Management of respiratory disorders

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URTI and LRTI

- **OUTLINES**
- **PHARYNGITIS**
- **TONSILLITIS**
- Pneumonia and its Complications.
- Conditions presenting with ***wheeze***
  - Bronchiolitis
  - Asthma
  - Wheeze with cough or cold
- Conditions presenting with stridor
  - Viral croup
  - Spasmodic Croup
  - Epiglottitis

PHARYNGITIS AND TONSILLITIS

- It is cute inflammation and infection of the throat;
- when tonsils are main focus of inflammation, tonsillitis is more appropriate term to use
- Most common in **5- to 15-year-olds**
- Causes vary by geographic location, season, age

ETIOLOGY

- Viruses: **80% to 90%** of sore throats are viral
  - Adenovirus, Epstein-Barr virus, Enteroviruses (e.g., coxsackievirus A and echovirus)
- Bacteria
  - GABHS -**15% to 30%** of pharyngitis
  - **Neisseria gonorrhoeae**
    - in sexually active adolescents or sexually abused children
  - Corynebacterium haemolyticum and
  - Corynebacterium diphtheriae

Con…

- **Noninfectious causes (**no fever or illness symptoms)
  a. Trauma from tobacco smoke, heat, alcohol
  b. Allergic rhinitis or postnasal drainage
- Transmission—through exposure to infected respiratory secretions

c/m

- Sudden or gradual onset of symptoms
- **Sore throat**
- Fever, variable
- Headache, anorexia, occasional nausea, vomiting, abdominal pain, and malaise
- **Viral pharyngitis**—hoarseness, conjunctivitis, runny nose, cough, cold symptoms(80-90%)

c/m

- GABHS pharyngitis
  - usually seen at **2 years of age** and **older**
  - sudden onset of **fever** with complaints of headache, abdominal pain, and vomiting;
  - scarlitina rash, "**strawberry tongue**" may be present

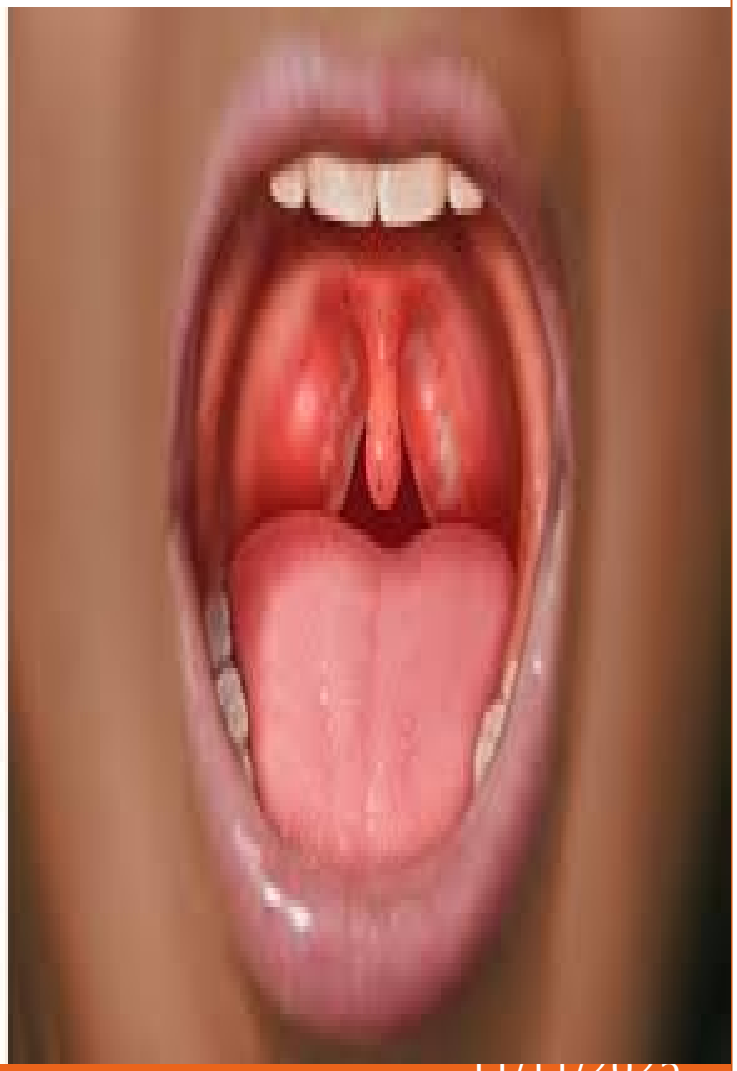
PHYSICAL FINDINGS

- **Erythema of pharynx**
  - a beefy red appearance, petechial lesions on the soft palate with GABHS
- Enlarged tonsils with exudate -viral and **strep infections**
- **Erythema** of nasal mucosa with - viral sore throats
- Cervical nodes usually enlarged with possible tenderness

Grading of tonsillar size

Grading Tonsillar Size in Children

GRADE	DESCRIPTION
0	Atrophic tonsils
1+	Tonsils slightly visible
2+	Tonsils enlarged; meet halfway between tonsillar pillars and uvula
3+	Tonsils almost touching the uvula
4+	Tonsils touching each other at midline



DIFFERENTIAL DIAGNOSIS

- Stomatitis
- Peritonsillar or retropharyngeal abscess,
- Epiglottitis
- Allergic rhinitis
- postnasal drainage

DIAGNOSTIC TESTS/FINDINGS

- Rapid strep test to determine presence of GABHS
- Treat if positive; throat culture to confirm negative test
- CBC—WBC
  - may be **elevated** with **bacterial infection** and
  - normal or decreased with viral infections, but not entirely reliable
- Consider other studies
  - history, age, and
  - **Clinical presentation,** e.g., mono **spot**, culture for gonorrhea, diphtheria culture

MANAGEMENT/TREATMENT

- Viral pharyngitis/tonsillitis:

  symptomatic/supportive care

  - Saline gargles, throat lozenges
  - Analgesics for fever/pain (acetaminophen (PCM, ibuprofen)
  - Encourage fluids for maintaining hydration

TREATMENT.....

