

# Disease Information Sheets

## Marine bites and stings



### Introduction

It is thought that 80% of all living organisms live in the oceans, and currently about 275 000 ocean species have been identified. Most pose no threat to humans, however bites and stings may occur if people handle marine animals, provoke an attack (less common) or - very rarely - unprovoked attacks may occur.

### Stonefish

Stonefish live in shallow waters of the Indo-Pacific Ocean and lie still, completely camouflaged to their surroundings. They inject venom into someone who inadvertently steps on them via 12-14 spines. The venom causes intense pain and severe local tissue damage. Stonefish envenomations should be treated with hot water immersion, and the person should be evacuated to medical care as soon as possible.

### Weeverfish

Weeverfish inhabit European coastal waters and including the Black Sea, Mediterranean and eastern Atlantic. They bury themselves in the sand but can also survive for hours out of the water. Their spine is so tough it can penetrate a leather shoe. Envenomation causes an instant intense pain that spreads to the whole limb. The pain peaks 30 minutes after envenomation but may last for days. Like the stonefish, immediate management is hot water immersion, which should provide rapid pain relief. The person should then seek medical care.

### Sea Urchins

Sea urchins are found in every ocean in the world. Of the 600 or so species, about 80 are dangerous to humans. Most envenomations occur if a person steps on or brushes against an urchin. The spines often break off and lodge in the skin, causing intense pain and swelling. Embedded spines continue to inject venom. Hot water immersion will relieve the pain associated with the venom, but the spines must also be removed carefully, without breaking them. The patient should seek medical care if there is any chance that a spine has remained embedded, if it has penetrated a joint or other important structure, or if there is concern about infection of the wound.

### Stingrays

These are the fish most commonly incriminated in human envenomations. They are found in tropical, subtropical and warm temperate oceans, generally in shallow tidal areas. In South America, freshwater species are found in rivers. They are not aggressive, however will sting in self defence if cornered or trodden on by flexing their spine and whipping their tail towards the danger. The stinger(s) on the end of the tail create a puncture or laceration and venom is released into the wound. The entire spine tip may break off and remain in the wound. The sting causes immediate intense pain which usually peaks after 30-60 minutes and lasts for up to 48 hours. Hot water immersion should be started as soon as possible and may relieve some of the pain while the patient is taken to medical care.

### Jellyfish

**Sea-bather's eruption** is a skin rash caused by the larvae of the thimble jellyfish. These creatures are the size of a pinhead, and congregate in invisible blooms during the summer months in Southern Florida, across the Caribbean and less commonly as far south as Brazil. A prickly sensation is the swimmer's indicator to leave the water - the eruption is commonly in covered areas (e.g. under a swimming costume) and develops a few minutes to 12 hours later. The skin should never be rinsed with fresh water as this will cause more of the stingers to fire off. The rash lasts for 2-14 days and then clears up on its own. Initial management is to flood the area with vinegar - this deactivates the venom. Never rub or rinse with fresh water. Shave the area, then flood it with vinegar again.

The **Box Jellyfish** can kill a person in less than 60 seconds. Envenomation by a box jellyfish carries a mortality rate of 15-20% in some areas. They are found in Indonesia, Malaysia and Northern Australia from October to May. One jellyfish carries enough venom to kill three adult humans. Immediate excruciating pain incapacitates the victim within a couple of minutes. Death is usually caused by muscular and respiratory paralysis and cardiac arrest, usually between 5 and 20 minutes after contact.

Normal ABCs are the first priority. Avoid touching any adherent stingers, and prevent the patient from attempting their removal (squeezing them may cause further envenomation). Immediately flood the area with vinegar for a minimum of 30 seconds. This may not relieve the pain, or may even increase it, but will prevent further envenomation. The stingers can then be carefully removed (wear gloves). Immobilise stung limbs and arrange for urgent evacuation to definitive care. Pressure immobilisation is no longer recommended.

#### HOT WATER IMMERSION

Hot water immersion is the best immediate treatment for several marine stings. Immerse the envenomated area in non-scalding hot water for 30-90 minutes. The water should be as hot as the person can tolerate, up to a maximum of 45°C. The heat destroys the proteins responsible for local pain and systemic complications.

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