



## Seabather's eruption: report of fourteen cases

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### ABSTRACT

Seabather's eruption is a papulo-pruritic dermatitis caused by the nematocysts of the larvae of the jellyfish *Linuche unguiculata* retained in the clothing fibers. Previously reported in Brazil, this work describes fourteen cases that occurred in the State of Santa Catarina, in southern Brazil. The new cases observed over a short period of time (the first half of January, 2012), at the height of the summer season, should alert health teams to possible epidemics on the coast of the state of Santa Catarina.

**Key words:** Cnidaria, Dermatitis, Nematocysts, Public health, Southern Brazil.

### INTRODUCTION

Seabather's eruption (SBE) is a dermatitis clinically characterized by intensely pruritic erythematous papules located mainly in areas of the body covered by a bathing suit during, or shortly after, exposure to seawater (Haddad Jr 2008, Rossetto et al. 2009).

The diagnosis of the disease is based on clinical and epidemiological factor, and it responds well to treatment with a combination of systemic antihistamines and topical corticosteroids. The prognosis is good, and the dermatitis may evolve into spontaneous resolution in one or two weeks (Haddad Jr 2008, Rossetto et al. 2009).

SBE is caused by entrapment of planula larvae of the jellyfish *Linuche unguiculata* under bathers' clothes, which in contact with the victim's skin, triggers the nematocysts (or cnidocytes) using its stinging cells for defense, causing dermatitis (Haddad Jr 2008, Rossetto et al. 2009). The planula larvae are about 0.5 mm in size, and become trapped by the fibers of the bathing suit, especially when the swimmer leaves the sea and the bathing suit drains the water, acting like a filter (Rossetto et al. 2007, 2009). The process can also be triggered by contact with freshwater, or pressure (Haddad Jr 2008, Rossetto et al. 2009).

Puertas et al. (2001) state that the disease may be caused in three stages of the life cycle of

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*L. unguiculata* (Efira, planula larvae, and adult jellyfish), and that it differs clinically according to the morphology of the skin lesion and time of year of the incident.

*L. unguiculata* is a small Scyphozoa, approximately 1.5 cm in diameter, and is common in marine waters of the Caribbean, Gulf of Mexico and Western North Atlantic (Florida, Cuba and Bahamas), where there are numerous reports of SBE, which can reach epidemic proportions (Haddad Jr 2008, Rossetto et al. 2009, Haddad Jr et al. 2002).

*L. unguiculata* was identified by Silveira and Morandini (1998a, b), off the Brazilian coast, in São Sebastião Channel, state of São Paulo, and then in the Arvoredo Island Biological Reserve in Florianópolis in the state of Santa Catarina, in Rio de Janeiro (Morandini et al. 2005) and in the state of Ceará (Morandini et al. 2006).

The first published Brazilian cases of seabather's eruption were reported in 2001 by Haddad Jr and collaborators, occurring in the municipality of Ubatuba, in the State of São Paulo, close to the São Sebastião Channel (Haddad Jr et al. 2001). In that same year, Rossetto et al. (2007) observed the first cases of the disease on the north coast of Santa Catarina. This paper presents fourteen cases of the SBE in southern Brazil, and alerts health teams to possible epidemics on the Santa Catarina coast.

#### MATERIALS AND METHODS

We communicate fourteen cases of seabather's eruption observed in patients in a private practice in the Balneário Camboriú (26° 59 '26 "S 48° 38' 05" W), a town on the northern coast of Santa Catarina, between December 23, 2011 and January 09, 2012.

The sources of information were the medical records of patients with clinical diagnosis of SBE, supplemented with data recorded in a protocol to register cnidarian envenomation (Box 1).

#### BOX 1

##### Protocol assessment of incidents with jellyfish.

PROTOCOL No.

1 - Name (initials):

2 - Age:

3 - Sex:

4 - Date of medical consultation:

5 - Date and time of occurrence:

6 - Beach where the event occurred:

7 - Is the victim a local resident?