- **Bacterial pharyngitis/tonsillitis**
- GABHS
  - IM benzathine penicillin .(penicillin G)
  - Amoxicillin often substituted for penicillin because of better taste
- Erythromycin or first generation cephalosporin for those with penicillin allergy

TREATMENT….

- **Second line therapy include macrolides, cephalosprins, or clindamycin if their is resistance to penicillin group**
- **Gonococcal pharyngitis**—one IM injection of ceftriaxone
- Diphtheria—hospitalization and treatment with erythromycin or penicillin G

COMPLICATIONS

- Most are complications of GABHS
  - Peritonsillar or retropharyngeal **abscess or cellulitis**
  - Cervical adenitis, AOM, sinusitis, pneumonia
  - Acute rheumatic fever (*ARF/ARHD*).
  - prevented if treatment started within 9 days of initial complaints of sore throat
  - Glomerulonephritis : (PSGN)
    - **not all strains** are nephritogenic;
    - manifests in 1 to 3 weeks after pharyngeal or skin infection of GABHS

Pneumonia and its Complications.

- An inflammation of the pulmonary parenchyma

1. Infectious pneumonia: usually involves **small airways in children**
   - may also infect the **larger airways and/or the alveoli**
2. Aspiration pneumonia
   - caused by the ingestion of **food, saliva, gastric contents, or other substances into air passages**

ETIOLOGY

- **Common viral agents—**
  - Para influenza, influenza A and B, Respiratory syncytial virus (RSV) and adenovirus; usually involves the small airways
- Neonates:
  - group B strep, enterococcus,
  - Listeria monocytogenes, E. coli, urea plasma urealyticum
- 1 to 3 months:
  - S. aureus, streptococcus pneumoniae,
  - H. fl u, Chlamydia trachomatis,
  - Bordetella pertussis, ureaplasma

CONT..

- **4 months to 4 years:**
  - S. pneumonia, S. aureus, H. flu
- **5 years to adolescence:**
  - Streptococcus pneumoniae,
  - Mycoplasma pneumonia, Mycoplasma tuberculosis
- **Immunocompromised or malnourished children**
  - **opportunistic organisms, such as Pneumocystis carinii, yeasts**

C/M

- Cough occasionally productive or associated with emesis
- Tachypnea is a key finding; also retractions, expiratory grunting, nasal flaring, cyanosis, and rash
- Fever
- Neck or chest pain (upper lobe), or abdominal pain (lower lobe); nausea/vomiting
- Rales /crackles
- **decreased breath sounds- if pleural effusion is there**

CONT..

- **Wheezing** (**frequent in viral etiology)**
- May have change in level of consciousness, activity, feeding
- Bacterial pneumonia—usually an abrupt onset of fever, chills, cough, and chest pain
- decreased oxygen saturation

CLASSIFICATION

- *Infectious pneumonia :* bacterial, Viral
- *Aspiration pneumonia*
- Recurrent Pneumonia
  - **2 or more** episodes in a single year **or 3 or more** episodes ever, with radiographic clearing between occurrences

Based on clinical features

1. Very severe pneumonia

- Central cyanosis
- Severe respiratory distress (e.g. head nodding)
- Convulsion, , lethargy or unconsciousness
- Not able to feed, vomiting everything

CLASSIFICATION…

2. Severe pneumonia

- Chest indrawing

3. Pneumonia

Fast breathing

- **≥60** breaths/minute in a child aged **<2 months**
- **≥50** breaths/ minute in a with a safe remedy child aged **2–11 months;**
- **≥40** breaths/minute in a child aged **1–5 years**
- **≥30** breaths/minute in a child **aged >5 years**
- Definite crackles on auscultation

4. No Pneumonia, cough or cold

- No signs of **pneumonia**, or severe or very severe pneumonia

Table 4.3 Classification of the severity of pneumonia

Sign or symptom	Classification	Treatment
• Central cyanosis • Severe respiratory Distress (e.g. head nodding) • Not able to drink	**Very severe Pneumonia**	• Admit to hospital • Give recommended antibiotic • Give oxygen • Manage the airway • Treat high fever if present
• Chest indrawing	**Severe Pneumonia**	• Admit to hospital • Give oxygen • Give recommended antibiotic • Manage the airway • Treat high fever if present
• Fast breathing - ≥ 60 breaths/minute in a Child aged <2 months; - ≥ 50 breaths/ minute in a child aged 2–11 months - ≥ 40 breaths/minute in a child aged 1–5 years OR • Definite chest findings on auscultation	**Pneumonia**	▪ Home care ▪ Give appropriate antibiotic for 5 days ▪ Soothe the throat and relieve cough with a safe remedy • Advise the mother when to return immediately • Follow up in 2 days
• No signs of pneumonia, No pneumonia, or severe or very severe pneumonia	**cough or cold**	• Soothe the throat and relieve cough with safe remedy • Advise the mother when to return • Follow up in 5 days if not improving • If coughing for more than 3 weeks, follow chronic cough instructions

DIFFERENTIAL DIAGNOSIS

- Bronchiolitis, URI, croup
- Foreign body aspiration
- Asthma
- **Cystic fibrosis**
- Sepsis, meningitis, pertussis
- Tuberculosis
- Reflux, swallowing dysfunction

DIAGNOSTIC TESTS

- In an **uncomplicated** patient who is stable, no diagnostic tests are needed

1. **Chest radiograph**

a. Atelectasis
   - **intrathoracic structures** will shift toward the **atelectatic area**

b. Viral pneumonia
   - hyperinflation and bilateral interstitial infiltrates and peribronchial cuffing

c. Bacterial pneumonias
   - Patchy infiltrates, lobar consolidation

ESTS/FINDINGS…..

