NORMAL PREGNANCY

Normal Pregnancy

Pregnancy:- Is a condition where there is a developing embryo or fetus with in the body (uterus)

- It is the period from conception to birth .
- The average duration of human pregnancy is 280 days, or 10 lunar months.
- This is calculated from the first day of the last menstrual period (LMP)

Normal Pregnancy .....

Diagnosis of Pregnancy

- Pregnancy is mainly diagnosed on the symptoms reported by the woman and signs elicited by a health care provider

Signs and symptoms of pregnancy

1. Presumptive (possible) signs
2. Probable signs
3. Positive signs

1. Presumptive (Possible) signs

A. Amenorrhea:- Sudden stopping of menstruation.

- Is correct in 98% of cases, but it can happen in changes of environment, emotional distress, hormonal imbalance, serious illness, severe anaemia.

Breast change:

- ✓ heaviness
- ✓ tingling & tenderness
- ✓ visible surface veins
- ✓ formation of secondary areola
- ✓ colostrums appears

D/Dx: - ovarian cyst or breast disorders

Morning sickness:- 4 to 16 weeks.

D/Dx: - GIT problem, cerebral irritation and pyrexial illness.

Frequency of micturation: - without burning sensation/pain from **6^{th}-12^{th}** week

D/Dx: - UTI and pelvic tumors.

Skin change: - pigmentation of skin like chloasma, linea nigra, secondary areola & straie gravidarium

Quickening: - first fetal mov't felt by mother & it occurs around 16-20^{th} wk (mp16-18, pp 18-20)

-intestinal movement, wind and other can couse this.

2. Probable S/S of Preg

Hegar's sign: - softening of the isthmus, occurs from **6-12** weeks. This is elicited when a bimanual VE is made.

Abdominal enlargement: **-** from **16th** wks onwards the abdomen enlarge so quickly and progressively.

D/Dx: **- 5 F's** (fat, flatus, full bladder, fluid or fibroid)

Changes in uterus: **-** from **8th** wks, Ux **enlarges**, become **soft** & **globular.**

D/Dx Tumour also can make this.

Braxton Hicks contraction: - from **16th**wks, painless uterine contraction.

These help in **circulation** of blood & ***formation*** *of* Lower uterine segment (LUS)

Uterine Souffle: - from the 16th wk, soft sound heard on auscultation, it is the same rate as the maternal pulse, but this ..

- can also be heard in fibroid.

- caused by blood flow in dilated vessels

Softening of cervix:-Felt from the **10th**wk (normally it feels like cartilage)

Ballottement:- from **16th**wk on VE

HCG - in blood from **4**wks, & in urine from **6**wks

Osiander's sign:- from **8**wks

- pulsation in lateral fornices, but may be due to congestion

Jacquemier's/chadwick's sign:- from **8**wks

- blue discoloration of the vaginal. But this sign may be seen b/c of pelvic congestion

3. Positive Signs of Preg

Hearing FHB:- By U/S from **6th** & by fetoscope from **16-20** wks.

Visualization of fetus:- by U/S at **6th**wk & by **X**-ray after **12th**wks

Inspecting fetal mov't:- visible on late preg
Feeling fetal parts:- like hands or limps can be felt on abdominal exam from **22**wks .

N.B. for all these positive signs of preg, there are no D/dx & more reliable.

-The probable signs are more reliable than the presumptive sign.

PHYSIOLOGY OF PREGNANCY

Physiology of Pregnancy

Changes result chiefly from alteration in hormone production, circulation & metabolism.

Changes in Reproductive System

Uterus: - hypertrophy & hyperplasia. **Oestrogen** is responsible for this and causes dev't of new blood vessels, others enlarge & become tortuous.

Wt increases from 60 ⎓ 900 gm

Size from 7.5 x 5 x 2.5cm to 30 x 23 x 20 cm.

Shape from inverted **pear** to a **globular** shape.

Growth of the uterus

- The uterus grows at a regular rate, but it is not always an accurate way of estimating the duration of pregnancy.
- It is larger in multiple pregnancies, or when baby is big, or in polyhydramnios.

➢ 12^{th} week – fundus reaches just above the symphysis pubis.

Growth of the uterus

- 16th week – midway between the symphysis and the umbilicus.
- 20th week – about 2 fingers below the umbilicus
- 24th week – at the upper border of the umbilicus
- 30th week – midway between umbilicus and xiphisternum
- 40th week – at this gestation especially in primigravida the fetus descended into the pelvis.