8 - Is the victim a tourist?

9 - Is this the first episode?

10 - Circumstances (swimming, fishing, diving, walking on the beach):

11 - Body part affected:

12 - Organisms:

Portuguese man o' war ( ) - Jellyfish ( ) - The organisms were not seen in the water ( )

The organisms were not seen in the water but there were Portuguese man o' war ( ) and/or jellyfish ( ) around the beach

The organisms were not seen in the water but the marks on the skin indicate Portuguese man o' war ( ) and/or jellyfish ( )

13 - Types of skin lesions:

15 - Systemic effects: a) Pain (time and intensity): b) Nausea/Vomiting: c) Fever d) Malaise: e) Shortness of breath: f) Sneezing: g) Tachycardia:

16 - Self-treatment: a) Urine: b) Alcohol c) Ice: d) Vinegar e) Other (specify):

17 - ELISA test:

18 - Date of collection:

19 - Treatment:

20 - Evolution:

#### RESULTS AND DISCUSSION

All the incidents occurred on the north coast of the state of Santa Catarina, in the South region of Brazil. Most of them occurred at Balneário Camboriú beach (78.7%), followed by Laranjeiras Beach (14.2%) in the municipality of Camboriú, and Mariscal Beach (7.1%) in the municipality of Bombas (Table I). These figures reflect the respective numbers of tourists visiting these beaches ([www.santur.sc.gov.br](http://www.santur.sc.gov.br)).

**TABLE I**  
**Summary of the results of the occurrence of**  
**fourteen cases of Seabather's eruption (SBE) on**  
**the north coast of Santa Catarina.**

Age	Gender	Date of occurrence	Beaches	Effects	Affected body parts (frequency of occurrence)	Treatment and evolution
1 to 14 years - 92.9%	42.9 % Female	December 23, 2011 to January 09, 2012	B. Camboriú – 78.7% Laranjeiras – 14.2% Bombinhas – 7.1%	Skin lesions (erythematous papules) - 100.0%	Glutes - 100.0% Abdomen - 64.3% Thigh - 57.1% Thorax - 50.0% Back - 28.6% Legs - 14.3%	Antihistamines and topical corticosteroids
Only one case aged 32 years	57.1 % Male			Systemic - 0.0%		

There was a single episode per victim in all cases, with the exception of a surfer who suffered two episodes on the same beach over a period of 15 days (Balneário Camboriú beach).

Males and female were affected in equal proportion. All the victims were under the age of 15 years, except for one adult. The ages ranged from



**Figure 1** - Female child, surfer, with pruritic erythematous papules located on the chest and abdomen.



**Figure 2** - Female child, habitual frequenter of Camboriú Beach (SC) with discrete erythematous papules located in the gluteal region seven days after the poisoning.

one to thirty-two years, with an average of nine of age. Children were more commonly affected, suggesting longer exposure to water during bathing, and possibly, more sensitive skin (Haddad Jr et al. 2001, Rossetto et al. 2009).

Most cases (78.5%) reported burning and itching while swimming, which gradually increased in intensity, especially at night. All patients had erythematous papules located in the areas covered by the bathing suits (Figs. 1, 2 and 3). In surfers, the lesions also partially involved the abdomen, chest and thighs (local contact with the surfboard). The diagnosis in all cases was clinical, and no systemic reactions, like malaise, fever, sore throat, abdominal pain, headache, cough, and diarrhea (Calonje et al. 2011), were





**Figure 3** - Detail of pruritic erythematous papules located on the right gluteal region.

observed. The histopathology was not characteristic, and nematocysts were not visible on the skin that could have been useful in the diagnosis (Wong et al. 1994).

The toxins of cnidarians are composed of a complex mixture of enzymes and peptides with antigenic properties. The ELISA technique enables the demonstration of specific reactivity with IgG antibodies to *L. unguiculata* in the victims' serum (Burnett et al. 1995). The authors stored the serum of the majority (60.5%) of the thirty-eight victims, for serological tests in the future (Rossetto et al. 2009).

