



Joint Restriction Caused by Traconia Fish Poison: A Case Report

Trakonya Balık Zehrinin Neden Olduğu Eklem Kısıtlılığı: Olgu Sunumu

✉ Ezgi Yıldız Güvercin, ✉ Ece Çınar, ✉ Simin Hepgüler

Ege University Faculty of Medicine, Department of Physical Medicine and Rehabilitation, İzmir, Turkey

Abstract

Traconia fish is a member of the Trichinidea family, all members are poisonous. In the literature, edema develops in the affected area after trachonia fish bite, followed by a wide spectrum of cases ranging from subcutaneous inflammation to myonecrosis. In this case report, we present a patient who was injured with the back spines of traconia fish and had limited edema and range of motion. The absence of pain in the joint restriction that developed over time and the normal bilateral hand radiography exclude us from the diagnosis of complex regional pain syndrome. The patient was treated with self-adherent wrap to reduce swelling in addition to soft tissue mobilization, range of motion exercises, and a contracture splint that forced metacarpophalangeal joints into flexion to increase joint mobility. We applied 15 sessions of treatment to the patient. On the post-rehabilitation examination, we found that the edema in the dorsum of the left hand decreased. We measured the range of motion of the patient as normal.

Keywords: Rehabilitation, splint, joints

Öz

Trakonya balığı Trichinidea ailesinin bir üyesidir ve tüm üyeleri zehirlidir. Literatürde, trakonya balığının dikeninin sokmasından sonra etkilenen bölgede, ödemden miyonekroza kadar uzanan geniş bir olgu yelpazesi bulunmaktadır. Bu olgu sunumunda, trakonya balığının sırt dikenleri ile elinden yaralanan, elinde ödem ve metakarpofalangeal eklem hareket açıklığında kısıtlılık olan bir hastayı sunuyoruz. Zamanla gelişen eklem kısıtlılığında ağrı olmaması ve bilateral el radyografisinin normal olması kompleks bölgesel ağrı sendromu tanısını dışlamaktadır. Hasta bandaj, yumuşak doku mobilizasyonu ve metakarpofalangeal eklemlerini fleksiyona zorlayan bir cihazla tedavi edildi. Hastaya 15 seans tedavi uyguladık. Rehabilitasyon sonrası muayenede sol el sırtındaki ödemin azaldığını gördük. Hastanın hareket açıklığını normal olarak ölçtük.

Anahtar kelimeler: Rehabilitasyon, atel, eklemler

Introduction

Traconia fish is a member of the Trichinidea family whose members are poisonous. In general, fish bite or sting injuries may occur after hunting with a fishing rod or spear, while separating the fish from the hunting equipment (1). Edema in the area of the fish bite, may be followed by a wide spectrum of symptoms ranging from subcutaneous inflammation to myonecrosis (2). In this case report, we present a patient who was injured with the back spines of Traconia fish and had edema and limited range of motion.

Case Report

A 33-year-old male patient presented to our outpatient clinic with left sided hand pain and restriction of movement. The

patient had sustained a fishing injury one month previously and had developed severe pain, widespread swelling and redness spreading from the left hand to the elbow as a result of the back spines of a Traconia fish sinking into the dorsal surface of the left hand. After the accident, the patient had also developed a headache. Patient had been admitted to the emergency department and had received antihistamines, an intramuscular steroid injection and tetanus prophylaxis. He had applied cold packs to the affected region but pain and swelling endured. One month later, patient sought medical care when edema and movement restriction persisted. A superficial tissue ultrasonography was performed, and minimal effusion was noted on the dorsal surface of the left hand. Three-phase bone scintigraphy was ordered to rule out complex regional pain syndrome and came back within normal limits.