Cervix:- formation of **operculum.**

- looks **purple** b/c of increased vascularity

Vagina:- muscles hypertrophy.

-become more elastic.

- desquamated epithelium increased amount of **leucorrhea.**

- more vascular => **reddish purple**

CVS Change

-Hgn level is 10-15% lower in preg=> physiological anemia=>apparent at 32-34 wks.

- acceptable Hgn level in preg is >**10** g/dl.

Red cell volume:- increase in responses to $\mathbf{0_2}$ requirements. Constantly increase during preg which results in a total increase of **18%** by the end of preg.

CO:- **increases** progressively up to about 28-32wks of preg; then rises more slowly up to term. CO increase from 5-7L in **late preg**

Heart rate:- it increase throughout preg to 20% (15bpm).

BP:- increased CO is balanced by reduced peripheral resistance.

Arterial walls relax & dilate as progesterone acts on the smooth muscle.

B/P remains the same or drops slightly in the 1st trimester, reaches its lowest level in mid trimester causing fainting & towards term will return to the level of the 1st trimester.

Change in RS:- progesterone act on respiratory centre in the hypothalamus=> hyperventilation.

The respiratory rate doesn't alter but the amount of air exhaled per minute increases

Change in GIT

-Increased salivation or ptyalism.

-Hypomotility of bowel => delay gastric emptying time.

-Stasis & prolonged retention of stool in the lower bowel=> constipation.

-Straining can exacerbate haemorrhoids.

Change in Skin (integument)

-Increased melanin-stimulating hormone causes deeper pigmentation;

-As **maternal skin** increases stretching occur in the collagen layer of the skin particularly over the **breasts, abd** & thighs.

-Increased bd supply leads to sweating,

-Rise in temp of 0.5^{0}**c**

Change in MSS

Proges & relaxin encourage relaxation of ligaments & muscles. Relax allows the pelvis.

Wt changes :- Continuing wt increment in preg is considered to be one favourable indicator of maternal adaptation & fetal growth. Expected increase is- **2kg** in the 1st **20wks**, **0.5kg** per wk until terms with an average total of **12kg**.

Change in Breast:- Oestrogen develops the duct system & progesterone glandular tissue. Prolactin stimulates the production of colostrum. Breasts enlarge due to increased tissue growth, blood supply & fat deposition.

MINOR DISORDERS OF PREGNANCY

Minor Disorders of Pregnancy

Morning sickness:- can occur any time during the day, aggravated by **smelling** of food. It occurs in about **50**% b/n **4-12wks**.

Mgt:- Small frequent meals

-Reduce fatty & fried foods.

-Adequate fluid intake

-sweet fluid or protein before bed

-Eat a few bananas, dry bread/kita or grain upon waking up in the morning.

Heart burn:- most troublesome at **30-40wks** => pressure from growing uterus which displaces the stomach upward.

Mgt:- Small & frequent meal

- Eat foods and drink liquids separately
- Avoid fatty foods, drinking coffee..etc
- Sleeping with more pillows than usual.
- antacids for persistence sever case.



As the baby grows, he/she pushes the woman's stomach up.

Pica:- craving foods of unnatural subs or is a strong desire to eat a certain food, like soil, chalk, coal or clay...etc.

A pregnant woman may suddenly dislike a food that she usually likes

Mgt:- Seek medical advice if harmful

- Encourage her to eat **iron-rich** and **calcium-rich** foods instead.

Constipation:

Mgt:- Increase the intake of water, fresh fruit, vegetables, whole grains and roughages' in diet.

- Exercise is helpful especially walking
- Avoid straining
- Frequent stool passing

Backache

Mgt:- Back rub (massage)

- Warm cloth & hot water bottle on back
- Advice the mother to sleep on firm bed.
- Advice support mechanisms of the back.
- Use comfortable shoes

Fainting:

Mgt: - Avoid long period of standing

- Sit or lie down when feels slight dizziness
- Not lie on back

Varicosities:

Mgt: stockings, bandages, sanitary pad

- Exercise, avoid constipation
- Elevate leg & rest on table while sitting
- Avoid prolonged standing

Itching of vulva: **-** Due to vaginal discharge, Lack of cleanliness

Mgt - keep vulva clean

Antenatal Care

Defn: the complex of interventions that a pregnant woman receives from organized health care services. Simply it is care given to pregnant woman.

