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COMMENTARY

Epidemiology of the Cnidarian *Physalia physalis* stings attended at a health care center in beaches of Adicora, Venezuela

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Summary Stings caused by jellyfish and jellyfish-like colonies are common all around the world, with serious manifestations and occasional deaths reported in some countries. Between December 2006 and 2007, epidemiological, clinical and treatment aspects of stings caused by the Portuguese man-of-war (*Physalia physalis*) in 59 patients consulting the ambulatory emergency in Adicora, Falcon State, Venezuela, were studied. Most of the stings occurred in males (59%) preschool and school-aged children (49%), visitors from other areas of the country (92%) during holidays when bathing or diving at the beach (97%). Injuries presented linear erythematous plaques at the point of contact with the animal, located in several anatomical sites. Most clinical manifestations observed were: intense burning pain, urticaria, erythema and inflammation (100%), as well dyspnea with laryngeal edema and fever (19%). Patients were treated with topical drugs, including antihistamine and antipyretic drugs, but also with systemic hydrocortisone. *P. physalis* stings in Adicora appeared to have a seasonal pattern, with systemic complications potentially life-threatening. Thus, epidemiological surveillance program is recommended, particularly in travelers.
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Introduction

Stings caused by jellyfish and jellyfish-like colonies are common all around the world, with serious manifestations and deaths occasionally reported in some countries.[1–3] Jellyfishes, formerly known as Coelenterates, belong to the Phylum Cnidarians, a name derived from the Greek word "Cnidos," meaning stinging nettle. There are different classes of Cnidarians: Hydrozoa, which include Portuguese man-of-war (*Physalia*) (not a true jellyfish); Hydroids and fire corals; Anthozoa, which include anemones and corals, which generally do not cause problems to humans; Schyphozoa, which include jellyfish species; and Cubozoa, which include deadly jellyfish species such as the Australian box jellyfish (*Chironex fleckeri*), Philippine sea wasps (*Chiropsalmus quadrigatus*), and *Carukia barnesi*, which is responsible for the Irukandji syndrome.[4] Portuguese man-of-war, *Physalia physalis* ('caravela' in the Portuguese language), is a hydrozoan colony that can cause severe injuries to bathers and fishermen.[1,3] Cnidarian stings due to *P. physalis* are not commonly reported in Caribbean countries.[5,6] The objective of this study was to describe the clinical and epidemiological aspects of presumed *P. physalis* stings evaluated in a health care center near the Caribbean beach resort of Adicora — a tourist beach resort and fishing port — in Falcon state, northwest Venezuela (11°93″N 69°08″W) (Fig. 1).

Methods

In Adicora, close to the beach, a rural health care center is located, which serves for most of the medical needs of the native people and visitors. For this study, all the patients attending the clinic, between December 2006 and December 2007, with known or presumed *P. physalis* stings (Fig. 1) were included and analyzed. Patients captured the jellyfish, after this *P. physalis* specimens were sent to the Botucatu Medicine School, São Paulo, Brazil and were identified taxonomically by Dr. Vidal Haddad Jr. Presumed stings were identified by having the patient selected from a photo chart of local marine fauna.[7] During treatment, clinical and demographic data were collected.

Results

During the study period, 59 patients with *P. physalis* stings were examined and treated by the medical staff of Adicora. The stings were clustered in time, 34% during December 2006—January 2007, followed by 17% during February 2007 (month of carnival celebration week, long weekend vacation), and 17% during April 2007 (month of Easter or holy week, one week vacation). The clinical aspects of the injuries were summarized in Table 1. There was a slight predominance of males (35 patients, 59%) and school-age individuals (19 patients, 32%). Stings were located most commonly on the legs (19 patients, 32%) and the trunk (40 patients, 68%). Fifty-four patients (92%) were visitors from other areas of the country. Individuals were stung while swimming or diving in 97% of cases, and the rest while fishing (Fig. 1). Stings occurred most frequently in the evening (75%) rather than in the morning or afternoon (25%). All patients were attended at the Health Care Center 12 min post-sting (mean time between the sting and the medical evaluation was 9.8 ± 1.7 min).