Address for Correspondence/Yazışma Adresi: Ezgi Yıldız Güvercin MD, Ege University Faculty of Medicine, Department of Physical Medicine and Rehabilitation, İzmir, Turkey

Phone: +90 507 596 49 86 **E-mail:** mdezgiyildiz@gmail.com **ORCID ID:** orcid.org/0000-0001-5543-4541

Received/Geliş Tarihi: 11.12.2020 **Accepted/Kabul Tarihi:** 10.06.2021

On the 4th months, patient still had joint restriction and a left hand magnetic resonance imaging (MRI) was performed. MRI reported mild bone marrow edema in the base of the proximal phalanges of the 2nd finger, and mild effusion of the 2nd metacarpophalangeal (MCP) joint. Findings were compatible with outcomes from Traconia sting. Patient had received physical therapy and rehabilitation to regain joint range of motion. The patient did not benefit from the treatment and was admitted to our clinic for further rehabilitation.

On the initial examination, patient did not complain of any pain. Range of motion measurements (active/passive) were as follows: 2nd finger MCP flexion was 20°/25°, 3rd finger MCP flexion was 35°/40°, 4th finger MCP flexion was 40°/45°, 5th finger MCP flexion was 45°/50° (Figure 1).

Left hand dorsal surface displayed non-pitting edema and mild redness. Arterial pulses were palpable bilaterally. Muscle strength and neurological examination was normal. Routine hemogram, biochemistry, sedimentation, and C-reactive protein values were found to be normal. No pathological findings were seen on bilateral hand X-rays (Figure 2).

The patient was treated with self-adherent wrap to reduce swelling in addition to soft tissue mobilization, range of motion exercises, and a contracture splint that forced MCP joints into flexion to increase joint mobility. Soft tissue mobilization and exercises were performed by a trained physiotherapist.

Outpatient rehabilitation seances were applied every day and patient was also taught a home exercise program. The patient also practiced each exercise at home. The contracture splint was designed to force the MCP joints into flexion while keeping the wrist in an extension position for maximal stretching of the finger extensors and allowing activities of daily living.



Figure 1. Joint restriction before rehabilitation

On the 5th day of treatment we measured the (active/passive) range of motion of joints as follows: 2nd finger MCP flexion was 65°/80°, 3rd finger MCP flexion was 67°/85°, 4th finger MCP flexion was 70°/85° and 5th finger MCP flexion 75°/90°. Our patient was able to make his hand into a fist (Figure 3).

After 15 treatment sessions, patient was instructed to carry out exercises at home and to continue to wear the wrist-hand splint. On the 1st month post-rehabilitation control examination, we found that the edema in the dorsum of the left hand decreased and joint mobility had further increased and had reached normal limits.

Written informed consent was obtained from the patient.



Figure 2. No pathological findings were seen on bilateral hand X-rays



Figure 3. Our patient was able to make his hand into a fist after rehabilitation

Discussion

Dracotoxin is known to have vascular permeability and pain-producing effects, particularly membrane depolarization and destructive activity on blood cells, usually causing a sudden burning and needle like pain in the affected body side (1,3). Dracotoxin components consist of high molecular weight proteins, amines such as histamine, noradrenaline, 5-hydroxitriptamine, and various enzymes (3).

Although there is not a wide range of information on marine intoxications in the literature, the consensus about Dracotoxin is that it is the most effective acute treatment method is to immerse the exposed extremity in hot water at 45-50 degrees for 30 minutes immediately after injury (2). Hot water denatures the proteins in Traconia venom. Contrary to the treatment recommendations, our patient had received long-term empirical cold treatment after the injury.

A wide-spectrum of symptoms from edema to myonecrosis are seen after Dracotoxin exposure. Davies and Evans (2) reported the patient who developed edema in the affected area after the fish bite, followed by subcutaneous inflammation and myonecrosis. Dinçer et al. (1) reported a case of complex regional pain syndrome due to injury with Traconia fish. Carducci et al. (4) reported a case of peripheral neuropathy and Reynaud's phenomenon after Traconia poisoning. Lee et al. (5) carried out a literature review on the results of Traconia fish injury. Various results have been reported ranging from resolution of swelling to necrosis of the affected finger at 2 weeks. Other systemic symptoms such as nausea, headaches and tissue necrosis have also been reported (6,7).

