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Letter to the Editor
Venomous Aquarium Fish Stings

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Dear Editor

Despite the rarity of venomous aquarium fish stings, physicians sometimes encounter them. Therefore, it is essential to be familiar with these stings' clinical effects and know how to approach and treat them. I searched through PubMed, PubMed Central, Scopus, and Google Scholar and found only a few case reports on this subject. To the best of my knowledge, no published articles review or present case series about all venomous aquarium fish, explaining their stings' clinical manifestations and management. As you know, some aquarium fish, such as piranhas and snakeheads, are not venomous, but they may bite the finger or hand [1]. The spiny fins of some aquarium fish such as the Pakistani squint (also known as the commando) can cause intense pain and possible infection if they penetrate the skin [1]. This letter explains the clinical effects and management of envenomation by six venomous aquarium fish that exist in Iran. The sting of these fish may occur during the cleaning of the aquarium tank or holding the fish. These fish inject venom through their spines.

1) Scat fish (*Scatophagus argus*): It has three types, silver, green, and red (Figure 1).

These fish have dorsal and ventral rough spines, which are venomous. The most common clinical effect of their sting is severe local pain, which may include radiating pain. Erythema and swelling are usually present. In addition, itching, partial paralysis and paresthesia have been reported [2, 3].

2) Fossil catfish (*Heteropneustes fossilis*): The pectoral spines of these fish are venomous (Figure 2). Stinging can cause severe pain, swelling and erythema. Furthermore, local paresthesia and confusion have been reported [4-6].

3) Common walking catfish (African catfish, Clarias catfish): The dorsal and anal spines of this fish are venomous (Figure 3).

Sting is associated with severe to moderate pain, swelling, and erythema. Reports have indicated tachycardia, muscle weakness, hypotension, paralysis, and long-lasting paresthesia, even for 24 hours [6].

4) Striped catfish (*Plotosus lineatus*): The first dorsal spine and all the pectoral spines of these fish are venomous (Figure 4).

The signs and symptoms of their sting are similar to those caused by fossil catfish stings, i.e. severe pain, swelling, erythema, and paresthesia. Systemic signs, in-

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Figure 1. Green Scot (photo taken by Hossein Sanaei-Zadeh)

International Journal of
Medical Toxicology & Forensic Medicine

cluding hypertension, tachycardia, vomiting, chills and weakness, have also been reported [7].

5) Lionfish (Scorpionfish) have venomous dorsal, pelvic, and anal spines (Figure 5).

The most common symptom of their sting is severe local pain that may radiate throughout the affected extremity. The pain may last for 6 to 12 hours or even longer. Lionfish envenomation wounds are classified into three grades. Grade I: Erythema, paleness, ecchymosis, or cyanosis at the sting site. Grade II: Blister formation. Grade III: Local necrosis that occurs within a few days. There may be sensory changes at the sting site and extremities, such as numbness, paresthesia and hyperesthesia. The most common systemic manifestations of lionfish stings include nausea, sweating, dyspnea, abdominal pain, muscle weakness, hypotension, syncope and chills. Other clinical effects reported include headache, abdominal cramps, delirium, seizures, paralysis of extremities,

Figure 2. Fossil catfish (photo taken by Ramani Shirantha, printed with permission)

International Journal of
Medical Toxicology & Forensic Medicine

Figure 3. Common walking catfish (photo taken by Ramani Shirantha, printed with permission)

hypertension, respiratory distress, dysrhythmias, myocardial ischemia, congestive heart failure, acute respiratory distress syndrome, tremors and anaphylactic reactions [8].

6) Stonefish which is called Faryale in the Persian language have venomous dorsal spines (Figure 6).

