

toxicliniq

The official newsletter of Toxicology & National Poisons Information Centre, National Hospital of Sri Lanka

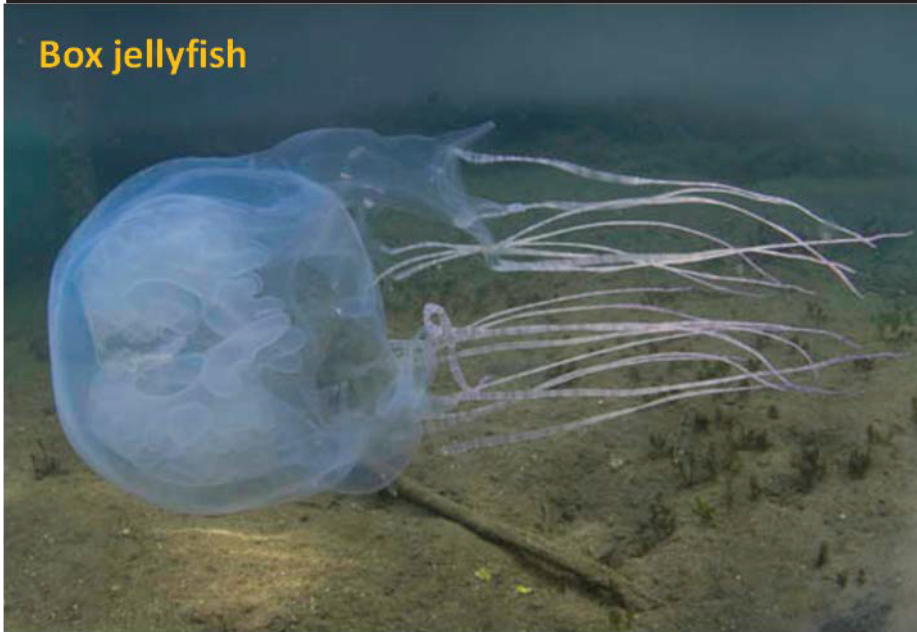
Toxicology Newsletter is an up-dated information collection for the healthcare practitioner that intended to enhance knowledge, stimulate

research and promote better management of patients with poisoning. The newsletter also publishes clinically relevant review articles, letters to the

editor and commentaries. Themes covers are of interest to clinicians, researchers, epidemiologists and other health care professionals.

Types of jellyfish cause serious problems in people

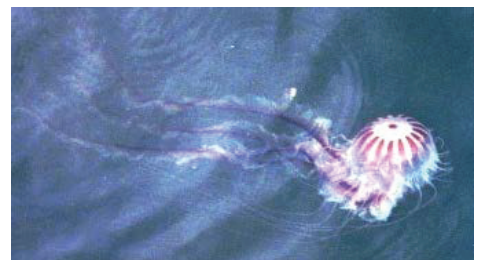
Box jellyfish



Portuguese man-of-war



Lion's mane jellyfish



Sea nettle

Types of jellyfish

While many types of jellyfish are relatively harmless to humans, some can cause severe pain and are more likely to cause a systemic reaction. The jellyfish which cause more-serious problems in people include:

- **Box jellyfish.** Also called sea wasps, box jellyfish can cause intense pain. Life-threatening reactions — although rare — are more common with this type. The more dangerous species of box jellyfish are in the warm waters of the Pacific and Indian oceans.
- **Portuguese man-of-war.** Also called bluebottle jellyfish, Portuguese man-of-war jellyfish live mostly in warmer seas. This type has a blue or purplish gas-filled bubble that keeps it afloat on the water and acts as a sail.
- **Sea nettle.** Common in both warm and cool seawaters, sea nettles live along the northeast coast of the United States and are abundant in Chesapeake Bay. Some has red markings on the tentacles and swimming bell. Some are white color and absence of red markings.
- **Lion's mane jellyfish.** These are the world's largest jellyfish, with a body diameter of more than 3 feet (1 meter). They're most common in cooler, northern regions of the Pacific and Atlantic oceans.

