

# Marine Envenomation

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## KEYWORDS

- Marine envenomation • Marine antivenom • Jellyfish • Sea urchin • Sea snake
- Seabather's eruption • Crown-of-thorns • Stingray

## KEY POINTS

- Know the marine organisms in your clinical practice area.
- Be prepared to treat anaphylaxis and acute life-threatening envenomations from box jellyfish, irukandji jellyfish, stonefish, cone snail, blue-ringed octopus, or sea snake.
- Know where and how to obtain antivenom.
- Decontamination is species specific and includes removing tentacles, embedded spines, and foreign bodies.
- Attempt pain control with species-specific treatments, including 5% acetic acid (vinegar), hot water immersion, and saline rinse.

## INTRODUCTION

Venomous aquatic animals are hazardous to swimmers, surfers, divers, and fishermen. Most marine exposures are mild, so victims may not seek medical care. These exposures include mild stings, bites, abrasions, and lacerations. Severe envenomations from box jellyfish, irukandji jellyfish, cone snails, blue-ringed octopus, stonefish, or sea snakes can be life threatening. In these cases, rapid effective treatment improves immediate outcomes (decrease pain, stabilize systemic symptoms, treat anaphylaxis) and minimizes secondary complications (local allergic response, infection, wound complications). Treatment recommendations evolve in response to acquisition of data, clinical observations, and expert opinion. This article outlines recent management and treatment recommendations for marine envenomations. For the treatment of all envenomations, apply appropriate tetanus immunization. Consider prophylactic or therapeutic antibiotics.

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## SPONGES

### *Epidemiology*

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Sponges (phylum Porifera) are acellular creatures that attach to the ocean floor. They carry spicules of silicon dioxide or calcium carbonate. Many produce dermal irritants known as crinotoxins.<sup>1</sup> Typical offenders include the fire sponge (*Tedania ignis*), poison bun sponge (*Fibularia nolitangere*), and red moss sponge (*Mammillaria prolifera*).<sup>2</sup>

### *Presentation*

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Spicules and crinotoxins enter the skin, causing edema, vesiculation, joint swelling, and stiffness. Mild reactions subside within 7 days. Extensive exposure may induce fever, chills, malaise, dizziness, nausea, muscle cramps, and formication. Retained spicules can result in persistent bullae that take months to heal. Delayed systemic erythema multiforme or dyshidrotic eczema may develop. In severe cases, surface desquamation may follow.<sup>3</sup>

### *Treatment*

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Remove spicules using adhesive tape, a thin layer of rubber cement, or facial peel. Apply 5% acetic acid (vinegar) soaks. Steroid cream or an oral antihistamine may provide symptomatic relief. Consider systemic corticosteroids for severe allergy, erythema multiforme, or dyshidrotic eczema. Arrange wound checks because infections may develop requiring antibiotic therapy ([Table 1](#)).<sup>4</sup>

## CNIDARIA

The phylum Cnidaria is divided into four main groups: (1) hydrozoans, including feather hydroids, fire corals, and Portuguese man-of-war; (2) scyphozoans, such as true jellyfish; (3) anthozoans, such as soft corals and anemones; and (4) cubozoans, such as box jellyfish and irukandji.<sup>5</sup>

### *Hydroids and Fire Coral*

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#### *Epidemiology*

Hydrozoans are multiorganism colonies of diverse configurations. Feather hydroids are plumelike species found in tropical waters. Fire coral has an appearance similar to hard coral. An example is *Millepora*, distributed in shallow tropical waters and dangling tiny nematocyst-bearing tentacles.<sup>6</sup> The stinging tentacle-bearing Portuguese man-of-war (*Physalia physalis*) and blue bottle (*Physalia utriculus*) are widely distributed.

#### *Presentation*

Feather hydroids and fire coral cause immediate pain and urticaria, sometimes progressing to hemorrhagic or ulcerating lesions. Pain usually resolves by 90 minutes and inflammation resolves by 1 week, with occasional residual hyperpigmentation.<sup>7</sup> Portuguese man-of-war and bluebottle envenomations cause immediate intense pain and linear rashes, with vesiculation and necrosis. Pain improves within hours, and local symptoms resolve within 72 hours.<sup>8</sup> More severe systemic symptoms include nausea, vomiting, muscle cramps, dyspnea, anxiety, abdominal pain, and headache.

#### *Treatment*

For feather hydroid and fire coral envenomations, apply acetic acid 5% (vinegar) to the skin.<sup>9</sup> Consider steroid cream or an oral antihistamine for symptomatic relief; if the

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