 15th Edn Page 68)

20. Commonest causes of VVF in India is:

A. Obstetric causes B. Carcinoma cervix
C. Gynae operations D. Bladder stone
(Ref: Shaws Gynaecology 15th Edn Page 183)

21. Net weight gain in pregnancy is:

A. 11 Pounds B. 25 Pounds
C. 36 Pounds D. 42 Pounds
(Ref: Williams Obstretics 23rd Edn Page 200-201)

NOTE: The recommended weight gain for a pregnant woman with normal BMI during pregnancy is 25-35 lb (pounds) or 11.5–16 kgs, Williams 23rd Edn Page 200-2010)

22. The most diagnostic sign of pregnancy is:

A. Amenorrhoea B. Quickening
C. Foetal heart sounds D. Distention of abdomen
(Ref: Dutta Obstretics 7th Edn Page 72)

NOTE: Absolute/Most diagnostic signs of pregnancy are:

1. Palpation of fetal parts by examiner
2. Auscultation of fetal heart sounds
3. USG evidence of fetus
4. Radiological evidence of fetal skeleton at 16 weeks

Answers: 19. (C) Oestro... 20. (A) Obs... 21. (B) 25 Poun...
22. (C) Foetal ...

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23. Partogram helps in detecting:

A. Abruptio placentae
B. Obstructed labour
C. Incoordinate uterine action
D. PPH

(Ref: Dutta Obs 7th Edn Page 405)

24. Surgery for mitral stenosis during pregnancy is ideally done at:

A. 8 weeks B. 14 weeks
C. 28 weeks D. 32 weeks

(Ref: Dutta Obs 7th Edn Page 279)

25. Endometrial cancer is associated with all except:

A. Hypertension
B. Endometrial hyperplasia
C. Early menopause
D. Diabetes

(Ref: Shaw 15th Edn Page 416-417 Shiela Balakrishnan Gynae 2nd Edn Page 228)

26. Involution of uterus takes ____ weeks.

A. 4 B. 6
C 12 D. 20

(Ref: Dutta Obs 7th Edn Page 145)

NOTE: Williams 22nd Edn Page 696 and 23rd Page 647–Says involution takes 4 weaks but most of the other books say it takes 6 weeks.

Answers: 23. (B) Obstr... 24. (B) 14 weeks 25. (C) Early...
26. (B) 6 weeks

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27. Cesarean section is absolutely indicated in:

A. Previous H/O LSCS
B. Type-IV placenta praevia
C. Type-II placenta praevia
D. Past H/O hysterotomy
(Ref: Dutta Obs 7th Edn Page 589)

NOTE: The absolute indicatios for cesarean section are:

- Central placenta previa
- Contracted pelvis/CPD
- Pelvic mass causing obstruction like a cervical or b r o a d ligament fibroid
- Advanced carcinoma cervix

Answers: 27. (B) Type-IV

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