

Aquatic Antagonists: Lionfish Stings

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Although lionfish can be found in all the oceans, the highest incidences of human stings appear to be in the tropics, especially in the Indo-Pacific area and Mediterranean Sea. The recent interest in tropical fish aquaria has expanded the geographic range of the stings of these animals.

Case Report

A healthy 32-year-old man was emptying his aquarium by pouring its contents into a floor receptacle when a lionfish spilled out and struck the patient's medial left dorsal wrist. Instant severe pain at the injury site was controlled with oral analgesic agents. When his wound was examined 3 days later, several superficial parallel lacerations were present (Figure 1). The area was slightly edematous with tiny vesicles between the linear marks. Local hot compresses for 20 minutes 3 times daily and oral analgesics were recommended.

One week later, the patient noticed several erythematous edematous areas between the lacerations. These lesions proceeded to form vesicles or bullae, which ruptured and crusted. The pain had advanced proximally to the mid upper arm. Seventeen days after the sting, crust formation was maximal (Figure 2). The involved area now measured 5 cm at the base, yet no regional adenopathy was detected. The patient used an eutectic mixture of local anesthetic bandages 2 to 3 times a day. His request for oral narcotics was denied.

Two weeks later, 31 days after the injury, the lesions had marked clearing in the center (Figure 3). Four months after the injury while visiting relatives, the patient noticed that the wound was inflamed with several spicules on the surface. Surgical removal of these spicules with debridement left an ulcer 5 cm in diameter. Silver sulfadiazine cream was



Figure 1. The dorsal wrist of a patient with a 3-day-old lionfish sting. Note the scratch produced by the fin striking the skin.

applied to the ulcer base, and a skin graft was later performed. The operating surgeon wondered about the cause of the ulcer because the patient requested excessive narcotics.

Comment

Large numbers of lionfish are exported annually from the Indo-Pacific region around the Philippine Islands. Amateur aquarists include these multicolored fish in their saltwater tropical fish collections despite the medical hazard. The most common lionfish is *Pterois volitans*, but the offending species is usually unknown

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Figure 2. The lesion at 17 days shows edema, crusting, and erythema.



Figure 3. The lesion at 31 days shows healing and loss of the crust over the affected area.

in most aquarium stings. Injuries occur while cleaning the aquarium, trying to catch a fish to transfer, hand-feeding, or removing dead fish.¹ Most of the cases happen at home rather than in a fish store. The hand and lower arm are the areas of injury in most cases. The most common complaint is immediate intense pain quickly followed by swelling. The usual pain duration is less than 24 hours, a time exceeded by our patient. Persistent numbness may be present for a longer period. The complications are usually local and include tenosynovitis, diffuse cellulitis, necrotic ulcers, and persistent cutaneous granulomas. Systemic symptoms include nausea, sweating, dyspnea, chest or abdominal pain, generalized weakness, hypotension, and syncope. No human fatalities have been documented.^{2,3}

The sting is produced by the inoculation of venom contained in glands that surround spines retracted in the fin integument. *Pterois* venom consists of polypeptides that produce hypotension, vasodilatation, muscular weakness, and respiratory arrest in laboratory animals. In humans, the sting causes local cyanosis, inflammation, swelling, severe pain, and occasional necrosis at the injury site.

Recommended treatment strictly consists of local debridement, cleansing, and immersing the injured

part in hot water intermittently for prolonged periods until the pain has subsided.

Usually, exploratory surgery for removal of cartilaginous spicules is not necessary because these are punctured wounds. Our patient had superficial abrasions from the lateral spine surface. This clinical impression was supported by the healing of the lesion. The data showing that subsequent inflammation induced by the 2 or 3 pieces of embedded fin cartilage necessitated debridement were suspect. The ulcer could have been a large, necrotic, factitiously produced ulcer, or perhaps it was created by delayed toxin action. Final surgical repair of any fish spine-induced necrotic ulcer should be delayed until the lesion has fully matured.

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