2. **White blood cell count**

- bacterial pneumonia is associated with elevated WBCs (15**,000–40,000/mm3);**
- may or may not be elevated with viral pneumonia

3. Viral cultures of nasopharyngeal secretions;

- rapid identification with immunofluorescent assay

4. Blood cultures if child is toxic, is an infant, or if bacterial pneumonia is suspected

MANAGEMENT/TREATMENT

- Most often viral (**80%) and self limited**
- **Very severe pneumonia**
  - 1.Admit the child to hospital.
  - 2.Give **ampicillin (50 mg/kg IM QID) and gentamicin (7.5 mg/kg IM Q/day) for 5 days**
  - then, PO **amoxicillin (15 mg/kg TID)** plus IM gentamicin Q/day for a further 5 days at home after improvement. OR
  - Chloramphenico**l (25 mg/kg IM or IV TID**) , then Po for total 10 days Or use ceftriaxone (**80 mg/kg IM or IV once daily**

TREATMENT

- If the child does not improve within 48 hours, switch to **gentamicin** (7.5 mg/kg IM once a day) and **cloxacillin** (50 mg/kg IM or IV every 6 hours)- **also for S. aureus**
- Then continue **cloxacillin (or dicloxacillin) orally 4 tim**es a day for a total course of 3 weeks
- **Remove by gentle suction any thick secretions** in the throat
- **Give oxygen** to all children with very severe pneumonia

TREATMENT…

- Treat
  - fever with give paracetamol.
  - Wheezing with a rapid-acting bronchodilator
- Ensure that the child receives daily **maintenance fluids** appropriate for the child's age
- Encourage breastfeeding and oral fluids.
- If the child cannot drink, insert NGT until po is possible
- Use Oxygen catheter & NGT through single nostril.
- Encourage the child to eat as soon as food can be taken.

TREATMENT OF VERY SEVERE PNEUMONIA

With HIV

- Give **ampicillin plus gentamicin** for **10 days**, as above
- If the child does not improve within 48 hours, a switch to ceftriaxone (80 mg/kg IV once daily over 30 minutes) if available.
  - If it is not available, give gentamicin plus cloxacillin, as above
- Also give high-dose cotrimoxazole 48mg/kg IV TID for 3 weeks.

RX OF SEVERE PNEUMONIA

- Admit or refer the child to hospital
- give oxygen with hypoxia
- Give **benzylpenicillin (50 000 units/kg I**M or IV every 6 hours) for at least 3 days.
- When the child improves, switch to **oral amoxicillin (25 mg/kg 2 times a day).**
  - The total course of treatment is 5 days.

SEVERE PNEUMONIA....

- If the child does not improve within 48 hours, or deteriorates,
  - look for complications and treat accordingly
- If there are no apparent complications, switch to **chloramphenicol (25 mg/kg every 8 hours IM or IV)** until the child has improved.
- Then continue orally for a total course of 10 days

TREATMENT OF PNEUMONIA (NON-SEVERE)

- Treat the child as an outpatient.
- Give **amoxicillin (25 mg/kg 2 times a day)** for 3 days
- In HIV settings, 5 days is recommended.
- Give the first dose at the clinic and teach the mother how to give the other doses at home
- Appoint after 2 days for follow up.

Conditions presenting with ***wheeze***

1. Bronchiolitis
2. Asthma
3. Wheeze with cough or cold

Bronchiolitis

- *Bronchiolitis* is a lower respiratory viral infection, which is typically most severe in young infants, occurs in annual epidemics
- its characterized by *airways obstruction and wheezing.*
- It is most commonly caused by *respiratory syncytial virus.*

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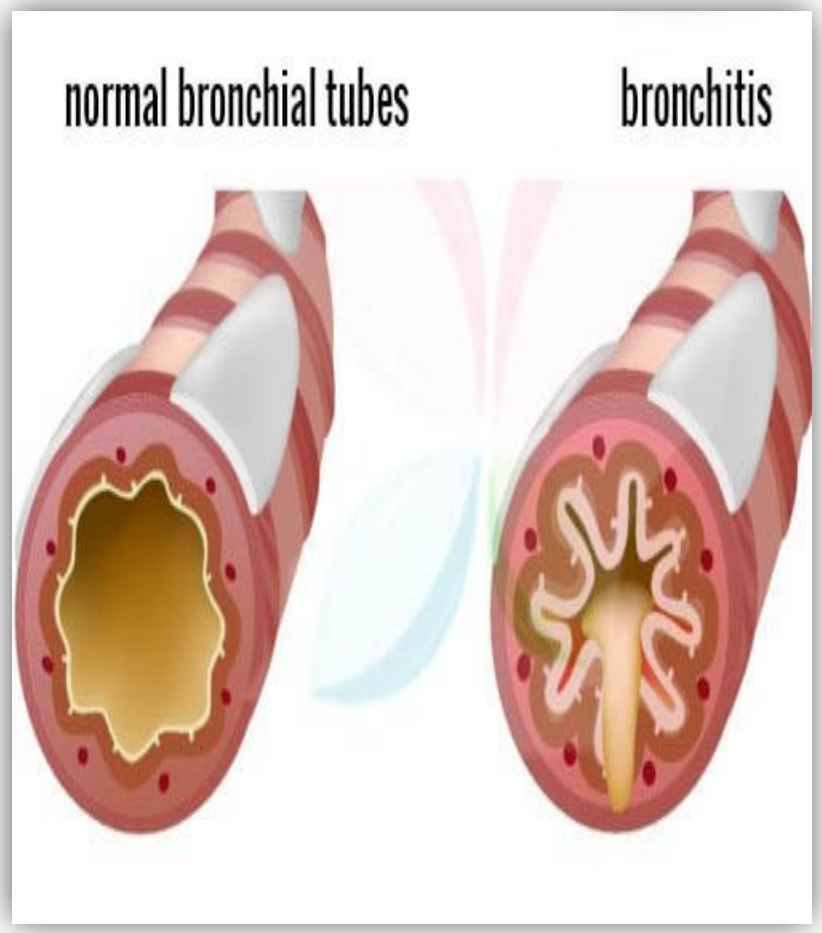
Accute bronchitis