One of the most important acute treatment strategies after heat application is the removal of all foreign bodies from the wound and applying tetanus prophylaxis (8,9). Spines rarely stick into the tissue. Secondary bacterial infection is rarely seen, but antibiotics are required if regional infection develops and can be considered prophylactically in immunocompromised patients (10). Antihistamines can relieve local inflammatory reactions. Sometimes poisoning will be accompanied by an allergic reaction and steroid use may be required (11).

In our patient, limitation of flexion of the MCP joints developed due to contraction and shortening of the hand extensor muscles. Soft tissue mobilization, a wrist-hand splint as well as traditional range of motion exercises helped elongation of the extensor muscles to allow flexion. Soft tissue mobilization aims to increase the mobility of soft tissues by slow stretching, traction, and long-term force application in torsional directions. Long-term external immobilization may cause progressive contraction of capsular and periarticular structures, even in normal healthy patients.

Traconia fish poison is a potent cause of soft tissue swelling and may cause limitation of movement if not treated properly. Routine cold application after injury may worsen the symptoms and should be avoided. Here we present a case with joint limitation that resolved after proper rehabilitation and gained full functionality in order to stress the importance and benefits of proper exercise and splinting even after 4 months after injury.

Ethics

Informed Consent: Written informed consent was obtained from the patient.

Peer-review: Externally and internally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: E.Y.G., E.Ç., S.H., Concept: E.Y.G., E.Ç., S.H., Design: E.Y.G., E.Ç., S.H., Data Collection or Processing: E.Y.G., E.Ç., S.H., Analysis or Interpretation: E.Y.G., E.Ç., S.H., Literature Search: E.Y.G., E.Ç., Writing: E.Y.G., E.Ç.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

References

1. Dinçer Ü, Çakar E, Kıralp MZ, Dursun H. Complex Regional pain syndrome caused by Trachinus draco Envenomation: A case report. *J PMR Sci* 2008;1:27-9.
2. Davies RS, Evans RJ. Weever fish stings: a report of two cases presenting to an accident and emergency department. *J Accid Emerg Med* 1996;13:139-41.
3. Smith WL, Stern JH, Girard MG, Davis MP. Evolution of venomous cartilaginous and ray-finned fishes. *Integr Comp Biol* 2016;56:950-61.
4. Carducci M, Mussi A, Leone G, Catricalà C. Raynaud's phenomenon secondary to weever fish stings. *Arch Dermatol* 1996;132:838-9.
5. Lee JY, Teoh LC, Leo SP. Stonefish envenomations of the hand-a local marine hazard: a series of 8 cases and review of the literature. *Ann Acad Med Singap* 2004;33:515-20.
6. Eryılmaz M, Durusu M, Mentş MÖ, Yiğit T, Zeybek N, Öner K. Envenomation Caused by Weever Fish. *Turkish Journal of Emergency Medicine* 2006;6:142-5.
7. Duran FY, Duran Ö. Weever fish sting: An unusual problem. *Eurasian J Emerg Med* 2014;13:42-3.
8. Lewis CJ, Wood F, Walters AG. Iatrogenic thermal burns secondary to marine sting treatments. *J Burn Care Res* 2020;41:878-81.
9. Abdul Jalil KI, Qayyum MT. Iatrogenic thermal burn after hot water immersion for weever fish sting treatment: a case report. *Scars Burns Heal* 2020;6: doi: 10.1177/2059513120944045.
10. Junghans T, Bodio M. Medically Important Venomous Animals: Biology, Prevention, First Aid, and Clinical Management. *Clin Infect Dis* 2006;43:1309-17.
11. Ziegman R, Alewood P. Bioactive components in fish venoms. *Toxins (Basel)* 2015;7:1497-31.