All patients (100%) presented with linear erythematous plaques at the point of contact with the jellyfish (lengths of the lesions being up to 12 cm), with intense pain, urticaria and systemic findings (dyspnea, fever, general malaise, tachycardia, Table 1). Patients were asked to score their initial pain on a visual analog scale (VAS) and 6 h later after treatment.[8] The mean VAS value was 9.17 ± 0.86 and after symptomatic treatment was 0.34 ± 0.53 ($p < 0.001$). Symptomatic treatment included acetic acid (4—5%), loratadine (given orally, 3—10 mg/day per 10 days) and hydrocortisone (intravenously, one vial of 500 mg; in children 5 mg/kg) as well topical solutions (physiological solution 0.9% and ringer lactate) and acetaminophen for pain and inflammation (tablets of 500 mg and suspension for children at 15 mg/kg, every 6 h for 3 days). Visitors were followed at 24 h and residents of Adicora at 7 days (in these patients, skin lesions disappeared at 4 day post-sting). There were no subsequent complications and recovery was complete.

Discussion

Envenomations by jellyfish or jellyfish-like colonies are quite characteristic, and have been described in other South American countries.[3] Stings caused by a blue or purple floater and associated with long linear plaques, intense pain and systemic symptoms can confirm an accident caused by *P. physalis*. When no floater is seen, and the clinical presentation reveals marks of very short tentacles, mild pain, and mild systemic manifestations, this suggests the possibility of contact with other marine animals along these northwestern coasts of Venezuela (e.g. scorpionfish, saltwater stingray).[9,10] While isolated reports of *P. physalis* stings in Venezuela have been described,[6] this is the first report of a series of such cases. During the study period, no other patients were stung by other jellyfish species at Adicora.

Education of visitors and travelers to areas such as Adicora is of utmost importance to prevent stings due to *P. physalis*, especially regarding avoidance of swimming in areas where this hydrozoan Cnidarian can be present. If *P. physalis* is abundant in the beach, regional health authorities can temporarily close the beach to prevent these related injuries. The recommended treatment for *Physalia* stings during many years was acetic acid 3—10%.[4] Although, recently a randomized clinical trial (RCT) of immersion in water at 45 °C for 20 min was found to be an effective and practical treatment for pain from *Physalia* stings.[11] This study was an open label, RCT, developed in the setting of surf lifesaving first aid facilities at two beaches in eastern Australia between 2003 and 2005 with 96 participants presenting with *Physalia* stings after swimming in the ocean. After treatment, assigned to either hot water immersion or ice pack application, patients on first treatment reported less pain ($p = 0.002$) and less radiating pain ($p = 0.039$) than the second treatment group.[11] In our experience, all patients evolved successfully after the treatment with acetic acid 5%, loratadine, and in those with laryngeal

