International Journal of Medical and Health Research
ISSN: 2454-9142
Impact Factor: RJIF 5.54
www.medicalsciencejournal.com
Volume 3; Issue 9; September 2017; Page No. 31-32

Delayed generalized edema after marine sting in the Arabian Gulf: A case report

[*1] Mohammed Aljumaan, [2] Arwa Alromaih, [3] Hend Alshamsi, [4] Badriah Alomari

[1] Assistant Professor of Emergency Medicine, College of Medicine, Immam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

[2, 3, 4] Medical Intern, College of Medicine, Immam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

Abstract

Introduction: Marine stings and envenomation is very common cause of visit to the emergency in the coastal cities. Here, we report a case of a marine sting that caused a delayed edematous reaction in a diabetic patient. The marine wildlife is not well studied in our part of the world.

Case report: an adult female known case of diabetes, stung on her foot on beachside with an unknown species, after which developed local symptoms of burning and pruritus, followed by edema of same foot a day later, anasarca followed days later. All other examination and investigations were within normal.

Conclusion: Most marine envenomation causes immediate reaction, which can be treated with simple first aid measurements and will rarely need medical intervention. We hypothesize that diabetes could interfere with the reaction process and delays the effect.

Keywords: marine sting, envenomation, Oedema, Arabian Gulf

Introduction

Accidental human contact with marine animal stings via occupation, sports, or leisure is common in daily life of many persons in our country. Two broad categories could summarize the marine envenomation: jellyfish stings and penetrating venomous marine injuries like spiny fish, stingrays or sea urchins [2]. The first being the most widely reported causative organism, with a raising incidence of stings has been noticed of an estimated 150 million cases per year [1]. In general, jellyfish stings can cause a variety of reactions, ranging from cutaneous, localized, and self-limited to a rare serious systemic or life-threatening ones, depending on the toxic effect of the envenoming species, the extent and duration of the exposure, body region affected, anatomical location and thickness of the skin lesion, health status, weight, age, and reaction of the host to envenomation, and the initial management done [3]. It's well known that it's unlikely to cause a persistent, delayed or recurrent episodes. Most of marine stings are minor and do not require medical intervention. Stonefish is considered as one of the most dangerous marine envenomation in the world which may lead to serious complications if left untreated. There are no enough studies carried out in the Arabian Gulf regarding the marine wildlife. We are reporting a case of delayed generalized edema after sustaining a marine sting of unknown species.

Case report

52-year-old female, known case of diabetes mellitus, on Insulin, well controlled, regular follow-ups, no complications like diabetic foot or nephropathy or peripheral neuropathy. Presented with history of sting to left sole of the foot in the sea water at the beach side of the Arabian gulf. Initially, the patient experienced burning and pruritus that was uncomfortable but with no limitation of function. After 24 hours, edema started on the left leg, extended to the knee. In the second day, the right leg started to get edematous as well. In the third day, upper limbs and face became edematous. No history of chest pain or shortness of breath. No history of itching nausea or vomiting. No history of oliguria or changing in the urine color. No history of fever.

On examination: temperature 37c, blood pressure 110/60 mmHg, pulse 88 beats/min, respiratory rate 19 breaths/min, O2 saturation 99% room air. She was seen on the third day following the sting, Looks well, not in pain or respiratory distress. Conscious, alert oriented to time, place and person. Not pale or jaundice neither cyanosed. Edema on the upper eyelid. Chest, cardiovascular and abdomen, all are within normal. On the lower limb there was pitting edema till the middle of the thigh and anasarca.

Laboratory analysis: CBC, renal function test, liver function test, CPK, ECG, troponin and thyroid function test all normal. Urine analysis and 24-hour urine protein are negative. She was not hyperglycemic when she visited the emergency department; her blood sugar was 120 mg/dl.

Chest x-ray, Echocardiogram and Doppler ultrasound to the lower and upper limb were done and results were normal.

Patient was started on antihistamine, Loratadine 10 mg once a day and Prednisolone 20 mg once a day for 5 days. To provide relief for the redness and swelling of the skin, but no improvement of the edema was seen.

After 3 months, lower limb edema was still present, similar in sizes, decreased edema of the upper limb, and disappeared edema of the face (figure. 1).

