

Envenomation Caused by Weever Fish

Çarpan balığı'nın (Trakonya) neden olduğu zehirlenme vakası: Olgu sunumu

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SUMMARY

Marine animals use toxins which they produce for hunting and self-defense. These toxins can cause morbidity and rarely, mortality in humans. In our manuscript, we aimed to review envenomation and injury caused by weever fish (Trachinidae) in Turkey and to delineate principles of approaching these patients. We present the case of one patient who was evaluated in the emergency department as a result of a probable weever fish envenomation.

Key words: Envenomation; trauma; weever fish.

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Introduction

Seventy-one percent of the surface of the earth is covered with water and half of the populations of earth live within 125 miles through the coasts.^[1] Three sides of Turkey were surrounded by seas and Turkey has big metropolises and holiday resorts on shoreline. Envenomations and injuries caused by marine animals occur often in coastal regions especially in spring and summer seasons. Many of the marine animals have grown toxins for defending themselves and hunting purposes. Marine toxins may be extremely potent and be very different from their terrestrial equivalents.^[1] These toxins may sometimes lead to high morbidity. Also some fatal cases were reported, though rarely.^[2] In this study, we aimed to review envenomations and injuries caused by weever fish (*Trachinidae*) in our country and principles of approaching to these cases focusing on one case arrived at emergency service as a result of a probable weever fish envenomation.

Case Report

A 30-year-old man arrived at emergency service with a complaint of pain and swelling in his right foot. The patient stated that he had stepped on an animal called *siganus luridus* three days ago while he was swimming in shallow waters of the eastern Mediterranean Sea. After that, he felt a severe stabbing pain aggravating progressively. He said he presented to the emergency department of the regional state hospital upon these complaints. Then he was administered three injections with painkillers, and since the pain did not subside, morphine was administered and he was discharged after 4-hour-observation.

On lower extremity examination, edema was found in his right foot and ankle. His vital signs were normal when he arrived at the emergency department (Fig. 1). Foot sole was erythematous, and on this erythematous surface from the midline to the medial, across a linear line, there were three bullae. Each of are 1 cm away from the others and the largest one is 3x2 cm. Two punctuate subcutaneous hemorrhages were also observed. A serous discharge was present like a leakage from the bullae (Fig. 2a). Ankle and toe functions were normal; there was no motor or sensory deficit. Peripheral pulsations were palpable. Inguinal and popliteal lymphadenopathy was not detected.

In the complete blood count analysis; Leukocytes: 8700 μ L, Hb: 13.9 g/dl, Hct: 42.7%, Thrombocytes: 304000 μ L. We contacted with the Ministry of Health Toxicology Center via telephone (Telephone number: +90 312 4337001) at 15:20 on 04/09/2005. Patient's anamnesis and the lesion were

described. The poison center informed that the animal was probably a weever fish, no specific treatment needed, symptomatic approach and analgesics should be administered. He was decided to be observed at least 6 hours and his clinical course would lead his management. There was no infection on the site of injury despite the serous discharge. The patient was discharged after prescribing amoxicillin + clavulanat, analgesic and an antihistaminic. We also proposed elevation, rest and injury dressing before discharging the patient. During his out-patient follow-up, on the seventh day after envenomation, necrosis within a 2x1 cm diameter was observed on the surface of bulla involving cutaneous and subcutaneous fascia. Debridement and dressing was performed and he was allowed to heal by secondary intention with the treatment of oral ciprofloxacin (Fig. 2b). Follow-up was terminated after the formation of epithelialization on the site of injury in the fifth week.

Discussion

Weever fish are the most venomous among the marine animals of the temperate zone.^[1] Their habitats are eastern part of Atlantic Ocean, North Sea, Mediterranean and Black Sea.^[4] Their length is from 20 to 40 cm. There are 4 species of *Trachinidae* known to live across Mediterranean coasts. These are *Trachinus araneus*, *T. Draco*, *T. Radiatus* and *Echiichthys (Trachinus) vipera*. The biggest of the family, *T. Draco*, is found in deeper waters compared to others; the smallest of the family which is *Echiichthys vipera* tends to come inshore, can be found in waters even a few centimeters in-depth.^[3]

In the beginning of spring and summer, they migrate to shores to spawn. They spend most of their lifetime buried in



Fig. 1. Edema on right foot and ankle.