The purpose of ANC

- To prevent, identify and treat complications or diseases during pregnancy

Focused antenatal care (FANC)

- It is an approach to ANC emphasizes the quality of care rather than the quantity
- For normal pregnancies WHO recommends only **four** antenatal visits (***WHO, 1990***)
- Standard ANC models with a minimum of **eight** contacts are recommended to reduce perinatal mortality and improve women's experience of care (***WHO, 2016***)

- ✓ The first contact scheduled to take place in the first trimester (up to 12 weeks of gestation), two contacts scheduled in the second trimester (at 20 & 26 wks) and five contacts scheduled in the third trimester (at 30, 34, 36, 38 and 40 weeks).
- ✓ Within this model, the word "**contact**" has been used instead of "**visit**", as it implies an active connection b/n a pregnant woman and a health-care provider (WHO 2016)

Components of FANC

- FANC is aimed to give **holistic individualized** care to woman

- The major goal of FANC is to help women maintain normal pregnancies

    1. Health promotion and disease prevention
    2. Early detection and treatment of complications and existing diseases
    3. Birth preparedness and complication readiness planning

FANC system:

- privacy is assured
- care by same provider
- involve partner/support person
- adheres to national protocols
- ANC, PNC, EPI & FP services are linked & housed

Risk approach is not effective because:

- ✓ Complications cannot be predicted
- ✓ Risk factors are not usually the direct cause of complications
- ✓ Many low-risk women develop complications
- ✓ Most high risk women give birth without complications

Implementation of FANC:- there are two types of care

- The **basic care**:- those eligible to receive routine antenatal care
- The **specialized care**:- those who need special care based on their specific health conditions or risk factors

FANC 4 visit schedules:

1st visit ≤ 16 2nd visit =24-28,

3rd visit =30-32 4th visit ≥36wks

Visits of FANC

There are four visits

1. **At First visit:** Initial evaluation is to:
    - define the health status of woman & fetus
    - determine the GA & EDD
    - initiate a plan for continuous obstetric care

How to calculate the gestational age

GA = (Visiting date – LMP) + pagume

7

Eg. If LNMP =10/12/2010 & if date of ANC= 20/08/2011,

GA= 20/08/2011

– 10/12/2010

10+8x30+5

=> 10+240+5 => **255/7**

= 36wks + 3days

= can be written as **36^{+3} wks**

How to calculate EDD

- duration 280 days, 40wks, 10/9mths.

- broken into 3 trimesters lasting 1-12, 12-28, and 28wks to delivery.

Naegele's rule = EDD is calculated by subtracting 3mths and adding 1wk to LMP.

Cont…

In Ethiopian calendar

Adding 9mths/subtracting 3mths & adding 10days, if these preg doesn't pass pagume. If preg passes **pagume** add **5** days if pagume has **5** days or add 4 days if **pagume** has **6** days

Example

A). LMP = 20/02/2011

\+ 10 / 9

EDD = 30/11/2011

b). LMP = 12/06/2011

\+ 5 / 9

EDD = 17/03/2012

FANC cont…

- E.g. If the woman's LMP was on 10/01/2005, then to find EDD simply add 9 months and 10 days on LMP

10/01/2005
+ 10/09
EDD = 20/10/2005

N.B. If the pregnancy passes 'Pagume', count 9 months and 5 days forward.

E.g. If the woman's LMP was on 16/04/2005, her EDD will be:-

16/04/2005
+ 5/09
21/13/2005
- 12
EDD = 21/01/2006

FANC cont…

- E.g. If the woman's LMP was on 10/01/2011 and if she comes for ANC on 04/08/2011, the gestational age is:-

GA = Visiting date (04/08/2011)

- LMP (10/01/2011)

= 24/06

= 24 + 6x30

= 24 +180

= 204 ÷ 7 to change into weeks

GA = 29^{+1} weeks

FANC cont…

Another example

- If the LMP was on 12/12/2011, and the mother comes for ANC on 04/08/2012

GA = Visiting date – LMP

= 04/08/2012

- 12/12/2011

= 22/7

= 22 + 7x30

= 22 + 210

= 232 + 5 (Pagume)

= 237 ÷ 7

GA = 33^{+6} weeks

Basic Terminologies

- Lie :- is the relationship between the long axis of the fetus and the long axis of the uterus.
- Attitude :- is the relationship of the fetal head and limbs to its trunk.
- Presentation :- refers to the part of the fetus lies at the pelvic brim or in the lower pole of the uterus.
- Presenting part :- the part of the fetus feel at the lower pole of the uterus during vaginal examination.
- Denominator:- the name of the part of presentation which is used when referring to fetal position.

