

Lecture 4



Bacteria causing upper respiratory tract infection

- Additional Notes
- Important
- Explanation
- Examples

OBJECTIVES:

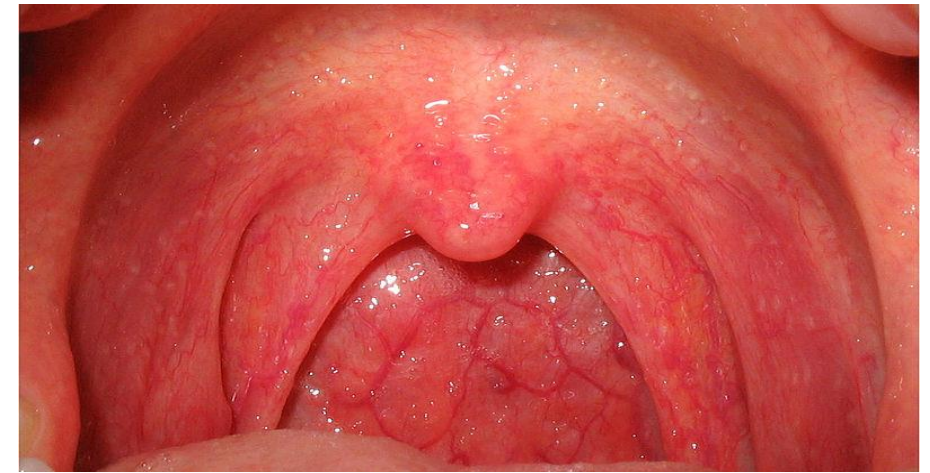
- To learn the epidemiology and various clinical presentation of URT.
 - ✓ Pharyngitis
 - ✓ Otitis Media
 - ✓ Sinusitis
 - ✓ Epiglottitis
- To identify the common etiological agents causing these syndromes
- To study the laboratory diagnosis of these syndromes
- To determine the antibiotic of choice for treatment

- Pharyngitis “sore throat”:

- Common in children “5 to 15 years” but it can happen at any age.

- It's common due to viral infections.

But it could be bacterial and usually it comes after viral infections.



- Group A streptococcus is the most common bacterial cause.

- It could be caused by other bacteria but it's very rare in our community. i.e. Neisseria gonorrhoeae

- Features of bacterial infections:

- ✓ erythema “redness of the skin”.

- ✓ edema.

- ✓ sometimes with exudates.

- ✓ Fever 38.4 to 39.4° C

- ✓ No signs and symptoms of viral infections

- Diagnosis: throat swab if it's a bacterial infections “Pertussis is exception”. And a nasopharyngeal swab if it's viral infections.

- Treatment: Penicillin

- *Corynebacterium diphtheriae*:
 - Very serious toxin mediated.
 - One of the most common causes of death in unvaccinated children 1-5yrs.
 - Symptoms:
 - ✓ Severe sore throat, With rapid progression tightly adhering grayish whitish membrane in the throat.
 - Diagnosis:
 - ✓ Culture with **Tinsdale media**⁽¹⁾
 - ✓ **ELIK's Test** for confirmation
 - Treatment: **Penicillin** or **Erythromycin**



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(1) Selective media for *Corynebacterium diphtheriae*

- Epiglottitis:

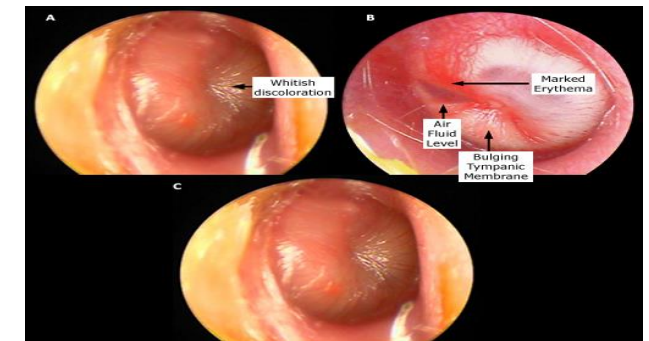
- Usually young unimmunized children presented with difficulty of breathing, drooling “Can’t swallow”, and distress.
- Most common cause is **H.influenzae Type b**.
 - ✓ S.pneumoniae
 - ✓ S.aureus or Beta hemolytic streptococcus
 - ✓ Viral or candida
- Diagnosis: Lateral X-ray and see the thump sign.
- Treatment: **Ceftriaxone**



