

spore-forming Gram (+) rods

Bacilli (aerobic)

B. anthracis

virulence by:

- 1) capsule → made of poly-D-glutamic acid
⇒ inhibits phagocytosis at replicating cells
- 2) edema toxin → accumulation of fluid
- 3) lethal toxin → cytotoxic causes release of cytokines = necrosis.

- Large
- Single or paired or long serpentine chains
- no spores in specimens
- exposure to contaminated animal products (herbivores)
- part of biological warfare.

acquired by

(inoculation) skin 95%

ingestion

inhalation

- Lethal.
- not common, treated by Penicillin

meningeal

* Can cause edema + necrosis + meningitis + GI ulceration

B. cereus (ubiquitous)

enteric form (vomiting)

diarrhial form

ocular form

- by contaminated rice etc
- by contaminated meat, vegetables, souces
- penetration of soil contaminated objects into the eye.
- caused by the toxin not bacteria (intoxication)
- by bacteria
- short incubation period (1-6h)
- longer incubation period
- short duration of illness (< 24h)

* spores → malachite green color

* vegetative → gray or colorless cells

Clostridium (anaerobic)

difficile

- patients taking antibiotics
- treated with fecal transplant
- Causes → pseudomembranous colitis

- metronidazol + Vancomycin.

perfringens

- large, rectangular =

- forms spores rarely

- colonies are rapid spread growing

- has zones of

(partial hemolysis > complete) (α toxin) (β toxin)

* types *

A

B → E

- ubiquitous

- in the intestinal tract of humans & animals

- in contaminated soil & water with feces

- don't survive in soil

- in the intestinal tract of animals & occasionally humans.

tetani

- large, motile

- spore forming ✓

- in fertilized soil + GIT of humans & animals

- ubiquitous

* produces 2 toxins:-

1) oxygen-labile hemolysin (tetanolysin)

2) plasmid encoded heat-labile neurotoxin (tetanospasmin)

X proteins that regulate the release of inhibitory neurotransmitters

such as Glycine + GABA

(sardonic smile)

botulinum.

- large, anaerobic spore forming, feshidious

- isolated in soil & water

- food borne botulinum due to home canned food. especially carrot juice

- causes descending

flaccid paralysis death mainly due to respiratory paralysis

* infant botulinum colonizes the GIT & release

neurotoxin