Cont'd…

- Position - is relationship between the denominator of the presentation and six points on the pelvic brim.
- Station :- is the relationship of the lowermost part of the presenting part to an imaginary line draw between the ischial spine.
- Engagement:-is defined as the point when the widest diameter of the presenting part(in a cephalic occipital presentation, the biparital diameter has passed thourgh the pelvic inlet.

FANC cont…

Assessment in first visit includes:

1. History taking

- Identification data
- History of present pregnancy
- Past histories:
  - Past obstetric and gynecological history
  - Past medical and surgical history
- Social and Family History
- Personal history

2. General Physical Examination

- General appearance
- Vital signs including Height and weight
- Clinical sign of anemia, icterus and edema
- Signs of physical abuse

Abdominal Examination

1. Inspection: the four "**s**"& fetal movement

- ✓ Size of the abdomen
- ✓ Shape of the abdomen (oval in primi gravida, round in multi para, broad in multiple pregnancy and mal presentation)
- ✓ Scar (any previous C/S or myomectomy)
- ✓ Skin including Striae gravidarum

2. Palpation (Leopold's maneuver):

- to determine uterine size (symphysis fundal height), fetal lie, presentation, attitude and engagement

Steps of leopold’s maneuver

1. Fundal palpation

    - Fundal height estimation

2. Lateral palpation

    - Lie, fetal back and extremities

3. Deep pelvic palpation

    -Presentation, altitude, position, and engagement.

4. Pawlk’s grips

    -flexion and mobility's of the head.

Fundal Height:

- Height of the fundus by weeks

A. Finger method

- one finger above umbilicus is equal to two weeks and below umbilicus one finger is equal to one week

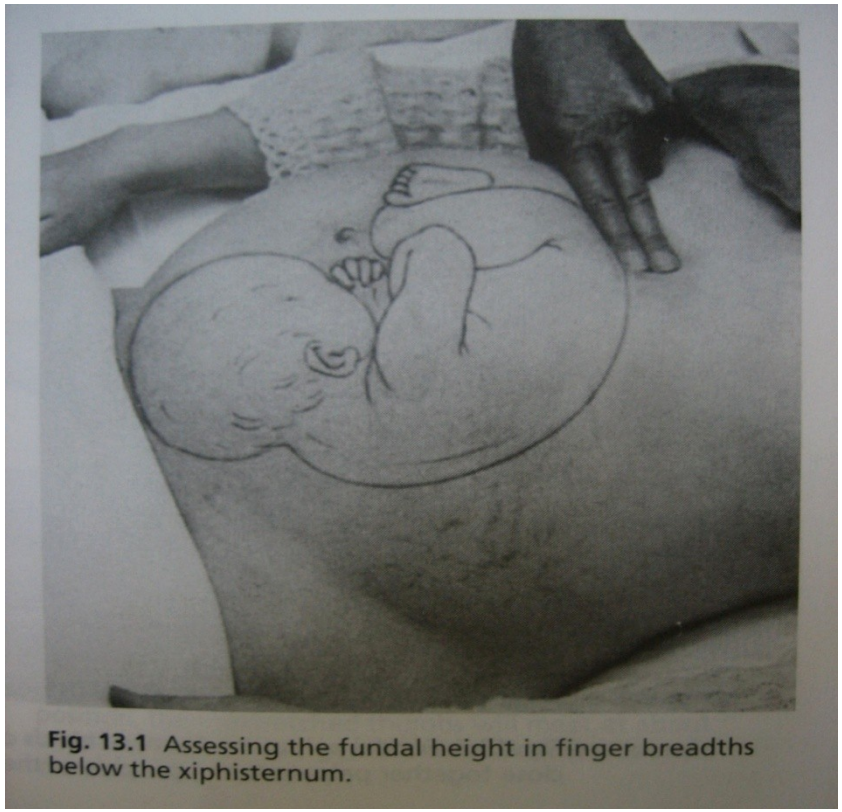


Fig. 13.1 Assessing the fundal height in finger breadths below the xiphisternum.

