

Vibrio vulnificus Infection

(including Necrotising Fasciitis caused by *V. vulnificus*)



Causative agent

Vibrio vulnificus (*V. vulnificus*) is a Gram-negative bacteria that is present naturally in warm marine environment, such as salt water and brackish water. It may cause infections in people who have an open wound exposed to seawater and in those who consume raw or undercooked seafood contaminated with the bacteria.

Clinical features

Wound infection with *V. vulnificus* may result in necrotising fasciitis (NF, commonly known as "flesh-eating infection"), which is a serious bacterial infection of the soft tissue and fascia (a sheet or band of fibrous connective tissue separating or binding muscles and organs together). The skin of the patient with NF may be warm with a reddish swelling that spreads rapidly; there may be ulcers, blisters or black spots. The patient may experience intense and severe pain which is out of proportion to the visible skin changes. The patient may also have fever, chills, fatigue, diarrhea, vomiting or pus from the infected area. It can lead to tissue destruction and may be fatal. Local studies have shown that the case fatality rate of *V. vulnificus* infection with NF is about 30%.

Consuming food that is contaminated with *V. vulnificus* may cause infection with fever, chills, diarrhoea, vomiting, nausea and stomach cramps. In people with underlying medical conditions, in particular liver diseases, *V. vulnificus* can infect the bloodstream typically causing fever, chills, decreased blood pressure and blistering skin lesions.

Mode of transmission

V. vulnificus infections are either foodborne or wound associated. *V. vulnificus* infection is acquired from exposure to seawater through an existing open wound or puncture wound caused by handling raw seafood, or through eating raw or undercooked shellfish, particularly oysters, harvested from warm water. There is no evidence of human to human transmission.

High risk groups

All people are susceptible to *V. vulnificus* infection with NF. People who frequently handle or have direct contact with raw seafood have a higher risk of acquiring *V. vulnificus* infection with NF. People with underlying medical conditions such as liver diseases, cancer, diabetes mellitus, thalassemia, impaired immune response or receiving immuno-suppressing therapy, may have an increased risk of getting infected or having severe complications. Besides, people who take medication to decrease stomach acid levels or who have had recent stomach surgery also have a higher risk of infection.

Incubation period

The incubation period is usually 24 to 72 hours.

Management

Prompt treatment with appropriate antibiotics is necessary to kill the bacteria. Some patients may require intensive care. For patients with NF, in order to stop the infection from spreading, surgery such as removal of dead tissues or amputation of the limb, may be required.

Prevention

To prevent *V. vulnificus* infection, members of the public, in particular people with impaired immune response or with underlying medical illnesses, should observe the following:

Proper wound management

- Clean wounds immediately and cover properly with waterproof adhesive dressings until healed.
- Prompt first-aid care of even minor, non-infected wounds.
- Perform hand hygiene before and after touching wounds.
- Avoid having wounds coming into contact with seawater or raw seafood.
- Consult doctor promptly if symptoms of infection develop, such as increasing redness, swelling and pain on the skin.

Proper food handling

- Avoid skin contact with dirty water when visiting wet market.
- Be careful with sharp parts of seafood, such as fish fins, shrimp heads and crabs to prevent cuts.
- Wear protective clothing (e.g. gloves) and cover all wounds when handling raw seafood.
- Cook seafood thoroughly; for shellfish (e.g. oysters, clams, mussels), cook until the shells open. Avoid eating raw oysters or shellfish.
- Avoid mixing ready-to-eat food and raw seafood to prevent cross-contamination.



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