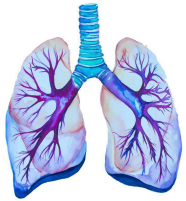


Summary of the respiratory block Microbiology.

Infections of respiratory system

- Bacterial
- Viral
- Fungal

Investigations :

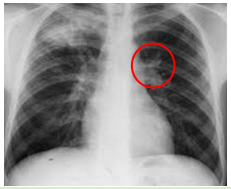
Blood tests –> CBC , HB

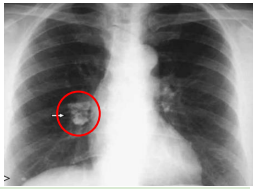
Biochemistry –> Urea , creatinine

Specific for infections –> Blood culture , sputum culture , stain , Nasopharyngeal swab for **viral**

Radiology –> X-ray (but it's not specific to identify the pathogen, it's just help in diagnosing)

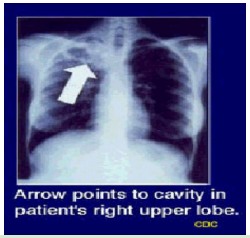
Primary Tuberculosis





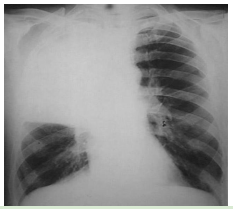
Ghon's focus in the center of the mid zone of the lung

Secondary TB



Lesions Localized in apices

Typical pneumonia



upper lobe **lobar pneumonia**

Atypical pneumonia

Interstitial

Bacteria

Keywords	Diagnosis
Young patient with 2 days pain , fever, and cough	**CAP**
Patient stays for days/week in hospital	**HAP**
2-3 weeks cough, and fever	**TB**

Some important bacteria ;-

GAS	Gram positive in chains, beta hemolytic , bacitracin sensitive **Complications of GAS pharyngitis:** Suppurative, and Non-Suppurative (Rheumatic fever, Acute glomerulonephritis)
S.pneumoniae	Gram positive diplococci , alpha hemolytic , optochin sensitive, virulence factor (Capsules). **Cause** : Typical CAP ,Early onset HAP , epiglottis , otitis media
H.influenza	Gram negative coccobacilli, catalase positive **Cause** : Early onset HAP , typical CAP. two types**:** encapsulated –> epiglottis / non-encapsulated –> sinusitis , otitis media -Doesn't grow in blood agar instead we use chocolate agar (because it needs both X and V factors)
Legionella	Grow in specific media (BCYE) immunocompromised patient , air cooler and water tanks , **Symptoms** : high fever , hyponatremia

Viral

-Children, winter , cough , runny nose

Some important viruses ;-

Influenza Virus	Parainfluenza Virus	Respiratory Syncytial Virus (RSV) & Human metapneumovirus	Adenovirus
Cause fever Influenza A = antigenic drift + shift Influenza B = antigenic drift only • Antigenic drift –> minor change. (No change in genome) • Antigenic shift "rearrangement" –> major change (change in genome) 2 strains enter the intermediate host (pig) **Treatment**: Amantadine: cover group A only oseltamivir (tamiflu) : Cover group A&B **Diagnosis**: nasopharyngeal aspirate, culture (the golden standard method), direct immunofluorescent test, PCR	Cause Common cold -In children and young children it cause **croup** (acute laryngotracheobronchitis)	Cause Common cold in all people except in infant under 6 months it can cause **bronchiolitis.**	• Infect epithelial cells lining respiratory tract, GI, conjunctiva, urinary tract, (don't infect the brain) • Conjunctivitis • Detect by IFA and PCR

-How to detect viruses ? by Nasopharyngeal swab (NPA).
-Do not treated by Antibiotics so you need to do culture for URTI, to avoid the abuse of Antibiotics.

Fungal

-In HIV patient

TB	Tuberculosis
GAS	Pharyngitis , otitis , sinusitis
H.influenza	Early onset HAP , typical CAP .. **encapsulated** –> epiglottis / **non-encapsulated** –> sinusitis , otitis media
Corynebacterium diphtheria	Pharyngitis
S.pneumoniae	Typical CAP ,Early onset HAP , epiglottis , otitis media
Bordetella pertussis	Pertussis (whooping cough)
Moraxella catarrhalis	Otitis media, sinusitis , typical CAP
S.aureus	typical CAP , epiglottis ,**MSSA** –> early onset HAP/ **MRSA** –> late onset HAP
Mycoplasma pneumoniae / chlamydia pneumonia / psittacosis / legionella pneumophila	Atypical pneumonia
Pseudomonas aeruginosa, gram negatives	Late onset HAP , typical CAP
Anaerobes Enterobacteriaceae eg. klebsiella	Early onset HAP

You can also check our summary tables in the end of each lecture.

Hope you all do well in the exam :)

Good luck

Team Leaders	
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MICROBIOLOGY TEAM 438