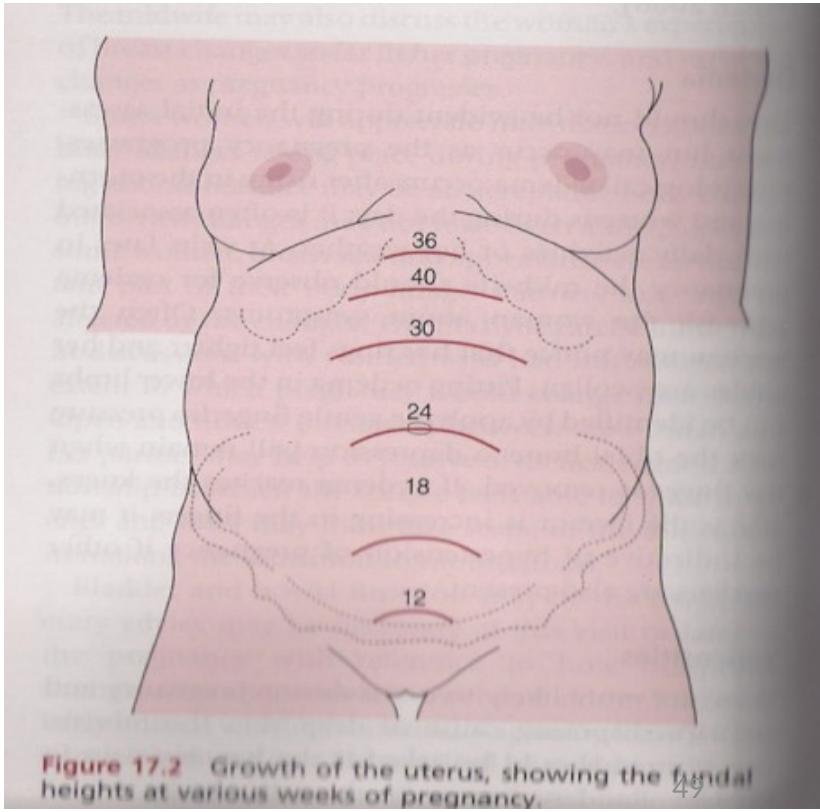


Figure 17.2 Growth of the uterus, showing the fundal heights at various weeks of pregnancy.

B. Tape measurement

- Symphysis to fundal height in centimeter with tape meter between 18 – 34 weeks is accurate to within two weeks of actual gestational age.



- Fundal Palpation

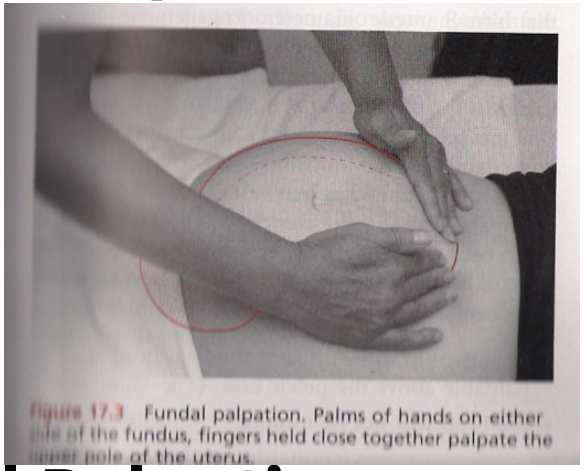


Figure 17.3 Fundal palpation. Palms of hands on either side of the fundus, fingers held close together palpate the upper pole of the uterus.

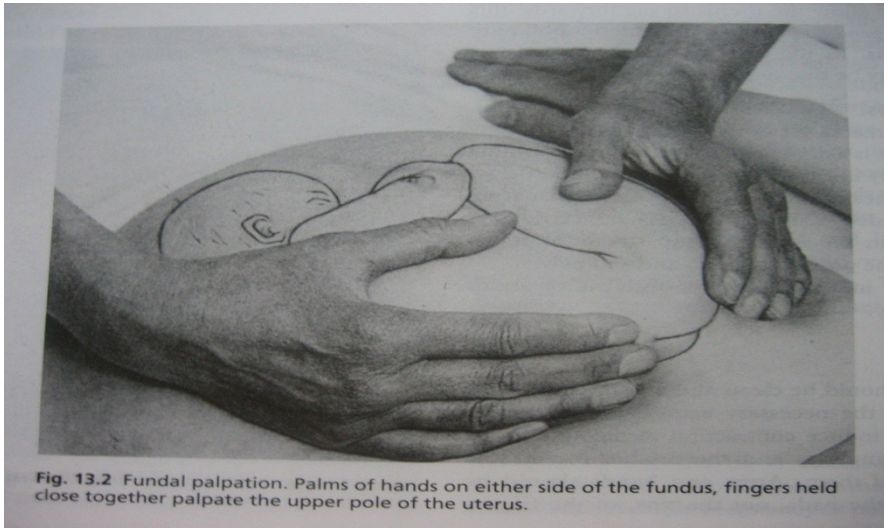


Fig. 13.2 Fundal palpation. Palms of hands on either side of the fundus, fingers held close together palpate the upper pole of the uterus.