Acute bronchitis is a shorter illness that commonly follows a cold or viral infection, such as the flu

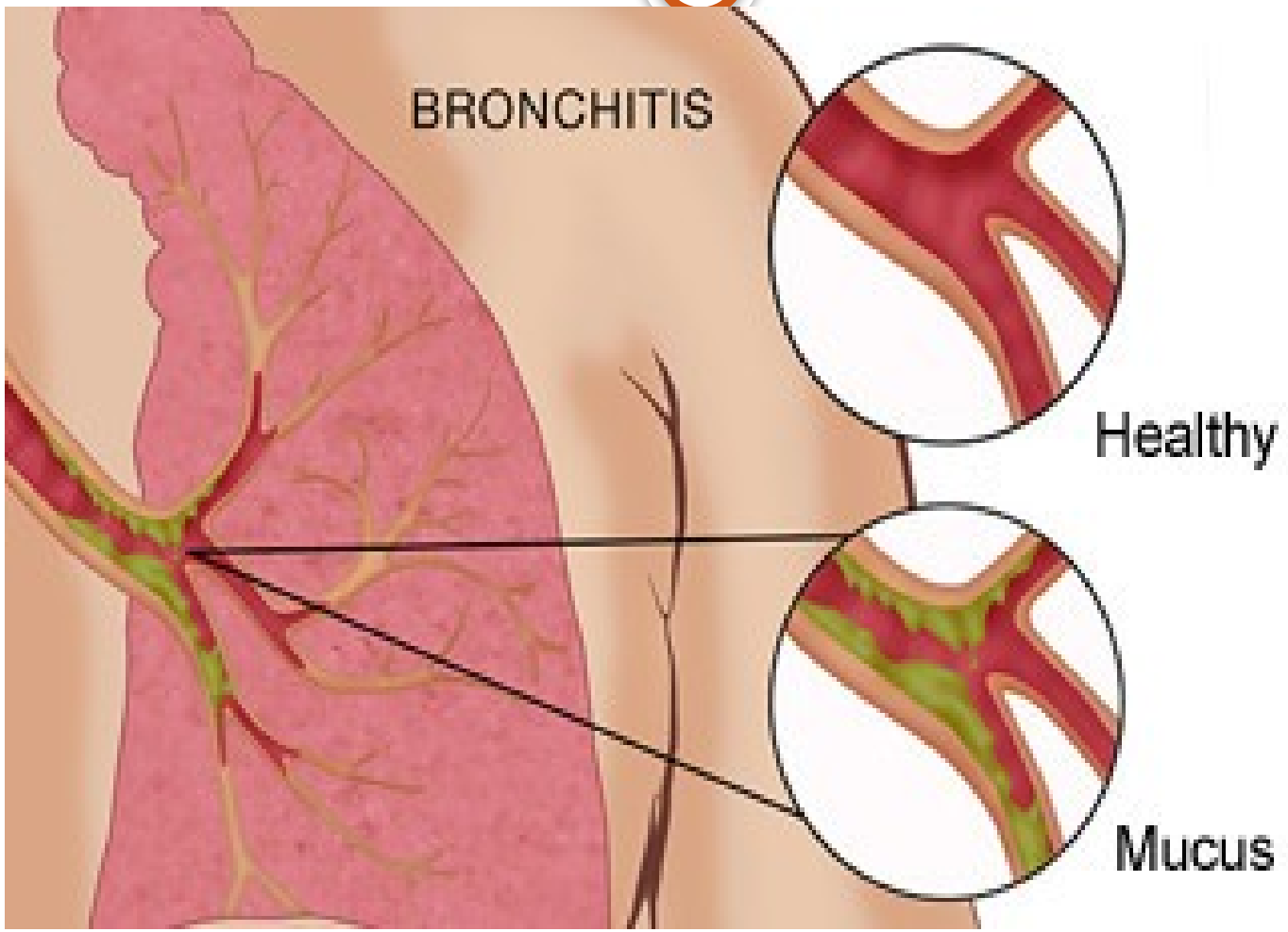
Acute bronchitis usually lasts a few days or weeks

Chronic bronchitis

Chronic bronchitis is characterized by a persistent, mucus-producing cough on most days of the month, three months of a year for two successive years in absence of a secondary cause of the cough.



