

Lionfish Stings

The lionfish (genus *Pterois*) is a member of the family Scorpaenidae, which also includes scorpionfish and stonefish. Lionfish are native to the South Pacific and Indian oceans, yet they are also often found in home aquariums. The fish have now invaded the Caribbean, Gulf of Mexico, South America, and the southeast Atlantic coast of the U.S. Some blame aquarium owners who dump lionfish into the Atlantic where there are no natural predators.

Lionfish deliver their venom through spines on their dorsal, anal, and pelvic fins, which are connected to venom glands. The victim's skin is pierced causing trauma (sometimes with retained spine fragments) and toxin delivery. Venom composition is incompletely described but contains proteins, acetylcholine, and a neuromuscular toxin. Neuromuscular junction depolarization and increased calcium may explain neuromuscular effects. Cardiovascular effects have been attributed to modulation of adrenergic and muscarinic receptors.

Intense, radiating pain is the most prominent acute effect. Intensity is greatest 60-90 minutes after the sting and usually lasts 6-12 hours. However, pain and altered sensation in the affected area have persisted for weeks. Wounds are graded:

- Grade I: erythema, pallor, ecchymosis, cyanosis, or edema
- Grade II: vesicle formation
- Grade III: necrosis

Systemic effects have been reported in as many as 66% of patients (*Clin Toxicol 2016;54:313-318*), some of which may be due to intense pain. The most common systemic effects include tachycardia, anxiety, nausea, vomiting, abdominal pain, dizziness, syncope, hyper- or hypotension, diaphoresis, dyspnea, muscle cramps, weakness, and chills. Delirium, seizures, paralysis, and dysrhythmias have also been reported.

The most effective treatment for pain is immersion of the affected area in tolerable hot water (up to 45°C/ 113°F) for 30-90 min or until pain improves. It is thought that the venom components are inactivated by heat; however, heat-mediated vasodilation may also play a role. Oral or parenteral analgesics (including opioids) and local or regional anesthesia may also be needed. Anxiety or muscle spasms may respond to benzodiazepines. Routine wound care should be performed, including inspection for spine fragments (consider Xray or ultrasound), saline irrigation, and updating of tetanus vaccination. A prospective study reported local infection in 18% of cases (*Clin Toxicol 2016;54:313-318*). If wounds are large, deep, or highly contaminated, appropriate prophylactic antibiotics may be considered.

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Did you know?

- Most lionfish stings occur on the hands of those handling the fish or cleaning aquariums.
- Scorpaenidae venom may be active up to 48 hours after the fish has died.
- Lionfish feed on economically important fish and crustaceans; therefore, fishing for lionfish is encouraged to combat overpopulation in the Atlantic.
- Lionfish meat is not poisonous and is available in a small number of U.S. restaurants, grocery stores, and online stores.

Bibliography available at:
<http://mdpoison.com/media/SOP/mdpoison.com/ToxTidbits/2016/toxtidbits-references-0716.pdf>



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