- Lateral Palpation

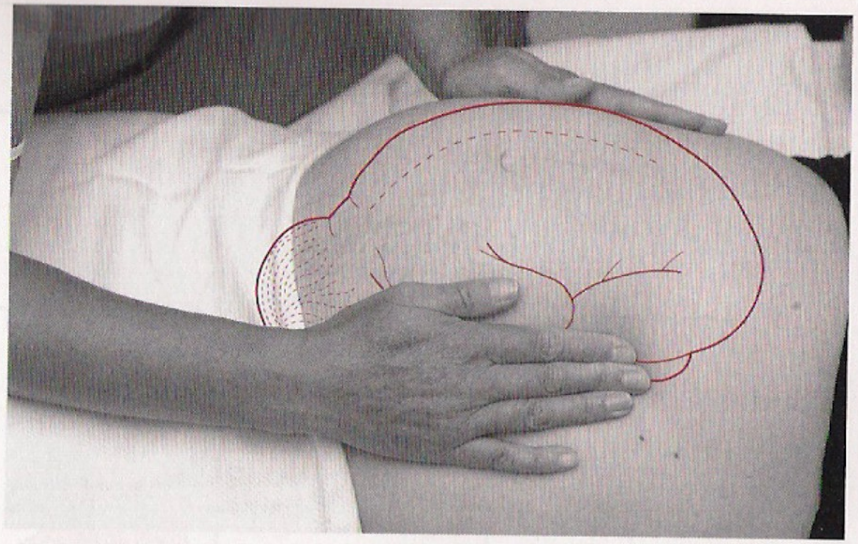


Figure 17.4 Lateral palpation. Hands placed at umbilical level on either side of the uterus. Pressure is applied alternately with each hand.



Fig. 13.3 Lateral palpation. Hands placed at umbilical level on either side of the uterus. Pressure is applied alternately with each hand.

- Deep Pelvic Palpation

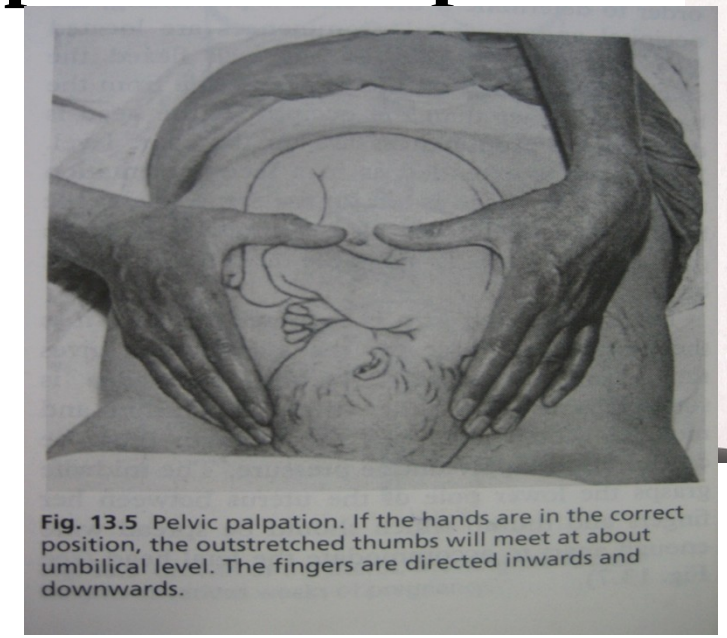


Fig. 13.5 Pelvic palpation. If the hands are in the correct position, the outstretched thumbs will meet at about umbilical level. The fingers are directed inwards and downwards.