Bronchitis



Diagnosis

- Typical features of bronchiolitis, on examination, include:
  - wheezing that is *not relieved by up to three doses* of a rapid-acting bron-chodilator
  - hyperinflation of the chest, with increased resonance to percussion
  - lower chest wall *indrawing*
  - *fine crackles* and *wheeze* on auscultation of the chest
  - *difficulty in feeding*, breastfeeding or drinking owing to respiratory distress
  - *nasal discharge*, which can cause severe nasal obstruction

Treatment

- Oxygen Give oxygen to all children with severe respiratory distress or oxygen saturation ≤ *90%.*
- *Antibiotic* treatment If the infant is treated at home, give amoxicillin (40 mg/kg twice a day) orally for 5 days
- If there are signs of *severe pneumonia*, give *ampicillin at 50 mg/kg* or *benzyl penicillin at 50 000 U/kg IM or IV* QID for at least 5 days and
- *gentamicin 7.5 mg/kg IM or IV once* a day for at least 5 days

Asthma

- Asthma is a *chronic inflammatory* condition with *reversible airways obstruction*.
- It is characterized by recurrent episodes of *wheezing*, often with *cough*, which respond to treatment with *bronchodilators and anti-inflammatory* drugs.
- Antibiotics should be given only when there are signs of pneumonia

DX Asthma

- Fast breathing
- Hypoxia (oxygen saturation < 90%)
- absence of fever
- lower chest wall indrawing
- use of accessory muscles for breathing (best noted by looking at the muscles of the neck)
- prolonged expiration with audible wheeze
- reduced or no air entery when obstruction is life threatening
- hyperinflation of the chest
- usually good response to treatment with a bronchodilator.

Asthma Treatment

Table 4.4 Asthma Treatment Algorithm		
Mild Asthma	Moderate Asthma	Severe Asthma (life threatening)
Normal mental state Talks in sentences Little or no accessory muscle use SPO2>95% Wheeze + normal breath sounds	Normal to agitated mental state Talks in phrases Mild to moderate accessory muscle use SPO2 90-95% Wheeze + reduced breath sounds	Agitated or confused mental state Talk in single word or unable to talk Significant accessory muscle use SPO2<90% Wheeze +significantly reduce breath sounds
Note: If patient has sign or symptoms from two different categories, always treat according to the most sever feature		

Rx

- Oxygen
- Rapid-acting bronchodilators
- Give the child one of the *three rapid-acting*
- bronchodilators,
- nebulized salbutamol,
- salbutamol by metered-dose inhaler with a spacer device, or subcutaneous epinephrine (adrenaline)

Wheeze with cough or cold

- Most *first episodes of wheezing* in children aged <2 years are associated with cough and cold.
- These children are not likely to have a family history of *atopy* (e.g. hay fever, eczema, and allergic rhinitis) and
- their *wheezing* episodes become less frequent as they grow older.
- The wheezing, if troublesome, might respond to *salbutamol* treatment at home.

Conditions presenting with stridor

- Viral croup
- Spasmodic Croup
- Epiglottitis

Croup (Laryngo-tracheo-bronchitis

- Croup is derived from an Anglo-Saxon word meaning "to cry out"
- Inflammation involving the vocal cords and structures inferior to the cords is called
  - laryngitis,
  - laryngotracheitis, or
  - laryngotracheobronchitis.

Croup

- refers to viral infection of the glottic and subglottic regions.
- Croup typically affects the larynx, trachea, and bronchi.
- Most patients with croup are between the ages of **3 mo and 5 yr,** with the peak in the 2nd yr of life

Cont…

- **Croup** refers to a heterogeneous group of mainly acute and infectious processes
- characterized by:
  - a **bark-like or brassy cough** and may be associated with **hoarseness**,
  - **inspiratory stridor, and**
  - **respiratory distress**

Cont…

- The incidence of croup is higher in boys;
- common in the **late fall and winter** but can occur throughout the year.
- Recurrences are frequent from **3-6 yr** of age and decrease with growth of the airway.

ETIOLOGY

- Most acute infections of the upper airway are caused by viruses.
- Parainfluenza viruses (types 1, 2, and 3)
- ***Influenza A*** and B,
- Adenovirus,
- Respiratory syncytial virus (RSV), and measles.

CLINICAL MANIFESTATIONS croup

- Rhinorrhea, pharyngitis, mild cough, and low-grade fever
  - for **1-3 days** before the signs and symptoms of upper airway **obstruction** become apparent. then,
- Develops the characteristic "***barking***" *cough, hoarseness, and inspiratory stridor.*

C/M…

- Although temperatures can reach 39-40°C (102.2-104°F); some children are afebrile.
- Symptoms are characteristically **worse at night**
- recur with decreasing intensity for several days and resolve completely within a week.

C/M…

- Agitation and crying greatly aggravate the symptoms and signs.
- The child may prefer to **sit up in bed or be held upright.**
- Physical examination can reveal
  - a hoarse voice,
  - normal to moderately inflamed pharynx, and
  - a slightly increased respiratory rate
  - RDS when it progresses
- Hypoxia and low oxygen saturation are seen only when complete airway obstruction is imminent.

