Skin and Systemic Manifestations of Jellyfish Stings in Iraqi Fishermen

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ABSTRACT

Background: Jellyfish stings are common worldwide with an estimated 150 million cases annually, and their stings cause a wide range of clinical manifestations from skin inflammation to cardiovascular and respiratory collapse. No studies on jellyfish stings have been carried out in Basra, Iraq. Objectives: To describe the immediate and delayed skin reactions to White Jellyfish (Rhizostoma sp.) stings and the types of local treatment used by fishermen. Methods and Materials: 150 fishermen were enrolled at three Marine stations in Basra, Iraq. Demographic data, types of skin reactions, systemic manifestations and kinds of treatments were collected. Results: Overall, 79% of fishermen in all three Marine stations gave a history of having been stung. The common sites of stings were the hands and arms followed by the legs. Most fishermen claimed that stings led to skin reactions within 5 minutes. The presenting complaints were itching, burning sensation, and erythematous wheals. A few days after the sting, new groups of painless and itchy erythematous monomorphic papular rashes developed at the site of the sting in 62% of cases as a delayed type of skin reaction that resolved spontaneously. The local remedies commonly used by the fishermen were seawater, tap water and ice. A few fishermen considered stings as insignificant and did not think there was a need to seek medical help. Conclusions: We conclude that jellyfish causes many stings among fishermen in the Basra region. Their stings lead to immediate and delayed skin reactions. Self-treatment by topical remedies is common.

INTRODUCTION

Venomous marine creatures are a well-recognized hazard for those working and swimming in the tropical Pacific Ocean. The incidence of envenomation from marine creatures’ bites and stings appears to be rising due to increasing marine activities of local populations and tourists [1,2], and those who are involved in water activities such as swimming, sailing, and saltwater fishing, are more likely to get stung. Fortunately, most jellyfish stings are not severe. Immediate skin reactions include local erythema, pain, pruritus, parasthesias, blistering, and swelling [3,4]. Delayed skin reactions may occur within few days and mainly present as pruritic papules [5, 6] with histological findings similar to those of allergic contact dermatitis [7]. Systemic reactions are usually associated with exposure to a large amount of the toxin and are usually limited to nausea, headache, and chills but may lead to a major anaphylactic reaction [8-10].

Most jellyfish stings are self limiting, and they are commonly treated by topical application of normal saline, seawater, tap water, 5% acetic acid (house vinegar), or crushed ice. Jellyfish stings can also be treated with antihistamines and topical corticosteroids. Recently, topical sting inhibitors have been used to prevent jellyfish stings [11-13].

The type of jellyfish common in Basra is white Jellyfish (Rhizostoma sp) (Figure 1). It has a white translucent umbrella and eight oral arms. Its common local names are Thaklol, Zaklol, and White jellyfish [14]. Because no study has been carried out in the Basra region, we
investigated the clinical presentations and managements of jellyfish stings in this area.

METHODS AND MATERIALS
One hundred and fifty five fishermen were enrolled in this cross sectional study from three Marine stations in Basra. They were from Al-Fao (n=70), Khour Abid Allah (n=45) and Um-Kasser (n=35). All were males and their ages ranged between 24 and 45 years (mean of 33.6 ± 6.5 years). The study was conducted over a six-month period. We developed a structured questionnaire and used it to collect the data during interviews. The questionnaire that included questions on the history of jellyfish stings, the type of skin reactions, any systemic involvement, the time of onset of reactions, the progression of the reactions, the methods of treatments used by the fishermen, and any hospitalization. Data were analyzed by calculating percentages.

RESULTS
Overall, 78.7% of the fishermen gave a history of jellyfish stings during the three months preceding the interview. There was no significant difference between the three stations (Table 1). The common sites of stings were the hands and arms (65.4%) followed by the legs (29.9%). Other parts of the body were also attacked, such as the abdomen, eyes and back (Table 2). Most fishermen (95.2%) claimed that stinging led to skin reactions within 5 minutes. The presenting complaints were pain (89%), itching (68%), burning sensation (45%), and erythematous wheals (90.5%) (Figure 2). Fainting was reported by 3% of the fishermen. About three days after the sting, painless but itchy erythematous monomorphic papular rashes (Figures 3 and 4) developed at the sites of the stings in 62% of the fishermen as a delayed type of skin reaction that resolved spontaneously in most cases (Table 3).

DISCUSSION
Jellyfish are marine invertebrates belonging to the class Scyphozoa of the phylum Cnidaria. They can be found in oceans and fresh water as well. The term "jellyfish" is misleading because scyphozoans are not fish [1,5]. 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 catecholamines, histamine, hyaluronidase, fibrylsins, kinins, phospholipases, and various haemolytic, cardiotoxic, and dermatonecrotic toxins [1,6].

The most common types of local remedies used by the fishermen were seawater (53.3%), tap water (35.4%), and ice cubes (5.4%). About 5.9% of the fishermen considered stings as insignificant and did not feel a need to seek medical help (Table 4).
The hands and arms were more frequently stung by jellyfish than the legs because the fishermen try to remove the jellyfish attached to the nets. This finding is similar to those found in other studies [15,21]. Most of the fishermen reported that stings were simple and not life threatening, that they did not visit a doctor or a hospital, and that they were satisfied with their local remedies, such as sea or tap water or pieces of ice to relieve the pain. The rash disappeared in a few days. These local remedies were similar to those reported elsewhere [15,22].
Current guidelines from the Australian Resuscitation Council (ARC) still recommend using ice for most jellyfish stings, although there is little evidence to support its efficacy. There is more evidence supporting the use of hot water [23,24]. The ARC gives advice for tropical and non-tropical stings, recommending vinegar for tropical jellyfish stings and cold packs or wrapped ice for pain relief. 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. There are minimal data on the effect of pressure immobilization bandages on jellyfish envenomation [25].

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