



Delayed and recurrent jellyfish dermatitis: A case report

Gecikmiş ve tekrarlayan denizanası dermatiti: Olgu sunumu

● Aysun Şıkar Aktürk, ● Rebiay Kıran, ● Nilgün Sayman, ● Ayla Günlemez*

Kocaeli University Faculty of Medicine, Department of Dermatology; *Department of Child Health and Diseases, Kocaeli, Türkiye

Abstract

Jellyfish venoms cause different reactions in human skin after exposure. The most common skin findings are linear, urticarial, and painful eruptions at the areas of tentacular contact. Delayed and recurrent rashes may also occur less commonly. We report a case of a 45-year-old female patient who developed acute pruritic rash and burning as well as dizziness on the right arm while swimming off the Island of Sicily in the Mediterranean Sea. Our patient, who had an increase in lesions from time to time in the following weeks, was diagnosed with delayed and recurrent jellyfish dermatitis according to her history and clinical findings. She was treated with systemic antihistamines, systemic steroids and topical steroids. The lesions of our patient, whose lesions did not show significant improvement with systemic antihistamines, systemic steroids, or topical steroids, improved with topical tacrolimus. Since this picture is rare in our country, we found it appropriate to present our case to emphasize that jellyfish dermatitis should be kept in mind in the differential diagnosis of patients presenting with this type of skin rash and that topical tacrolimus is effective in delayed and recurrent reactions.

Keywords: Jellyfish, dermatitis, vacation, delayed and recurrent eruptions, topical tacrolimus

Öz

Denizanası venomları insan derisinde temastan sonra farklı reaksiyonlara neden olur. En sık görülen deri bulguları dokunaçların temas ettiği bölgelerde çizgisel, ürtikeryal ve ağrılı erüpsiyonlardır. Daha seyrek olarak gecikmiş ve tekrarlayan döküntüler de görülebilir. Akdeniz'de Sicilya Adası açıklarında yüzerken sağ kolunda akut kaşıntı, yanma ve baş dönmesi gelişen 45 yaşında bir kadın olgusunu sunuyoruz. İlerleyen haftalarda zaman zaman lezyonlarında artış olan hastamıza öyküsü ve klinik bulgularına göre gecikmiş ve tekrarlayan denizanası dermatiti tanısı konuldu. Sistemik antihistaminikler, sistemik steroid ve topikal steroidlerle lezyonlarında belirgin düzelme olmayan hastamızın lezyonları topikal takrolimus ile düzeldi. Ülkemizde bu tablonun nadir görülmesi nedeniyle bu tip deri döküntüsü ile başvuran hastalarda denizanası dermatitinin ayırıcı tanıda akıldan tutulması gerektiğini ve topikal takrolimusun gecikmiş ve tekrarlayan reaksiyonlarda etkili olduğunu vurgulamak için olgumuzu sunmayı uygun bulduk.

Anahtar Kelimeler: Denizanası, dermatit, tatil, gecikmiş ve tekrarlayan döküntüler, topikal takrolimus

Introduction

A jellyfish sting is one of the most common injuries associated with the sea in summertime. Jellyfish venoms containing mixtures of polypeptides or enzymes are toxic and antigenic to humans. These venoms cause different reactions in human skin after exposure. The most common skin findings are linear, urticarial, and painful eruptions at the areas of tentacular contact, but delayed and recurrent eruptions may be seen less commonly. Sometimes, systemic and even fatal reactions can occur¹⁻⁵. Although hot water, alcohol, antihistamine drugs, and topical steroids are

effective in the acute phase, tacrolimus may prove to be an effective treatment for recurrent attacks^{1,3,6,7}.

Here, we present a case of delayed and recurrent jellyfish dermatitis successfully treated with topical tacrolimus as well as systemic antihistamines, systemic steroids, and topical steroids.

Case Report

A 45-year-old woman presented to our department with acute pruritic rash while swimming in the Mediterranean Sea on the Island of Sicily. She had developed red patches and burning

Address for Correspondence/Yazışma Adresi: Aysun Şıkar Aktürk MD, Kocaeli University Faculty of Medicine, Department of Dermatology, Kocaeli, Türkiye

Phone: +90 262 303 68 22 **E-mail:** aysun9442@hotmail.com **Received/Geliş Tarihi:** 21.11.2023 **Accepted/Kabul Tarihi:** 22.05.2024

ORCID: orcid.org/0000-0002-8137-2126

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as well as dizziness on the right arm. After emergency treatment with ammoniac, aloe vera, and topical steroids, her symptoms temporarily became better. But these symptoms exacerbated within a few days. There was no history of allergies or other disorders. On dermatological examinations, linear erythematous plaques and erosions on the right arm were observed (Figure 1). According to the clinical findings and the patient's history, she was diagnosed with jellyfish dermatitis and was treated initially with systemic antihistamines and local steroids. However, the lesions did not show any sign of resolution during an exam four days later. One week later, a severe rash and generalized vesicular and urticarial reaction all over the body was seen (Figure 2). No systemic symptoms were observed, and laboratory test results were within normal limits. A histopathological examination was not performed since the patient did not consent to a biopsy. Systemic corticosteroid treatment was started along with systemic antihistamines and topical steroids. Exacerbations were noted several times in symptoms during this therapy. Although the lesions in other regions improved with systemic steroids [one dose of intravenous methyl prednisolone (60 mg), oral prednisolone 40 mg daily for 10 days], no improvement was observed in the lesion on the arm. Therefore, topical tacrolimus pomade 0.1% was started. After the treatment was started, the lesion resolved rapidly within a week, leaving the hyperpigmentation in its original localization (Figure 3). There was no recurrence of the lesions in



Figure 1. Linear erythematous plaques and erosions on the right arm



Figure 2. One week later, a severe rash and generalized vesicular and urticarial reaction all over the body

the follow-up. The patient reported that the pigmentation on the lesion continued for a long time. Verbal and written consent was obtained from the patients.