Jellyfish Stings : Health Issues

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Introduction

Jellyfish are categorized as the carnivorous, free-swimming aquatic animals with a gelatinous umbrella shaped bell and trailing tentacles. The bell can pulsate to acquire locomotion, while the stinging tentacles can be utilized to capture prey by emitting toxins or venom. The jellyfish also uses the venom to protect itself (1)(2).

Jellyfish tentacles contain microscopic barbed stingers. Each

stinger has a tiny bulb that holds venom and a coiled, sharp-tipped tube. When someone brush against a tentacle, tiny triggers on its surface activated and release the stingers. The tube penetrates the skin and releases venom. This takes no more than a few microseconds. It affects the immediate area of contact and may enter the bloodstream. Jellyfish that have washed up on a beach may still release venomous stingers if touched (3).

Jellyfish stings are relatively common problems for people swimming, wading or diving in seawaters. Severity of Jellyfish stings vary greatly. Most often they result in immediate pain and red, irritated marks on the skin. Some jellyfish stings may cause more whole-body (systemic) illness. And in rare cases, jellyfish stings are

life-threatening and severe reactions require emergency medical care (4).

Symptoms

Common signs and symptoms of jellyfish stings include:

- Burning, prickling, stinging pain
- Red, brown or purplish tracks on the skin — a "print" of the tentacles' contact with the skin
- Itching
- Swelling
- Tingling and numbness
- Throbbing pain that radiates up a leg or an arm.



Signs and symptoms of severe stings of jellyfish include:

Severe stings can affect multiple body systems. These reactions may appear rapidly or several hours after the stings (5).

- Nausea and vomiting
- Headache
- Muscle and joint problems
- Weakness and dizziness
- Fever
- Loss of consciousness
- Difficulty breathing
- Heart problems

The severity of your reaction depends on:

- The type and size of the jellyfish
- Age, size and health, with severe reactions more likely in children and people in poor health
- How long a person is exposed to the stingers
- How much of the skin is affected



Box Jellyfish Sting on 2 year old

A typical sting marks of jellyfish stings



A sting by Portuguese Man-of-War jellyfish. This jellyfish is potentially deadly to humans.

Treatments and drugs

Most jellyfish stings can be treated by rinsing the area with salt water, applying vinegar or a baking soda paste, and taking a pain reliever (5)(6).

Someone having a severe reaction to a jellyfish sting needs emergency care that may include:

- Cardiopulmonary resuscitation (CPR)
- Life support to stabilize breathing, heart rate and blood pressure
- Antivenin medication, if the sting is from a box jellyfish
- Painkillers such as paracetamol and ibuprofen for pain and swelling

Other medical treatments

Other circumstances also may require doctor-supervised treatment:

- A rash or other skin reaction due to delayed hypersensitivity may be treated with oral antihistamines or corticosteroids.
- A jellyfish sting occurring on or near an eye requires immediate medical care for pain control and a good eye flushing.

Venom of Box jellyfish

Jellyfish venom form naturally in its body. It is composed of potent proteinaceous porins (cellular membrane pore-forming toxins), neurotoxic peptides, bioactive lipids and other small molecules whilst the tubules contain ancient collagens and chitins (7).


The most severe biological consequences are caused by the porin proteins, which are designed to create fluid-filled passages through cells that allow molecules to pass in and out. Just five minutes after box jellyfish venom is delivered, these porins begin to punch holes in red blood cells travelling round the circulatory system, allowing first potassium and then haemoglobin to leak out. After twenty minutes, this steady leakage causes red blood cells to pop, rendering them entirely useless as oxygen couriers. This is all accompanied by a steady decrease in heart function, including electrical abnormalities and arrhythmic contractions.

The second component is one or more different neurotoxins such as, cftx-1, cftx-2, cftx-a, cftx-b, cftx-bt, that cause pain or discomfort.

References

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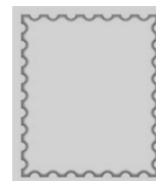
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