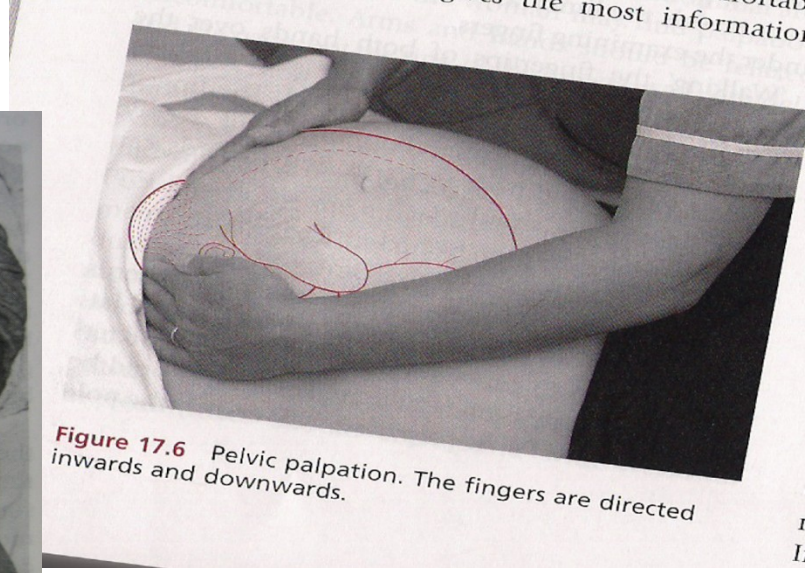


Figure 17.6 Pelvic palpation. The fingers are directed inwards and downwards.

- Pawlick's Grip

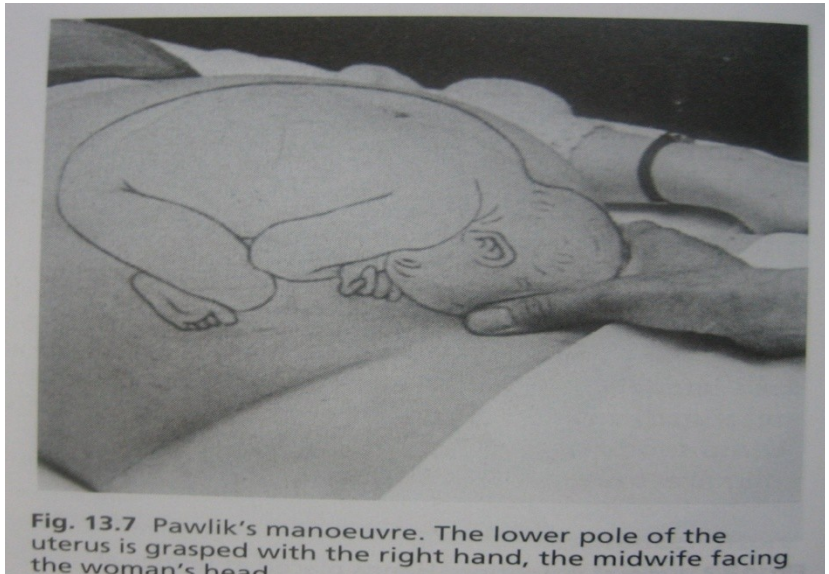


Fig. 13.7 Pawlik's manoeuvre. The lower pole of the uterus is grasped with the right hand, the midwife facing the woman's head.