Croup scoring

Table 4.6 Croup Scoring

	0	1	2	3
Stridor	None	Mild	Moderate at rest	Severe on Inspiration and Expiration None or markedly Reduced air entry
Retraction	None	Mild	Moderate	Severe and marked use of accessory muscles
Air Entry	Normal	Mildly decreased	Moderately decreased	Markedly decreased
Color	Normal	Normal	Normal	Cyanosed
Level of Consciousness	Normal	Restless When disturbed	Anxious Agitated Restless	Lethargic Depressed

Score:

1. Scores 1-5 = mild 2. Scores 6-7 = mild to moderate 3. Scores 7-8 = moderate mostly admitted 4. 8 and above or any of the severe category needs admission for tracheostomy

Spasmodic Croup

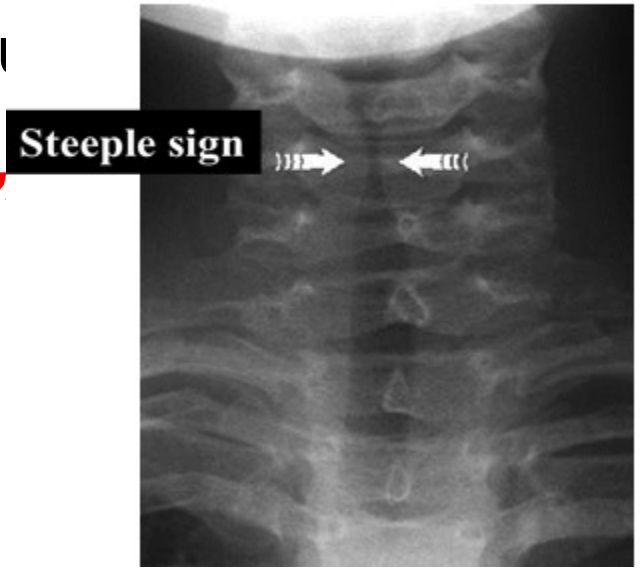
- occurs most often in children **1-3 yr** of age
- clinically similar to **acute laryngo-tracheo-bronchitis**, **except,**
  - the history of a ***viral prodrome*** *and* ***fever*** in the patient and family are often **absent.**
- The cause is viral in some cases, but allergic and psychologic factors may be important in others
- The patient is usually **afebrile**.

Spasmodic Croup…

- Occurring most commonly in the ***evening or nighttime***
- The child awakens with
  - a characteristic **barking, metallic cough, noisy inspiration**,
  - respiratory distress and appears anxious and frightened.
- Usually, the severity of the symptoms diminishes within several hr, and the following day
- The patient often appears ***well except for slight hoarseness and cough***
- Attacks without extreme respiratory distress

Diagnosis

- Clinical diagnosis
- Does **not require neck X-ray**
- Consider **X-ray** in patients with atypical(viral) presentation or clinical cou
  - ***“Steeple sign”***



TREATMENT

- The mainstay is **airway** management and treatment of **hypoxia.**
- Most children with either acute spasmodic croup or infectious croup can be managed safely at home.
- **Nebulized racemic epinephrine** is an accepted treatment for moderate or severe croup.
- A dose of **0.25-0.5 mL of 2.25%** racemic epinephrine in 3 mL of normal saline can be used as often as **every 20 min.**
- There is evidence that l-epinephrine (5 mL of 1:1,000 solution) is equally effective as racemic

Rx cont..

- Patients can be safely **discharged** home after a **2-3 hr** period of observation provided;
  - they have no stridor at rest; have normal air entry,
  - normal pulse oximetry, and normal level of consciousness;
  - and have received steroids

RX...

- **Corticosteroids** decrease the edema in the laryngeal mucosa through their anti-inflammatory action.
- Oral **dexamethasone** used a single dose **of 0.6 mg/kg;** a dose as low as 0.15 mg/kg may be just as effective.
- Patient who received ***dexamethasone, 1 mg/kg/24 hr, for 8 days can*** develop **Candida albicans laryngotracheitis**

Acute Epiglottitis (Supraglottitis)

- **Supraglottitis** is inflammation of the structures superior to the cords (i.e., arytenoids, aryepiglottic folds [“false cords”], epiglottis).
- This dramatic, potentially lethal condition is characterized by
  - an acute rapidly progressive and potentially fulminating course of high fever,
  - sore throat, dyspnea, and
  - rapidly progressing respiratory

Etiology

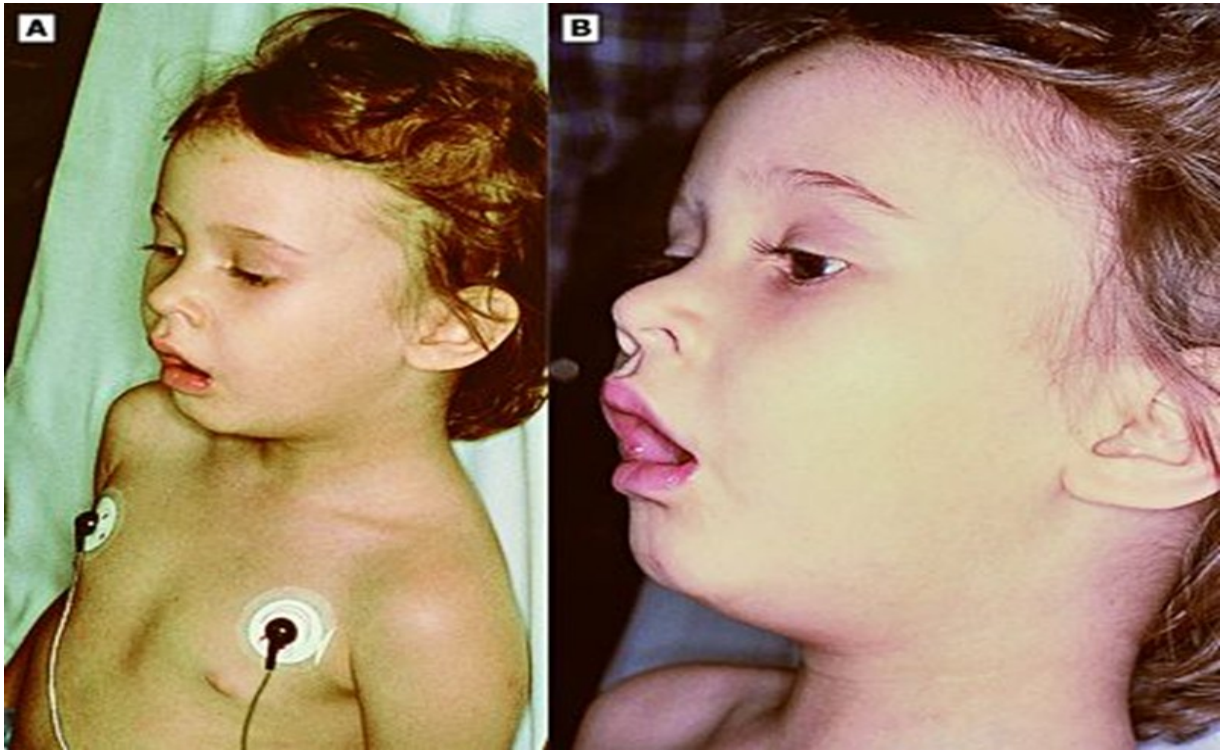
- ***H.influenzae type b*** causes almost all cases of epiglottitis.
- ***Rarely:***
  - *streptococcus pneumoniae*
  - streptococcus pyogenes
  - Staphylococcus aureus
  - Group A streptococcal