All cases were treated with a combination of systemic antihistamines and topical non-fluorinated corticosteroids.

The use of topical vinegar irreversibly deactivates the nematocysts of *L. unguiculata* and prevents future discharges, but does not have any effect on already-activated toxins (Kumar et al. 1997, Puertas et al. 2000). The authors found no

previous use of vinegar to treat the occurrence in the region. Further studies should be carried out in the region, due to the recent distribution of leaflets sponsored by the 66th Congress of the Brazilian Dermatology Society (SBD) and the General Fire Brigade of Santa Catarina. The pamphlet contains guidelines for treating injuries caused by jellyfish and Portuguese man-of-war, seeking to standardize the first aid given to victims, for whom the lifeguards are usually the first contact. The pamphlet recommends the immediate use of vinegar, at the beach where the incident occurred.

The patients showed good improvement, with the disappearance of symptoms after an average of seven days of treatment, except one case in which the lesions developed to form pustules in the gluteal region, but cleared up after seven days of topical mupirocin.

Due to intense scratching, the disease can progress to secondary bacterial infection in the lesions. The authors observed a surfer who wore neoprene and presented acneiform lesions. Additionally, the planula larvae can penetrate the tissues of most bathing suits, including neoprene (Rossetto et al. 2009).

Morandini et al. (2005) reported the presence of *L. unguiculata* in the form of polyps off the coast of Santa Catarina, at Arvoredo Island Biological Reserve in Florianópolis, near the beaches where the incidents described here occurred. Although the authors have not yet identified the location of the planula larvae of *L. unguiculata*, plankton collections are currently taking place at Balneário Camboriú beach.

From an epidemiological and clinical perspective, the cases reported are typical: the majority of cases began while bathing in the sea; the victims were mostly younger than 15 years, for whom the exposure period in the water is generally longer than in adults; the dermatitis was manifested by extremely pruritic erythematous papules in the area covered by the bathing suits. The authors

emphasize that the incidence of dermatitis in Brazil is probably underestimated because many victims do not seek medical attention (Rossetto et al. 2007, 2009). This is possibly due to high level of spontaneous resolution in two weeks. Moreover, there is a lack of knowledge of the disease among the population and health professionals.

The envenomation continued to increase in the region, and thirty-eight cases were published by Rossetto et al. (2009), involving six (42.8%) in fourteen municipalities and eleven (17.2%) of the sixty-four beaches of the North coast of the state of Santa Catarina. Three of these beaches had previous records of incidents by *L. unguiculata*. In those cases, the diagnosis was made in the first half of January 2012, the same period reported in this paper.

#### CONCLUSIONS

The authors conclude that the diagnosis of cases in a short period of time, in a localized area where there are high numbers of bathers and tourists at the height of summer season, highlights the growing incidence of the occurrence in the region. The clinical features of the disease should be widely disseminated, as more attention to the problem can show high levels and even future outbreaks of SBE, as recorded in the Gulf of Mexico, the Caribbean and Florida.

Associated with this, the small size of the organisms and the late manifestation of skin irritations, and the correlation between climatic conditions and their occurrence in water, are not as easy to determine as they are other species of jellyfish occurring on the coast of Santa Catarina (Resgalla Jr et al. 2011).

#### RESUMO

O Prurido do Traje de Banho (PTB) é uma dermatite papulo-pruriginosa provocada pelos nematocistos de larvas da cífomedusa *Linuche unguiculata* retidas nos tecidos dos trajes de banho. Fenômeno já relatado no Brasil, este trabalho descreve quatorze casos ocorridos no

Estado de Santa Catarina, sul do Brasil. Os novos casos observados em um curto período de tempo (primeira quinzena de janeiro de 2012), no auge da temporada de verão, devem alertar equipes de saúde para possíveis surtos epidêmicos no litoral do estado de Santa Catarina.