Discussion

Jellyfish are marine invertebrates belonging to the class *Scyphozoa* of the phylum *Cnidaria*. They are found in oceans and also in freshwater. They have tentacles covered with cells (*Cnidocytes*) that are used to sting and kill their prey or for defense. The venom is located in nematocysts and consists of catecholamine, histamine, hyaluronidase, fibrolyns, kinins, phospholipases, and various hemolytic, cardiotoxic and dermatonecrotic toxins^{2,8}.

Jellyfish stings commonly produce an acute linear vesiculopapular eruption at the site of envenomation. Lymphadenopathy, limb necrosis, or gangrene may also occur. Unlike acute reactions to jellyfish stings, recurrent and delayed cutaneous reactions are rare⁷. Chronic cutaneous findings are localized fat atrophy, hyperhidrosis, vasospasm, hyperpigmentation, keloids, lichenification, and lymphadenopathy^{2,7}. Few reported cases demonstrated delayed and recurrent cutaneous reactions^{1,4,5,6,7,9}. In our patient, erythematous plaque and erosion were detected in the acute period. Thereafter, exacerbation of lesions in this region and itchy papules occurred in other body areas. Therefore, our patient was diagnosed with delayed and recurrent jellyfish dermatitis. The pathogenesis of jellyfish dermatitis is due to the direct toxic effect of the fluid contained in nematocysts. Type IV allergic hypersensitivity reaction plays a role in delayed and recurrent reactions as in our patient^{1,3,4,5,7,9}. T-lymphocytes and Langerhans' cells play a major role at the primary site or distant from the primary site⁷. In addition, these recurrent eruptions are believed to be due to an immunologic



Figure 3. Hyperpigmentation at the lesion site

mechanism from high anti jellyfish immunoglobulins, intracutaneously sequestered antigen, or cross-reacting venom¹⁰.

Identifying a specific jellyfish species that leads to recurrent dermatitis is difficult because they are rarely seen. The geographic location can aid in possible identification. Therefore, we thought patient history is important in the diagnosis of jellyfish dermatitis. The jellyfish sting is a rare condition in our country. To our knowledge, there is only one case reported in our country in 1998². Although our patient resided in Marmara Region of Türkiye, she has a history of travel to the Sicily-Mediterranean Sea.

The following items were reported by Veraldi and Carrera⁴, as the diagnostic criteria of delayed-type jellyfish dermatitis. These components are a positive history of contact with jellyfish, the modality and morphology of the lesions, and the persistence of the lesions for a long time (3 weeks) despite therapy, and histopathologic findings (similar to allergic contact dermatitis)⁴. We also based the diagnosis on the patient's medical history alongside her clinical findings. We did not persist on biopsy because histopathologic findings are not specific. The therapy for acute envenomation is to decrease any further nematocyst rupture. Vinegar and baking soda are desirable for this purpose. Avoiding the use of freshwater is important because it activates nematocysts. There is more evidence supporting the use of hot water. There is limited data on the effect of pressure immobilization bandages on jellyfish envenomation. Alcohol can also inactivate the toxin. Oral and topical corticosteroids can be used effectively for the treatment of acute toxic phase. However, these agents have not been equally effective in preventing or treating recurrent lesions⁹. Topical corticosteroids and oral antihistamines can be used for immediate and delayed cutaneous reactions. Some reports support the use of immunomodulators including pimecrolimus and tacrolimus for the treatment of recurrent reactions^{3,6,7}.

Our patient was initially treated with ammoniac, aloe vera, topical steroids, and alcohol for jellyfish sting at a local hospital, and her symptoms temporarily became better. However, she developed recurrent dermatitis that was present for longer than 2 months. There was an occasional increase in both the lesion on the arm and the lesions in other regions. Systemic steroids along with systemic antihistamines and topical steroids was initiated. Multiple exacerbations were seen in symptoms during this therapy. Although the lesions in other regions improved with systemic steroids, no improvement was observed in the lesion on the arm. Therefore, topical tacrolimus was started. After one week, her lesion resolved rapidly leaving the hyperpigmentation in its original localization.

The incidence of jellyfish stings may increase in relation to economic boom, globalization, and increased tourism. Hence, jellyfish and their

sequelae are no longer limited to a particular geographic area. It is a rare condition in our country. Delayed allergic and recurrent cutaneous reactions or jellyfish dermatitis pose a significant problem for the victim and dermatologists. Topical tacrolimus is a good alternative treatment option for patients with recurrent and delayed type reactions depending on jellyfish sting. We believe that topical tacrolimus may be an effective approach as a steroid sparing agent in such a case that will require long-term treatment due to nematocysts.

Ethics

Informed Consent: Verbal and written consent was obtained from the patients.

Authorship Contributions

Surgical and Medical Practices: A.Ş.A., R.K., N.S., A.G., Concept: A.Ş.A., R.K., N.S., A.G., Design: A.Ş.A., R.K., N.S., A.G., Data Collection or Processing: A.Ş.A., R.K., N.S., A.G., Analysis or Interpretation: A.Ş.A., R.K., N.S., A.G., Literature Search: A.Ş.A., R.K., N.S., A.G., Writing: A.Ş.A., R.K., N.S., A.G.

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