

Lecture 8

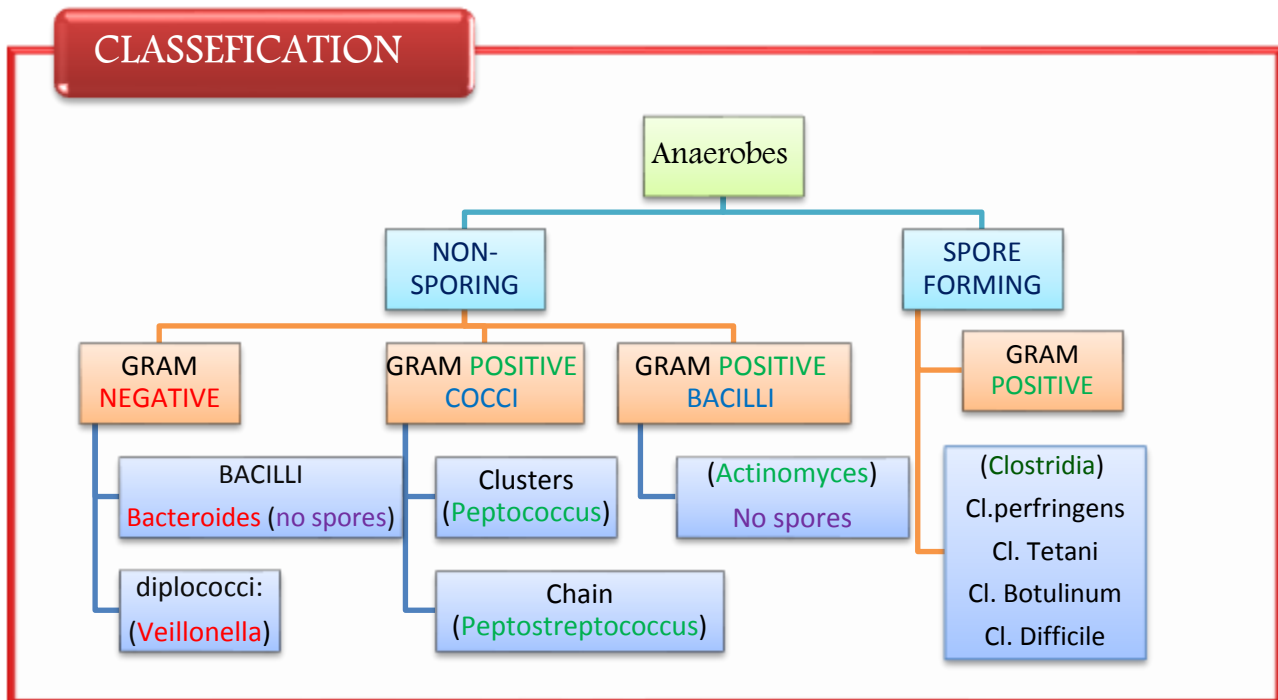
Anaerobes



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ANAEROBIOSIS.-

1. Anaerobes **lack** an enzyme called superoxide dismutase.
Therefore, they **do not grow in oxygen** because they cannot **convert H₂O₂**.
2. Contain **flavoprotein** to produce *a toxic*.



Importance.

1. Dominate the indigenous flora (colonization resistance)
2. Commonly found in infection
3. Gas formation, foul smell
4. special precautions
5. Slow growth
6. Mixed infection
7. Difficult treatment

HABITAT I:

- a. Oropharynx
- b. Gastrointestinal tract (**the most abundant**): Found mainly in the large colon in large numbers
- c. Female genital tract (**mainly in the vagina**).

❖ **Laboratory diagnosis:** To have proper collection of the sample, pus (**aspirate**) is better than swabs. It is necessary to send the sample quickly to the lab for **culture**. Incubation for anaerobic bacteria **takes** at least **2 days**.

❖ **Treatment:** Penicillin is the most important treatment for **all anaerobes**, except 2 organisms (**Bacteroides** and **Cl. Difficile**).

Treatment of these two is metronidazole (MTZ).

■ Features Of Anaerobic Infection.

1. They are always near to the site of the body which is habitat.
2. Deep abscess.
3. Animal Bites.
4. After surgery.
5. Infection begins when there is disruption of barriers (e.g. trauma, operation) or disruption of blood supply, e.g. tissue necrosis.
6. Infection can occur everywhere, in any part of the body around the normal flora area. They can happen in the brain, sinuses, abdomen and genital area.

Bacteria	Location	pathogenesis	Symptoms	treatment
Bacteroides	G.I.T	<u>Most common anaerobic Bactria</u>	Abscess	Metronidazole (Resistant to penicillin)
Fusobacterium		- Jugular vein thrombosis - lead to lung embolism		
Actinomyces		- After <u>tooth extraction</u> the NF invade the soft tissue - It may cause osteomyelitis		
Cl. Perfringens		- Gas gangrene - Wound infection		Surgery - To prevent it, avoid dirt.
Cl. Tetani (powerful toxin)		Tetanus (muscle spasm) - (Lives in soil and animal feaces. and any wound can infected if contaminated by spores)		Antitoxin - To prevent it, avoid exposure to dirt and <u>vaccination</u>
Cl. Botulinuim (powerful toxin)		Botulism → <u>paralysis</u> - Which inhibit releasing of Ach. - It can cause by "الهوند الحمر" <u>Canned</u> and sea food .		Antitoxin - To prevent it, autoclaving and heating of food
Cl. Difficile *		Normal Flora + Antibiotics → ↑ Cl. Difficile { A, enterotoxin (diarrhea) B, Cytotoxic (kill the cell)		Metronidazole (No penicillin)
Peptostreptococcus		Brain abscess		
VEILLONELLA		the only gram negative cocci		

* **Pseudomembrane Colitis** (inflammation of the colon) : is the clinical manifestation of this disease which composed of bacteria, fibrin, WBCs and dead tissue cells.

■ Gram positive + \ ■ Gram negative -

