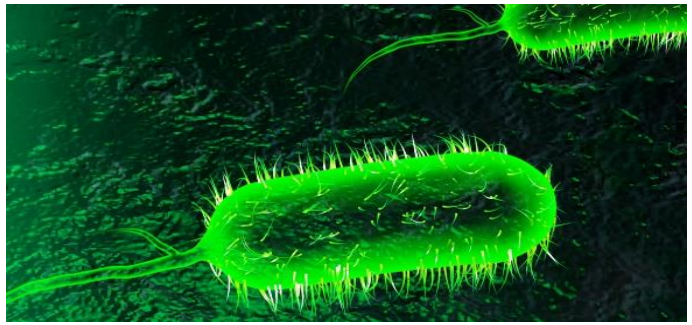
Disease: Cholera
Bacteria: Vibrio Cholerae

BODY SYSTEMS



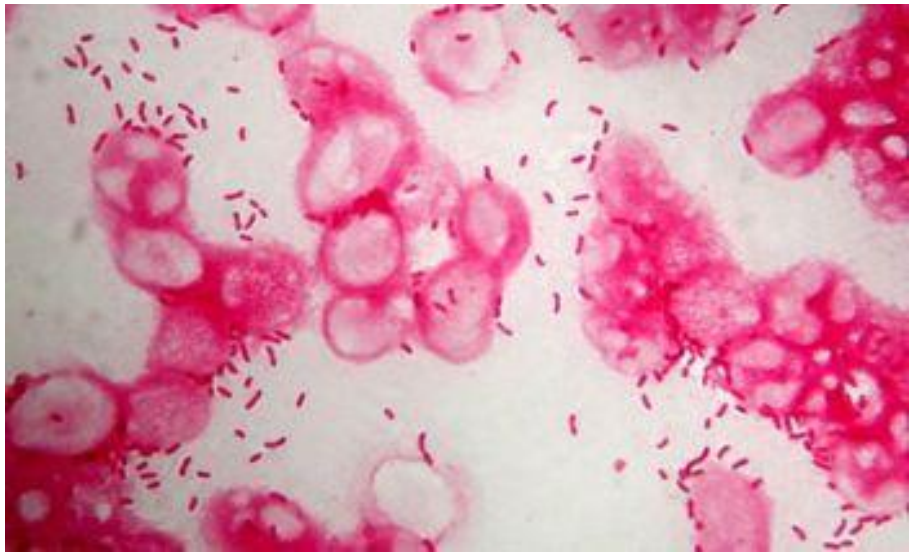
Signs and Symptoms

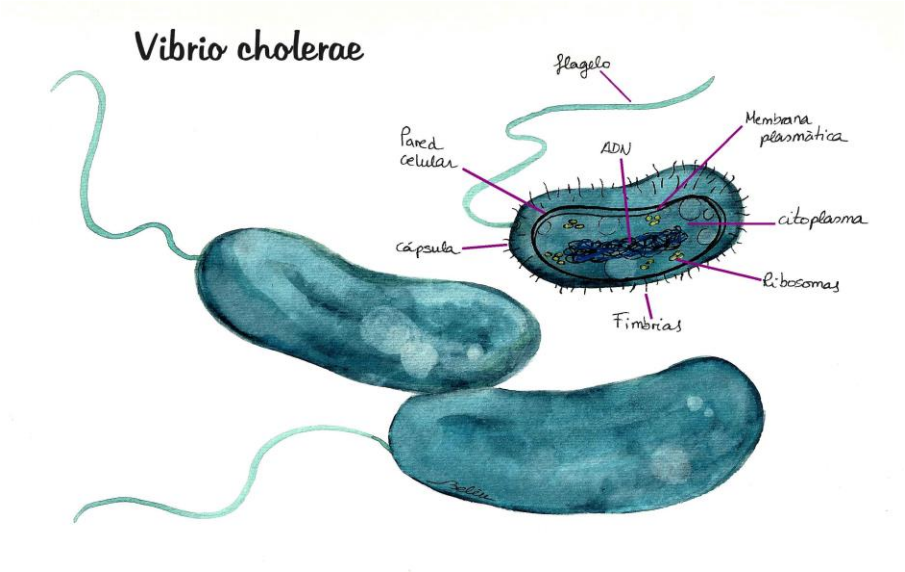
- Severe and watery diarrhea
- Vomiting
- Minor Leg Cramps

Method Of Diagnosis

Main Method: Stool Sample (positive culture of vibrio bacteria)