C/M

- Within a **matter of hours**, the patient appears **toxic, swallowing is difficult, and breathing is labored.**
- ***Drooling*** *is usually present and the* **neck is hyperextended *in an attempt to maintain the airway.***
- A brief period of ***air hunger*** with restlessness may be followed by rapidly increasing **cyanosis and coma.**

…C/M

- The child may assume the **tripod position,** sitting upright and leaning forward with the chin up and mouth open while bracing on the arms.



Cont…

“Sniff” position-Child seated with maximally open airway



“Tripod” position- leaning forward maximally utilize accessory muscles of respiration



C/m…

- Stridor is a late finding and suggests near-complete airway obstruction.
- Complete obstruction of the airway and death can ensue unless adequate treatment is provided.
- Usually, no other family members are ill with acute respiratory symptoms.

DIAGNOSIS

- The diagnosis requires **visualization** of a large, **cherry red**, swollen epiglottis by laryngoscopy.
- children with acute epiglottitis are **intubated for 2-3 days**, because the response to antibiotics is usually rapid.
- Most patients have concomitant bacteremia;
  - ***occasionally***, other infections are present, such as pneumonia, cervical adenopathy, or otitis media

TREATMENT

- Epiglottitis is a **medical emergency** and warrants immediate treatment with an artificial airway
- Cultures of blood, epiglottic surface, and, in selected cases, cerebrospinal fluid should be collected after the airway is stabilized.
- Ceftriaxone, cefotaxime, ormeropenum should be given parenterally,

Indications for *rifampin Prophylaxis*

- **20 mg/kg** orally once a day for 4 days; maximum dose, **600 mg**
  - for all household members with any contact <48 mo of age who is incompletely immunized,
  - any contact <12 mo who has not received the primary vaccination series, or an immunocompromised child in the household.
- Acute laryngeal swelling on an allergic basis responds to epinephrine (1:1,000 dilution in dosage of 0.01 mL/kg to a maximum of 0.5 mL/dose)

Q??

- This is a 20 month old male who presents to the emergency department with a chief complaint of cough. Two days ago he developed rhinorrhea, fever, a hoarse cry and a progressively worsening, harsh, "**barky," cough.** Today he developed a "whistling" sound when he breathes, so his parents brought him to the emergency department. His past medical history is unremarkable. His 6 year old brother

Cont…

- Exam: VS T 37.5, P 140, R 36, BP 90/64, oxygen saturation 96% in room air. He is alert, with good eye contact, in mild respiratory distress. He has a **dry barking cough and a hoarse** cry. He has some clear mucus rhinorrhea but no nasal flaring. His pharynx is slightly injected, but there is no enlargement or asymmetry. His heart is regular without murmurs. His lung exam shows good aeration and slight inspiratory stridor at rest. He has very slight subcostal retractions. No wheeze or rhonchi are noted. His abdomen is flat, soft, and non-tender. His extremities are warm and pink with good

Cont…

- What is your DDX?
- What will be the mgt?

Conditions presenting with ***chronic cough***

- Pertussis
- Tuberculosis
- Foreign body inhalation

Differential diagnosis of the child presenting with chronic cough

- Chronic cough is one that lasts for more than 2 weeks

Table 4.8 Differential diagnosis of the child presenting with chronic cough

Diagnosis	In favour
Tuberculosis	Weight loss or failure to thrive Anorexia, night sweats Enlarged liver and spleen Chronic or intermittent fever History of contact with chronic cougher Signs of fluid in chest (dull to percussion/reduced breath sounds)
Asthma	History of recurrent wheeze, often unrelated to coughs and colds History of asthma/atopy in the family Hyperinflation of the chest Prolonged expiration Reduced air entry (in very severe airway obstruction) Good response to bronchodilators
Foreign body	Sudden onset of choking or stridor ,wheezing or hyperinflation Unilateral chest signs Recurrent lobar consolidation Poor response to medical treatment
Pertussis	Paroxysms of cough followed by whoop, vomiting, cyanosis or apnoea Subconjunctival haemorrhages No history of DPT immunization Afebrile

Cont.....