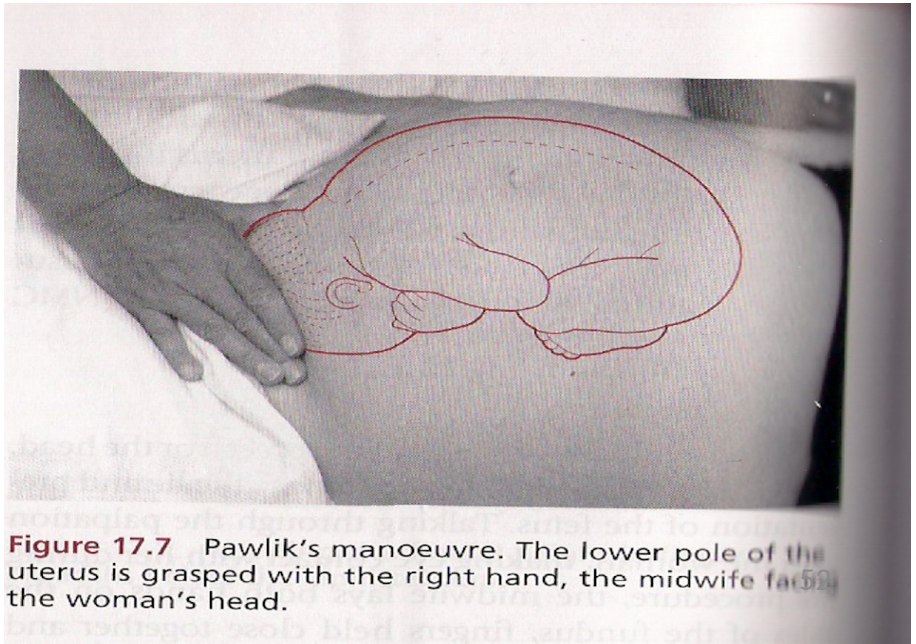


Figure 17.7 Pawlik's manoeuvre. The lower pole of the uterus is grasped with the right hand, the midwife facing the woman's head.

3. Auscultation of the fetal heart

- The fetal heart rate should be auscultated for rate and regularity
- Fetal heart beat is first heard in the back side as early as 20 weeks.
- In breech presentation mostly heard above umbilicus.
- In cephalic presentations it is below the umbilicus
- In posterior presentation, it is heard in the flanks.

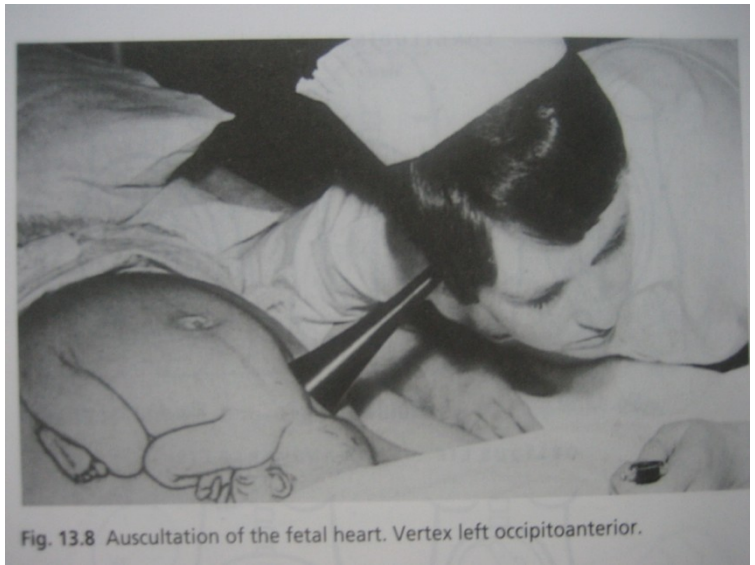


Fig. 13.8 Auscultation of the fetal heart. Vertex left occipitoanterior.



Laboratory Investigations

- Hct (Hgn), blood group & Rh factor
- Coomb's test if Rh negative
- Urinalysis: for protein, glucose and microscopic
- VDRL
- Serology test for HBV & HIV
- Stool for ova parasites in risky areas
- Ultrasound if possible

2. At Subsequent visit

Assessment should include:

- Revising the history
- Identifying problems, complaints and concerns
- Fetal movement, Social support/physical abuse
- **Physical Examination**: same as 1st visit & examine previously detected problems

Health Promotion
Advice and Counseling on:

- Balanced diet, supplementation
- Avoiding alcohol consumption, drugs & smoking
- Rest, activities and sexuality
- Danger signs of pregnancy
- Personal/environmental hygiene
- Breast-feeding and F/P
- immunization, malaria prophylaxis etc.
- Prevention of intestinal parasites

Danger signs of pregnancy includes:

- Vaginal bleeding
- Sudden gush of fluid or leaking of fluid from vagina
- Severe headache not relieved by simple analgesics
- Blurring of vision
- Epigastric pain (RUQ pain)
- Swelling (hands, face, etc.)
- Decreased or loss of fetal movement
- Convulsions
- Premature onset of contractions (before 37 wks)
- Severe abdominal pain
- Chills or fever

Birth Preparedness and Complication Readiness plan

Defn: is the process of planning for normal birth and anticipating the actions needed in case of an emergency.

Components of BP/CR

- Identification of ***skilled attendant*** for the birth
- Plan for ***place*** of birth
- Arrange ***transport*** in case of emergency
- Arrange ***items*** needed for clean birth
- Identification of ***support*** people

Care provision

- Provide treatment for identified problems
- Manage risk factors & complications of pregnancy
- Immunization for tetanus toxoid (TT), HBV
- PMTCT for HIV
- Supplement iron and folic acid
- Treat intestinal parasites as indicated

THANK YOU