Fig 1

Discussion

Marine envenomation is one of global problem which is not fully appreciated especially in Arabian gulf. Certain of venomous marine exist in our gulf but no enough report founded. In this case we don't know the species and we worked to rule out other systemic causes. The site of the sting was in the sole of the feet at the beach side which could be a stonefish sting. The stonefish's spiny appearance and its tendency to burrow under sand or mud in beachside to surprise passing individuals. The stonefish belong to Genus *Synanceia*, under *Scorpaenidae* family which is considered as the most dangerous in the world. The pathogenesis behind stonefish stung is by increasing the capillary permeability due to the secretion of venoum- toxin via the spines of the stonefish which leads to immediate reaction such as pain (most common known reaction), edema, muscle weakness, vesicles formation, cyanosis of limb, and in late stage it may lead to hypotension, wound necrosis, and death if not treated. Medical treatment of stonefish stung is required. It's recommended in the literature to use antivenom to relieve the pain and prevent further local complications, pain management, hot water immersion, as stonefish venom is heat labile [5] (not fully supported by evidence), antibiotics to prevent secondary infections, and tetanus booster or vaccination if needed. The other possible causative agent could be jellyfish stings. True jellyfish belong to a group of organisms called '*cnidarians*'. This group includes relatives such as corals and sea anemones. There are more than two hundred species of true jellyfish globally, but the exact species in the Arabian gulf waters is not well known yet. Jellyfish have stinging cells, called nematocysts. Jellyfish stings variant in severity. Most often they result in immediate painful reaction and red, irritated marks on the skin. Some jellyfish stings may cause more systemic illness. And in uncommon rare cases jellyfish stings are life-threatening. The severity of the reaction depends on the type and size of the jellyfish, patient age, size of body area affected and general health status. As well known, it's rarely cause complications, such as delayed hypersensitivity reaction, rash or other skin irritations, severe anaphylaxis reaction, Infection and scarring or skin discoloration. For tropical jellyfish stings, Immersion with hot water, the use of Vinegar has been shown to prevent undischarged nematocysts from firing. The use of vinegar is recommended, and it is routinely used for first aid treatment [6].

Our patient symptoms started after 24 hours of exposure, which made us to believe it is due the fact that patient had diabetes mellitus. Similar case has been reported in the literature by Shapo *et al*. 2013 of delayed reaction in diabetic patient type 1 after jellyfish sting who developed early localized skin involvement like pain and edema, and delayed systemic reaction like persistent edema for more than 72 hours and hyperglycemia. According to evidence, hyperglycemia and metabolic changes can be developed due to the stress reaction of the body toward the stung and increase the catecholamine levels which will lead to hyperglycemia. So it's recommended for such patients to check their glucose profile and managed accordingly.

Conclusion

Marine envenomation in the Arabian gulf is not well studied and there are no enough reports to such cases. Thus, a challenge of morbidity to the swimmer in the beach is still a concern. A strong public education is recommended for the individual and collective well-being of our country and its people. Most marine envenomation cause immediate reaction which can be treated with simple first aid measurements and will rarely need medical intervention. Delayed systemic reaction can occur in diabetic patients, so appropriate clinical assessment is required to manage those patients and prevent further complications.

Acknowledgement

We would like to show our gratitude to our patient for giving us the permission to share her case. We are also immensely grateful to Dr. Mohammed Al Jumaan for giving us the chance to contribute in writing this case, he was supportive, abundantly helpful, offered invaluable assistance for us.

Conflict of Interest

The authors report no financial or conflict of interest.

References

1. Shapo L, Saker L. A case of immediate and delayed reactions after contact with a venomous mauve-stinger jellyfish in a diabetic patient. International Journal of Case Reports and Images 2013; 4(7):388-391.
2. Berling I. Marine envenomations. *Australian Family Physician*, 2015; 44(1-2).
3. Lakkis NA, Maalouf GJ, Mahmassani DM, Jellyfish Stings. *A Practical Approach. Wilderness & Environmental Medicine*, 2015; 26:422-429.
4. Reese E, Depenbrock P. Water Envenomations and Stings. American College of Sports Medicine, 2014; 13:2.
5. Prentice O, Fernandez W, Luyber T, Simmons M. Stonefish envenomation. American Journal of Emergency Medicine, 2008; 26: 972.e1-972.e2.
6. Al-Rubiay KK, Al-Musaoi HA, Alrubaiy L, Al-Freje MG. Skin and Systemic Manifestations of Jellyfish Stings in Iraqi Fishermen. Libyan Journal of Medicine, 2009; 4(2):75-77.