**Palavras-chave:** Cnidária, Dermatites, Nematocistos, Saúde pública, Sul do Brasil.

#### REFERENCES

- BURNETT JW, KUMAR S, MALECKI JM AND SZMANT AM. 1995. The antibody response in seabather's eruption. *Toxicon* 33: 99-104.
- CALONJE E, BRENN T, LAZAR A AND MCKEE PH. 2011. McKee's pathology of the skin - 4<sup>th</sup> edition, Elsevier.
- HADDAD JR V. 2008. Animais Aquáticos Potencialmente Perigosos do Brasil: Guia Médico e Biológico. São Paulo, Editora Roca, p. 12-41.
- HADDAD JR V, CARDOSO JLC AND SILVEIRA FL. 2001. Seabather's eruption: report of five cases in southeast region of Brazil. *Rev Inst Med Trop S. Paulo* 43(3): 171-172.
- HADDAD JR V, SILVEIRA FL, CARDOSO JLC AND MORANDINI AC. 2002. A Report of 49 cases of cnidarians envenoming from southeastern Brazilian coastal waters. *Toxicon* 40: 1445-1450.
- KUMAR S, HLADY WG AND MALECKI JM. 1997. Risk Factors for Seabather's Eruption: A prospective Cohort Study. *Public Health Rep* 112: 59-62.
- MORANDINI AC, ASCHER D, STAMPAR SN AND FERREIRA JFV. 2005. Cubozoa e Scyphozoa (Cnidária: Medusozoa) de águas costeiras do Brasil. *Iheringia, Ser Zool* 95(3): 281-294.
- MORANDINI AC, SOARES MO, MATHEWS-CASCON H AND MARQUES AC. 2006. A survey of the Scyphozoa and Cubozoa (Cnidaria, Medusozoa) from the Ceará coast (NE Brazil). *Biota Neotrop* 6: 1-8.
- PUERTAS LS, LUTZ LL, COTERA EH AND BURNETT JW. 2000. Eruption caused by a deep-sea cnidarian. *Contact Dermatitis* 42: 280-281.
- PUERTAS LS, RAMOS ME, ARAMBURO C, COTERA EPH AND BURNETT JW. 2001. One *Linuche* mystery solved: all 3 stages of the coronate scyphomedusa *Linuche unguiculata* cause seabather's eruption. *J Am Acad Dermatol* 44: 624-628.
- RESGALLA JR C, ROSSETO AL AND HADDAD JR V. 2011. Report of an outbreak of stings caused by *Olindias sambaquiensis* muller, 1861 (Cnidaria: Hydrozoa) in southern Brazil. *Braz J Oceanogr* 59(4): 391-396.
- ROSSETTO AL, DELLATORRE G, SILVEIRA FL AND HADDAD JR V. 2009. Seabather's Eruption: A clinical and epidemiological study of 38 cases in Santa Catarina State, Brazil. *Rev Inst Med Trop São Paulo* 51(3): 169-175.
- ROSSETTO AL, MORA JJ, CORREA PR, RESGALLA JR C, PROENÇA LAO, SILVEIRA FL AND HADDAD JR V. 2007. Prurido do traje do banho: Relato de seis casos no Sul do Brasil. *Rev Soc Bras Med Trop* 40(1): 78-81.

- SILVEIRA FL AND MORANDINI AC. 1998a. Asexual reproduction in *Linuche unguiculata* (Swartz 1788) (Scyphozoa: Coronatae) by planuloid formation through strobilation and segmentation. Proc Boil Soc Washington 111: 781-794.
- SILVEIRA FL AND MORANDINI AC. 1998b. New observations on dormancy mechanisms in *Linuche unguiculata* (Swartz, 1788) (Scyphozoa: Coronatae). Bol Mus Nac N S Zool Rio de Janeiro 393: 1-7.
- WONG DE, MEINKING TL, ROSEN LB, TAPLIN D, HOGAN DJ AND BURNETT JW. 1994. Seabather's eruption: clinical, histologic, and immunologic features. J Am Acad Dermatol 30: 399-406.