

CAP Summary

● Pneumonia

- Pneumonia is an infection of the pulmonary parenchyma that causes inflammation, consolidation and exudation
- Risk factors :
 - 1-Less than 2 years and more than 65 years of age.
 - 2-Alcoholism, Smoking.
 - 3-Immunosuppression, HIV.
 - 4-travelling and staying in hotels: *Legionella* bacteria.
 - 5-Pets, occupational exposures to birds: *Chlamydophila psittaci*.
- Pathogenesis : Two factors are involved in the formation of pneumonia:
 - 1) Pathogens. 2) Host defenses.Defense mechanisms of the respiratory tract:
 - Cough reflux.
 - Mucociliary clearance.
 - Alveolar macrophages.
- Etiology : Can be **bacterial, fungal, viral, parasitic**, or non-infectious like **chemical** and **allergic**.

I. Bacterial pneumonia

We classify it according to anatomy, pathogen, or acquired environment.

1)Anatomy : Bronchopneumonia,**Lobar pneumonia**,Interstitial pneumonia.

2)Pathogen :

* Gram + bacteria : *Streptococcus pneumoniae* , *Staphylococcus aureus*.

* Gram - bacteria : *Klebsiella pneumoniae*,*H influenzae*, *Moraxella catarrhalis*

3)Acquired environment :

Community acquired, **hospital** acquired, or **nursing home** acquired.

Immunocompromised host.

- II. Atypical pneumonia

Legionnaires pneumonia (*Legionella*).

Mycoplasma pneumoniae. (**most common**)

Chlamydia pneumoniae.

- III. Fungal pneumonia

Aspergillosis

- IV. Viral pneumonia

The most common cause of pneumonia in children less than 5 years of age.

- V. Other pathogen

Parasites.

Protozoa

- **Community Associated Pneumonia (CAP)**

- Pneumonia **acquired outside of hospitals**. Commonly caused by *Streptococcus pneumoniae*, and **drug resistant streptococcus pneumoniae (DRSP)** is a major concern on this aspect.

- It has two types : Typical and Atypical

- | | Typical CAP | Atypical CAP |
|-------------|--|--|
| Gram Stain | Useful. | Useless (No cell wall to be stained). |
| Radiography | Lobar infiltrate. | Dramatic changes:
Patchy or interstitial . |
| Penicillin | Sensitive | Resistant |
| Etiology | <i>Streptococcus Pneumoniae</i>
<i>Haemophilus influenzae</i>
<i>Moraxella catarrhalis</i>
<i>Staphylococcus aureus</i>
<i>Klebsiella pneumoniae</i> | <i>Chlamydia pneumoniae</i>
<i>Mycoplasma pneumoniae</i>
<i>Legionella species</i>
Psittacosis (parrots)
Q fever (<i>Coxiella</i>) |

<p>Diagnosis</p>	<ul style="list-style-type: none"> ● X-ray examination ● Lab test : <ul style="list-style-type: none"> - CBC showing leukocytosis. - Sputum Gram stain. - Blood culture. 	<ul style="list-style-type: none"> ● Serology test. ● X-ray.
<p>Symptoms</p>	<ul style="list-style-type: none"> - The onset is acute. - Fever. - Shaking chills. - Shortness of breath. - Cough with sputum production (rusty-sputum). - Chest pain. - Pleurisy. 	<ul style="list-style-type: none"> ● Mycoplasma: <ul style="list-style-type: none"> - Otitis. - Nonexudative pharyngitis. - Watery diarrhea. - Increased cold agglutinin titre. - Sore throat. - Fatigue. ● Chlamydophila: <ul style="list-style-type: none"> - Laryngitis.
<p>Treatment</p>	<p>Penicillin or Cephalosporin for β-lactam resistance.</p> <p>We increase the dose (except in meningitis) for MDR, we use:</p> <ul style="list-style-type: none"> - Quinolone - Linezolid - Vancomycin 	<p>Do not have a cell wall. Do not respond to β-lactams, so we use:</p> <ul style="list-style-type: none"> - Macrolides - Tetracyclines - Quinolones
	<p>Often intrapulmonary.</p>	<p>Often extrapulmonary.</p>

* Examples of Atypical Pneumonia

1- *Chlamydia pneumoniae*

Obligate intracellular organism.

50% of adults are seropositive

Subclinical infections are common. (HCAP)

2- *Mycoplasma pneumonia*

No cell wall.

Common

People **younger than 40.**

Crowded places like schools.

Usually mild and **responds** well to antibiotics.

May be associated with a **skin rash**, hemolysis, myocarditis or pancreatitis.

3- Psittacosis

Chlamydophila psittaci.

Exposure to **birds.**

Parrots, pigeons and poultry.

1st: **Tetracycline.**

Alternative: **Macrolide.**

4- Q fever

Coxiella burnetti

Exposure to farm animals mainly **sheep.**

1st: **Tetracycline.**

2nd: **Macrolid.**

5- *Legionella Pneumophila*

- **Causes Legionnaire's disease.**

- Serious **outbreaks**

-**Sign and symptoms** : Raised **CPK**, Few crackles and rhonchi, Abnormal Liver Function Test, Acute Renal failure, Bradycardia, Hyponatraemia .

-**Diagnosis** : **Serology and Cold agglutinins (Mycoplasma).**

-Treatment : **Macrolide (Erythromycin), Rifampicin, Quinolones or Tetracycline.**