The most common symptoms of its bite are severe pain, swelling, and erythema. The pain may radiate to the proximal or distal areas of the sting site and can last up to 12 hours or more. Local necrosis accompanied by erythema, swelling, and hotness around the necrosis and compartment syndrome of the hand and forearm have also been reported [3, 9-13]. The principles of management of venomous aquarium fish stings are identical and

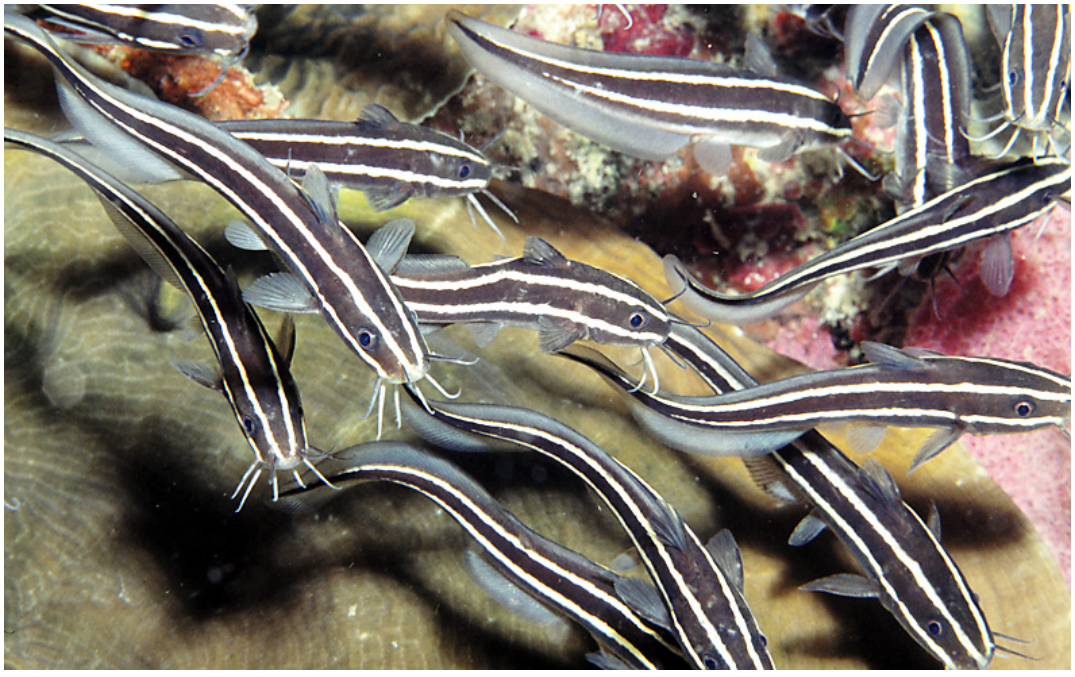

Figure 4. Striped catfish (*Plotosus lineatus*) (photo taken by Robert A. Patzner, printed with permission)

Figure 5. Lionfish (Scorpionfish) (photo taken by author)

International Journal of
Medical Toxicology & Forensic Medicine

Figure 6. Stonefish (photo taken by Prosanta Chakrabarty, re-printed with permission)

International Journal of
Medical Toxicology & Forensic Medicine

include the following [3-13]. Routine laboratory tests should be checked. To relieve the pain, the sting site can be immersed in warm water (usually over 45°C for more than 30 minutes). The water temperature should be at the highest degree that the patient can tolerate. The venom of all the above-mentioned fish is composed of proteins, and heat can destroy most of them. Cold water and the local application of ice packs make the pain worse. If the pain is not relieved by warm water, a local injection of lidocaine can be used. If severe pain does not improve with the above-mentioned treatments, apotel, diclofenac, pethidine, or morphine (depending on the severity of the pain) can be prescribed. It is recommended to prescribe intravenous hydrocortisone and intramuscular antihistamines to the patient. Injections of anti-tetanus immunoglobulin (tetabulin) and tetanus toxoid (if necessary) are recommended. Oral prophylactic antibiotics (doxycycline or ofloxacin) have been recommended. To treat secondary infections, intravenous broad-spectrum antibiotics, such as ceftazidime and imipenem have been suggested. Taking an x-ray of the sting site is helpful to detect any bony spines. Tourniquets should not be applied above the sting site.

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