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Letter

Outbreak of jellyfish envenomations caused by the species *Olindias sambaquiensis* (CNIDARIA: HYDROZOA) in the Rio Grande do Sul state (Brazil)

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Dear Editor:

The Southern region of Brazil has been experiencing epidemic peaks of jellyfish related injuries in recent years[1-7]. Although the causative species are autochthonous, environmental and anthropogenic factors certainly provoke the increase of envenomations in the region[7]. Currently, during the summer, hundreds of thousands of injuries are registered, mainly in the Paraná and Santa Catarina states[1,2,5]. These occurrences are foreseeable and preventive measures and initial treatments such as signaling beaches with enormous presence of jellyfish and distributing material with first-aid information, including using compresses of cold sea water and vinegar baths, as well as occasional oral analgesia, are already carried out in the affected areas[2,5,8,9].

The most common species associated with accidents in the southern region are the scyphomedusa *Chrysaora lactea* and the hydromedusa *Olindias sambaquiensis*[1,2,5]. (**Figure 1**). These are small cnidarians, with relatively short tentacles (~20 cm), whose venom, contained in the nematocysts, causes intense pain but rarely causes systemic manifestations (cardiac or respiratory failure, observed in Portuguese man-o'war and cubomedusae injuries)[2,5]. In some swimmers, serial envenomations can cause allergic phenomena of varying severity[8,9]. An important factor for the evaluation of the severity of the envenomation is the observation of erythematous plaques on the victims' skin as the most serious injuries are caused by cubomedusae and Portuguese man-o'war, which cause a small number of long, criss-crossed marks (corresponding to the tentacles) that are more than 20 cm in length. However, injuries caused by *C. lactea* and *O. sambaquiensis* leave rounded, short marks that correspond to the body and the tentacles of the animal[8,9]. The observation of these signs suggests a good prognosis for the victim. In the various outbreaks observed in the region, an alternation of these two species, always with absolute the predominance of one species was noted[7].

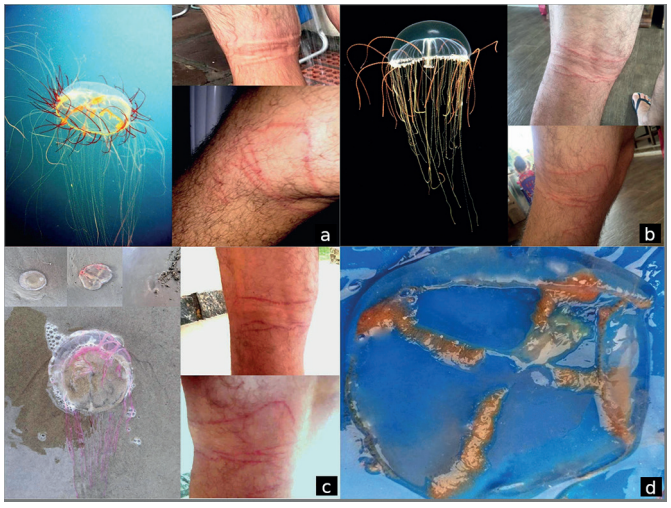

FIGURE 1: *Olindias sambaquiensis* (live specimens in the water, on the beach and specimen in the laboratory (a, b, c, d). Sequence of an envenomation caused by *O. sambaquiensis* at Tramandaí beach at the time of occurrence, after 24 and 48 h (a, b, c).
Photos: Fábio Lang da Silveira, Álvaro Esteves Migotto e Mauricio Azevedo de Oliveira Costa.

The occurrence of more than 254,000 envenomations in two consecutive summers, throughout Rio Grande do Sul State are

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recorded in this report. Data was obtained from the 9th Battalion of the Fire Brigade of the Rio Grande do Sul State. Of these, 193,111 envenomations were recorded between December 15, 2017 and March 3, 2018 and 57,634 were recorded between December 15, 2018 and January 25, 2019. The state was not described as being subject to outbreaks, although it presents sporadic injuries and is in the South Region, an area where cnidarian envenomations are common and seasonal. The main beaches are located on the north coast of the state, between Tramandaí and Torres. In the Tramandaí estuary (29 ° 97 'S, 50 ° 11' W), samplings with waiting nets recorded the presence of *O. sambaquiensis* specimens as the only toxic species among the jellyfish collected on December 7, 2019 **(Figure 1).** On the southern coast of the state, the jellyfish collection, performed by means of 10-min bottom trawls, aboard the Larus Oceanographic Speedway of the Federal University of Rio Grande, showed a high number of specimens of *O. sambaquiensis*. A total of 153 jellyfish of this species (~ 63% of the jellyfish collected) were collected in São José do Norte (32 ° 14 'S, 52 ° 02' W), plus 9 jellyfish (100% of the jellyfish collected) at the entrance of the Patos Lagoon estuary (32 ° 15 'S, 52 ° 02' W) on December, 21 2018. The absence of other endemic species causing accidents (e.g. *C. lactea* and cubomedusae) along these samplings shows that aggregations of *O. sambaquiensis* were responsible for the outbreak observed this summer.

The seasonal pattern of occurrence of the species on the coast of Rio Grande do Sul is similar to that occurring on the northern coast of Argentina, where the population peaks of the species are observed during the summer, resulting in a large number of envenomations in swimmers[10]. In other regions of Brazil, the species occurs throughout the year, but in greater abundance during distinct periods of high season, such as during winter on the south coast of São Paulo, autumn-winter in Rio de Janeiro and Paraná and spring in Florianópolis[11].

The envenomations observed caused moderate-to-severe pain in all cases and were manifested by irregular plaques and short linear marks, compatible with the injuries caused by *O. sambaquiensis*[9]. There were no severe envenomations, despite the large number of occurrences. Treatment with ice marine water compresses and vinegar baths was used massively and was successful in reducing the intensity of pain in patients. The description of this outbreak was carried out in the observations of the authors and data of the Fire Department of Rio Grande do Sul State. Only one case was documented in the place, which disallows this communication of an authorization of Ethics Committee in Human Experimentation.

The images demonstrate typical cases that have been observed in patients affected by the outbreak, with initial short, linear plaques of the urticariform aspect, that evolved to superficial necroses, giving a hyperchromic aspect to the lesions **(Figure 1)**. We conclude that the outbreaks are now seasonal in the South region and that the species involved do not cause major envenomations, but vital efforts are needed to prevent injuries and to provide information to the local population.

Conflict of interest

The authors declare that there is no conflict of interest.

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