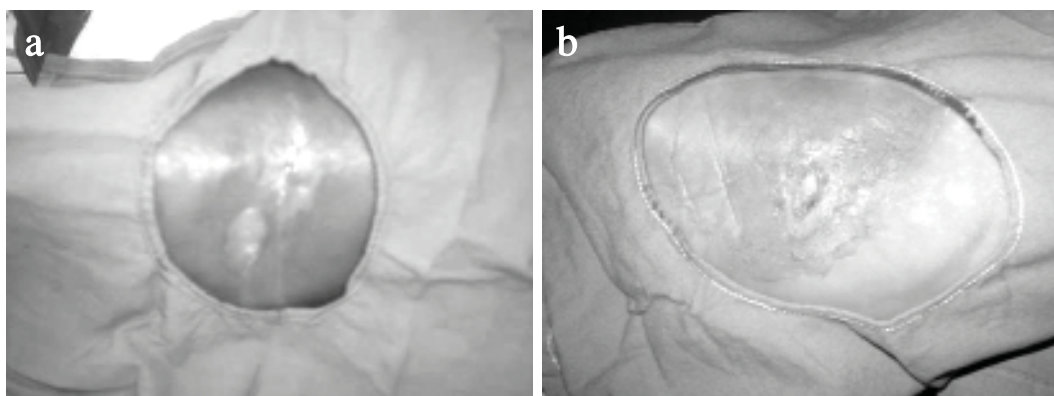


Fig. 2. (a) Bullae and serous discharge on the sole. **(b)** 7th day.

the sand leaving only a small part of their head exposed (Fig. 2b). Any touch to their bodies will be enough for them to sting their victims. Some regional differences may be seen among the names of marine animals. Particularly in our country, the people may sometimes call a few different species with the same name.^[3,14] The case we presented said that a fish named *Siganus luridus* envenomed him. However, after gathering the case's anamnesis, physical examination findings and the information obtained from the Ministry of Health Toxicology Center, we decided that the animal caused the envenomation was probably a weever fish. Venom apparatus of weever fish consists of five dorsal fin rays, two gill cover spines on each side of the head and the skin sheath which covers them. Number of dorsal fin rays which were used for envenomation changes from three to five.^[3] When threatened generally without noticing, they poison with five to seven torn-like spines on their dorsum.^[11] There were five points of injury in our case. Out of them, first three bullous lesions were evaluated as the probable envenomation points. Pain caused by weever fish envenomations is very severe and reported as close to necrosis.^[6] Necrosis developed in our case on the seventh day of follow-up.

Weever fish venom contains high amount of protein, norepinephrine, histamine, 5-hydroxytryptamine and a few enzymes. Protein content is responsible for the toxicity and it is called dracotoxin. It has membrane depolarizing and hemolytic activity.^[4,7,8] In weever fish envenomations, the pain is described with a sudden onset, scorching and pricking radiating up to the affected extremity.^[3] Patients arrive at emergency service generally for very severe and unresolved pain. Our case also described the pain as stabbing with a sudden onset. When the injury is on upper extremity, the pain may radiate to the thorax and it may be similar to the symptoms of acute myocardial infarction.^[9-11] Other local symp-

tom and findings are rash, ecchymosis, hypoesthesia, paraesthesia, local lymphangitis and lymphadenitis. Our case had also bullous lesions in addition to these symptoms. If left untreated, pain intensity reaches its peak value in minutes and it begins to subside after 24 hours. However, the pain may persist for days in some rare cases. In our case, as well, the pain lasted for 5 days. Sometimes, edema may develop in the affected area and cellulitis and myonecrosis may follow it.^[4] Systemic symptoms and findings are not frequent. However, hypotension and respiratory depression may occur. Disorientation, seizure, syncope, cardiac arrhythmia, shock and instant death may develop so rarely.^[3,9-11] No systemic symptoms and findings were observed in our case.

Management: No controlled study was found in the literature regarding the treatment of weever fish envenomations.^[4] The approach consists of the recovery of the venom effects, pain relief and infection prevention.^[11] Injury site should be washed instantly, necrosed tissues, spine fragments that can be seen and other foreign bodies should be removed. If skin laceration is present, primary closure should be delayed. Hot water (nearly 45°C) should be administered promptly for 30-90 minutes, until the pain subsides. If the pain cannot be controlled, oral and frequently parenteral analgesic is required. In the history of our case, parenteral analgesic was required for pain control at first. For the following phases, only oral analgesics were required. Furthermore, the literature contains the data stating that local anesthetics without epinephrine or regional nerve blocks may be more effective.^[11,4]

Use of prophylactic antibiotics is not suggested routinely; though not clear.^[12] It may be preferable when the findings of infection, necrotic tissue and suspect of a foreign body are present. It has no antivenom in practical use. Other medication alternatives include tetanus toxoid, antihistaminic, steroids, calcium, hot soap-water or potassium permanganate

practices and bupivacaine and epidural block.^[13] In our case, prophylactic antibiotherapy, antihistaminic and dressing with povidon iodine were administered.

As a conclusion species causing envenomation in the sea and their venoms may regionally differ from each other. Also, responses of the envenomed cases may be different and this situation may change the clinical course of the disease. Therefore, follow-up and controls are essential while treating these cases. Studies on envenomations caused by marine animals are inadequate in our country. Experiences about envenomations caused by marine animals and how to approach these cases should be shared referring to the relevant literature.

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