Other Methods: Stool Culture, Rectal Swab, Agglutination test, PCR



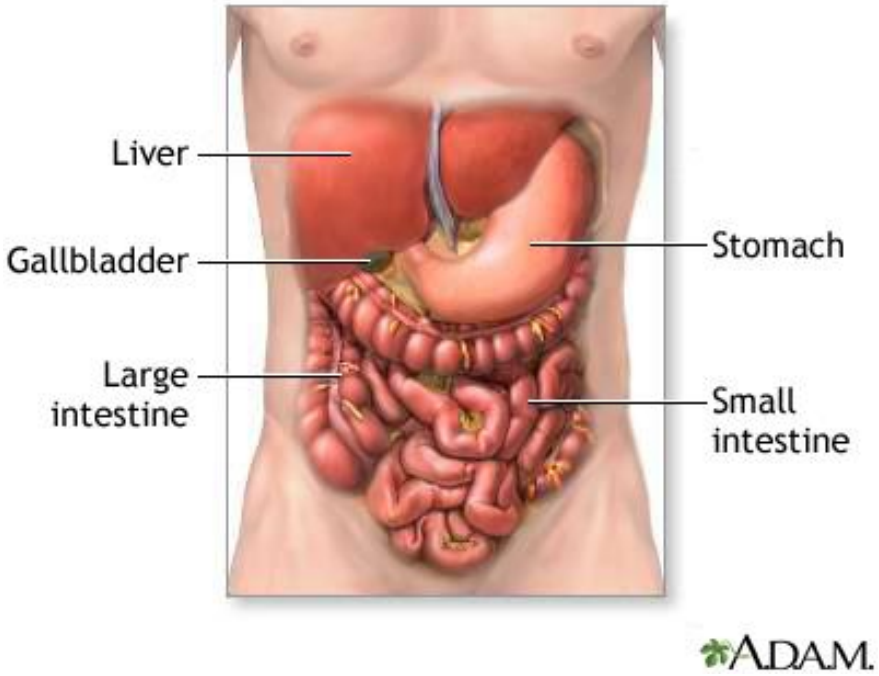


Colonization

Primary Site of Infection: **Small Intestine**

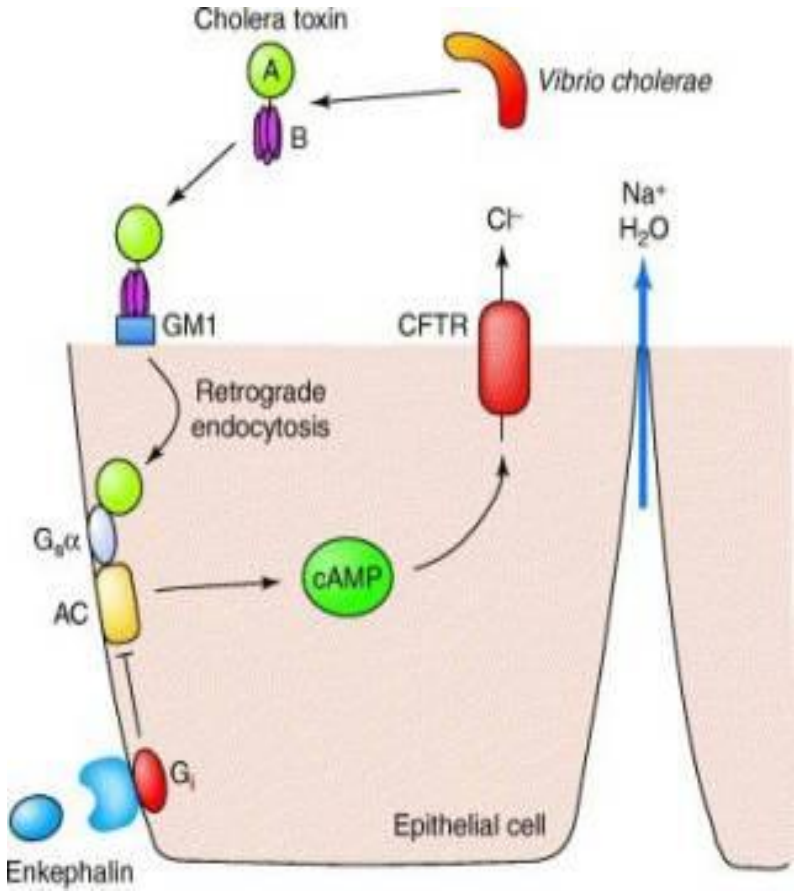
Releases Virulence Factor: Cholera Toxin

The small intestine is largely responsible for absorbing nutrients and fluids, both dietary fluid and fluid secreted by glands.



How Vibrio Affect the Intestine

- V.Cholerae binds to the intestinal epithelial cells releasing their enterotoxins , the toxins binds to the sugar groups on the membrane.
  - Cholera Toxin activates an enzyme that catalyses the conversion of ATP to cyclic AMP(cAMP) within the cells.
- Increased cAMP levels block the transport of Na+ into the epithelial cells and bring about the active secretion of chloride ions into the lumen .



Nutrient Absorption in Small Intestine

- Cholera toxin inhibits the absorptive feature and enhances of the secretory feature of the small intestine, particularly in the jejunum

- Cholera Toxin results in increased cAMP and Cl- secretion by the apical CFTR.

As a result, water will move out from the blood and tissues into the intestinal lumen due to osmotic pressure. Overall, the inhibition of the absorptive and stimulation of the secretive systems results in a net loss of electrolytes and water in the duodenum and the upper jejunum

Treatment

Rehydration Therapy (oral or IV)

- IV rehydration for severely dehydrated patients
- ORS(oral replacement solution) for mild to mod

Antibiotics, Tetracyclines, chloramphenicol destroy vibrious and shorten the course of disease.

Vaccines

The American CDC has recently approved Vaxchora as a single dose oral vaccine

Are Antibiotics Helpful ?

- Reduce the volume of diarrhea due to **cholera**
- Reduce the volume of rehydration fluids needed
- Shorten the duration of V. **cholerae** excretion.

The current WHO recommendation is to give **antibiotics** only to **cholera** cases with severe dehydration.

Can a Patient be Carrier of V.Cholerae?

- Those infected with cholera do not become long term carriers, with some rare exceptions. However, even after symptoms have passed the bacteria can remain in stool for a week or more.
- Follow safe hygiene practices. Cholera is spread through the oral-fecal route, so if fellow traveler is sharing cooking and/or bathroom facilities they may be at risk.
- Possible for to be re-infected with a different serotype of cholera.

References

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