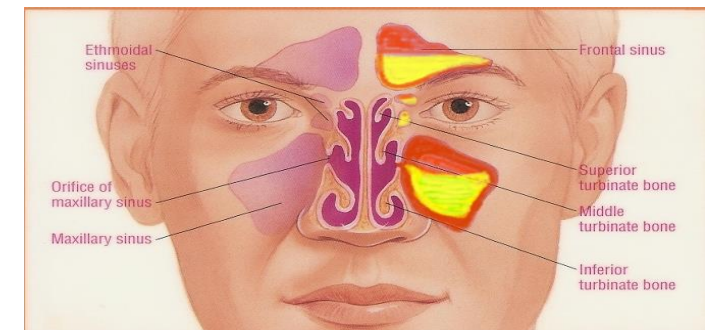
- Pertussis (whooping cough):

- It's caused by **Bordetella pertussis**.
- It's usually in children.
- It has toxins that damages the epithelial cells that lining the respiratory tract.
- Diagnosis: **Nasopharyngeal swabs (NB)**. The swab is cultured in a special media called **Charcoal-horse blood T media**.
- Treatment: **Erythromycin** and prevention by vaccination.

- Acute otitis media:
 - It's the infection of the middle ear.
 - Most commonly caused by *S. pneumoniae* and *H. Influenzae* but could also be viral or fungal infections.
 - It is usually developing on the basis of a viral upper respiratory infection.
 - Treatment: Amoxicillin or AMC.
 - It may lead to very severe complications.



- Bacterial sinusitis:
 - Mainly in Children.
 - Most common cause in Bacteria is *S.pneumoniae*, *H.Influenza* and oral anaerobes in chronic sinusitis.
 - Duration:
 - ✓ 1 to 2 weeks in Acute sinusitis.
 - ✓ 2 to 4 weeks in chronic sinusitis.
 - Diagnosis: X-rays CT/MRI
 - Treatment: Quinolones or Ceftriaxone.



Disease	Epidemiology	Organism	Symptoms	Diagnosis	Treatment
Pharyngitis (Sore throat)	5-15Yrs	- Viral is the most common. - in case of bacterial infections: Group A streptococcus	- Tender - Fever - edema - Erythema - lymphadenopathy - No Viral symptoms	Throat swab	Penicillin
Diphtheria	unvaccinated children 1-5yrs	Corynebacterium diphtheriae	Sever sore throat grayish whitish membrane in the throat cross midline	- Tinsdale media - ELIK's Test	Penicillin OR erythromycin
Epiglottitis	unvaccinated children	H. influenzae Type b S.Pneumoniae	dysphasia, drooling, and distress	X-ray (Thumb sign)	Ceftriaxone
Pertussis (whooping cough)	Children	Bordetella pertussis (GNB)	- Whooping cough - fever	Naso-pharyngeal swabs	Erythromycin
Acute otitis media	Any age Viral infection Inflamed Eustachian tube	- S.pneumoniae - H. influenza - Moraxella catarrhalis	Pain in the ear , fever	Clinical ,Tympanocentesis (in sever cases)	Amoxicillin or AMC
Bacterial sinusitis	Any age	- S.pneumoniae - H. influenza - Moraxella catarrhalis	Facial pain, Headache, fever	CT/MRI scan	Quinolones Or Ceftriaxone

Quiz

1.The most common cause of sore throat is:

- a. H.influenza b. S.aureus c. Group A streptococcus

2.The treatment of corynebacterium diphtheriae is:

- a. Ceftriaxone b. Erythromycin c. Amoxicillin

3.Most common cause in Epiglottitis is:

- a. H.influenza type b b. Neisseria gonorrhoea c. anaerobic

4. We use to diagnose pertussis.

- a. Throat swab b. Naso-pharyngeal swab c. X-ray

5.What is the selective media for corynebacterium diphtheriae.

- a. LJ media b. Tinsdale media c. charcoal-horse blood T media