HIV	Known or suspected maternal or sibling HIV infection History of blood transfusion Failure to thrive Oral thrush Chronic parotitis Skin infection with herpes zoster (past or present) Generalized lymphadenopathy Chronic fever Persistent diarrhoea
Bronchiectasis	Finger clubbing History of tuberculosis or aspirated foreign body Poor weight gain Purulent sputum, bad breath Finger clubbing Localized signs on X-ray
Lung abscess	Reduced breath sounds over abscess Poor weight gain / chronically ill child Cystic or cavitating lesion on chest X-ray

Pertussis

- Caused by a bacteria Bordetella pertussis.
- It is most severe in young infants who have not yet been immunized.
- After an incubation period of 7–10 days, the child develops ***fever,*** usually with a ***cough and nasal discharge*** which clinically are indistinguishable from a common cold and cough.
- In the second week, there is paroxysmal coughing which can be recognized as pertussis.

Diagnosis

- **Suspect pertussis** if a child has been having a *severe cough for more than two weeks*, especially if the disease is known to be occurring locally.
- The most useful diagnostic signs are:
  1. Paroxysmal coughing followed by a whoop when breathing in, often with vomiting
  2. Subconjunctival haemorrhages
  3. Child not immunized against pertussis.

Cont.

4. Young infants may not whoop; instead, the cough may be followed by cessation of breathing (apnea) or cyanosis, or apnea may occur without coughing.

5. Also, examine the child for signs of pneumonia and ask about convulsions

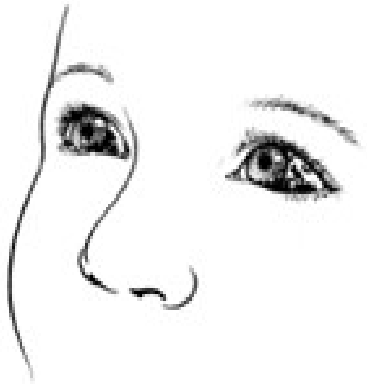


Figure 4.5: Subconjunctival haemorrhages prominent on the white sclera



Tuberculosis (TB) in children

- TB is a chronic infectious bacterial disease caused by mycobacterium tuberculosis. Occasionally it can be caused by **Mycobacteriaceae**

Risk factors

- Poor nutritional status/poverty.
- Infection with HIV.
- Increased virulence and /or increased dose of bacilli.
- Age less than 5 (Increased susceptibility of infants and the elderly)

Risks….

- **Pulmonary TB contacts**: those with cavitary PTB are at higher risk than those with non-cavitary PTB. For infants, contact with non-smear positive PTB cases is even significant.
- **Miscellaneous**: Hormonal therapy, DM (three to four times increase of risk), alcoholism, silicosis, etc.

Classification of Tuberculosis cases

A) Pulmonary TB:

- Mainly affect lung
- Cases are further classified as: -
  - **Sputum smear positive** (75-80% of PTB cases);
  - **Sputum smear negative** (20-25% of PTB cases)

N.B. A person is a suspect of pulmonary TB when presents with **persistent cough** for **more than two weeks** or more. Or

✓ The cough is usually with expectoration with blood or without blood stained sputum.

2.Extra Pulmonary TB (EPTB)

- ✓ cases are classified according to the site affected:
- Tuberculosis lymphadenitis
- Tuberculosis pleurisy
- TB of bones and/or joints
- Intestinal TB
- Tuberculosis meningitis
- TB spondilitis
- **N.B**- The signs and symptoms of EPTB depend on the organ involved.

Clinical Manifestation

- **Productive** and **Persistent cough** for more than two weeks with or without blood stained sputum
- Chest pain
- Shortness of breath
- Recent weight loss or failure to gain weight.
- Fever,
- Night sweats
- Loss of appetite, fatigue and malaise.

Criteria for Diagnosis of TB

An ill child with history of contacts with a confirmed case of TB can be: -

1. Suspected TB- Any child

i. Not regaining normal health after measles or whooping cough

ii. With loss of weight, **cough** and **wheeze** not responding to antibiotic treatment for respiratory disease

iii. With painless swelling of superficial lymph node.

Con…

2. Probable TB

- A suspected case and any of the following

a. Positive for TST
b. Suggestive appearance on chest X-Ray.
c. Suggestive histological appearance of biopsy material

3. Confirmed

- Detection by microscopy or **culture** of tubercle bacilli from secretions or tissues.
- Identification of tubercle bacilli as mycobacterium tuberculosis TB by culture.

Management

The following are drugs used as **first line treatment of** TB in Ethiopia: -

- Rifampicin (R)
- Ethanbutol (E)
- Isoniazid (H)
- Pyrazinamide (Z)
- Streptomycin (S)

A. FDC dosing regimens for NEW CASES

Weight (kg)	Intensive phase (2 months)			Continuation phase (4 months)		
	RHZ (60,30,150)	RHZE (150,75,400,275)	E (100)	RH (150,75)	RH (60,30)	RH (60,60)
5 to 7	1		1		1	1
8 to 14	2		2		2	1
15 to 20	3		3		3	2
21 to 30*		2		2		2

B. FDC dosing regimens for Retreatment Cases

Weight (kg)	Intensive phase (3Months)			Continuation phase (5Months)				
	RHZ (60,30,150)	RHZE (150,75,400,275)	E (100)	RH (60,30)	RH (150,75)	RH (60,60)	E (100)	E (400)
5 to 7	1		1	1		1	1	
8 to 14	2		2	2		1	2	
15 to 20	3		3	3		2	3	
21 to 30*		2			2	2		1