

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 seawater. 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 (commonly known as “flesh-eating infection”), which is a serious bacterial infection of the soft tissue and fascia (a sheath of tissue covering the muscle). It can lead to tissue destruction and can be fatal. In Hong Kong, the case fatality rate of *V. vulnificus* associated necrotising fasciitis is about 30%.

Some patients with necrotising fasciitis may complain of pain or soreness of a limb or the trunk. The skin may be warm with a reddish swelling that spreads rapidly. There may be ulcers, blisters or black spots on the skin. The level of pain may be out of proportion to the visible skin changes. The patient may also experience fever, chills, fatigue and vomiting.

Consuming food that is contaminated with *V. vulnificus* may occasionally cause fever, diarrhoea, vomiting and abdominal pain. In people with underlying medical conditions, especially liver diseases, *V. vulnificus* can infect the bloodstream typically causing fever, chills, decreased blood pressure and blistering skin lesions.



Incubation period

The incubation period is usually 24 to 72 hours.

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 can be affected by *V. vulnificus*-associated necrotising fasciitis. People who frequently handle or have direct contact with raw seafood have a higher risk of acquiring *V. vulnificus*-associated necrotising fasciitis. 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.

Management

Appropriate antibiotics given promptly are needed to kill the bacteria. For necrotising fasciitis, in order to stop the infection from spreading, surgery, e.g. removal of dead tissue or amputation of the limb, may be required. Some patients may require intensive care.

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 a wet market
- Be careful with sharp parts of seafood, such as fish fins, shrimp heads and crabs to prevent cuts
- Wear protective gloves when handling raw shellfish or other 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