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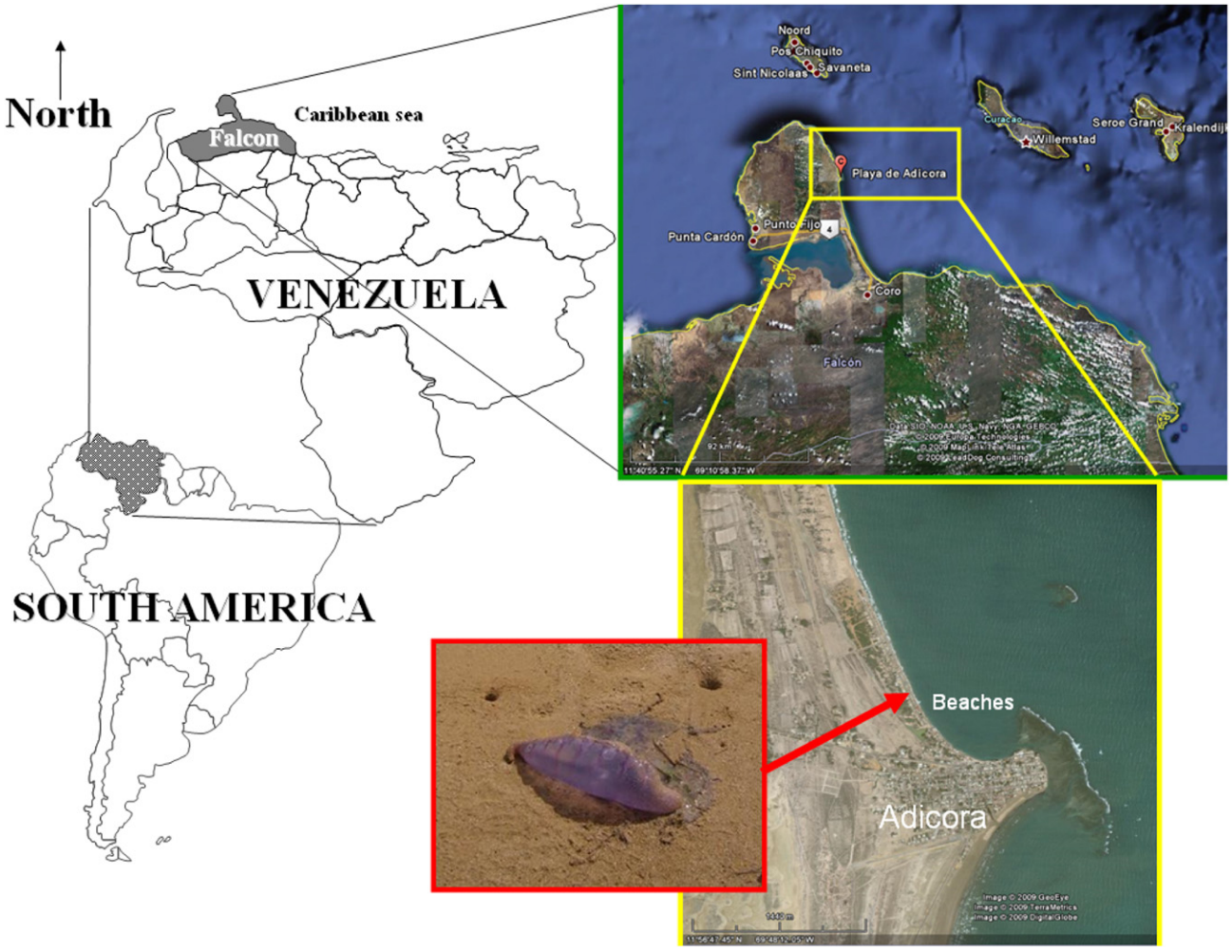

Figure 1 Relative location of Adicora, Falcon state, Venezuela, indicating the beaches were stings due to *Physalia physalis* occurred (insert: a specimen captured on the coast).

edema, intravenous steroids. Some reports have recently indicated that loratadine would be useful in jellyfish stings.[12,13] With regard to acetic acid it is important to mention that there are evidences indicating that acetic acid does not help in treatment of jellyfish stings.[14]

Table 1 Clinical findings associated with *Physalia physalis* stings in Adicora, Venezuela.

Medical conditions	*N*	%
Linear plaques	59	100
Pain	59	100
Erythema	59	100
Urticaria	59	100
Inflammation	59	100
Dyspnea	11	19
Laryngeal edema	11	19
Fever	11	19
General malaise	7	12
Local edema	5	8
Papules	5	8
Macule	5	8
Tachycardia	2	3

Unfortunately, there are no evidence-based guidelines regarding the treatment of jellyfish stings, but in addition to these potential options, diluted lidocaine applied topically has brought relief from the pain of jellyfish nematocysts toxins as well as prevention of redness and swelling.[14] Finally, more clinical research is needed in the evaluation of these accidents caused by jellyfishes, jellyfish-like colonies and other marine animals and further guidelines should be developed.

Ethical approval

Not required for the study type according to our Institution's Ethical Committee.

Funding

None to declare.

Conflict of interest

The authors have no conflict of interest to disclose.

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