

## Profile of skin diseases in a community of fishermen in the northern coast of the state of São Paulo: the expected and the unusual\*

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DOI: <http://dx.doi.org/10.1590/abd1806-4841.20197174>

**Abstract:** **BACKGROUND:** The fishing colony of the Picinguaba neighborhood is located at the northern end of the coast of the state of São Paulo. It has about 300 residents, of which approximately 100 are professional fishermen.

**OBJECTIVES:** This study aimed to identify the main dermatoses of the community in comparison with other populations, and their frequency.

**METHODS:** The dermatoses were identified and tabulated for two years, in a prospective study carried out on monthly trips to the fishermen's colony in Picinguaba.

**RESULTS:** One hundred and eighteen patients were attended and followed up, which is equivalent to about 1/3 of the colony's inhabitants. Of these, 43 were children (under the age of 14) and 75 were adolescents and adults. The diseases observed were catalogued according to the age groups. Although most dermatoses in the community were similar with those observed in the general population, some specific cases could be seen, such as folliculitis on the legs of fishermen and an unexpected low frequency of actinic lesions in the colony, as well as dermatitis by aquatic animals.

**STUDY LIMITATIONS:** The limitations were monthly attendance and the spontaneous demand of the patients.

**CONCLUSIONS:** The finding of community-specific dermatoses and the low incidence of malignant and pre-malignant tumors associated with sun exposure needs further studies for better clarification.

**Keywords:** Animals, venomous; Bacterial infections; Bites and stings; Fishing industry; Folliculitis; Leishmaniasis, mucocutaneous; Skin diseases; Solar radiation

### INTRODUCTION

The fishermen colony in the Picinguaba neighborhood is located at the northern end of the coast of the State of São Paulo (Figure 1). It is one of the oldest colonies in the State, for centuries in the same area, in the frontier with the State of Rio de Janeiro (Latitude: 23° 26' 02" S; Longitude: 45° 04' 16" W). It has around 300 inhabitants, of which approximately 100 are professional fishermen, who utilize ancient forms of fishing and fish trading. Up until nearly 50 years ago, they were virtually isolated from the urban civilization, and could only access the head office of the municipality of Ubatuba through primitive canoes, what increased isolation due to the long trips in order to buy supplies and other chores.

Because of the maintenance of ancient habits (due to the little influence of the environment in the inhabitants' way of living), it is possible to observe many practices that did not exist in other areas of the municipality. Currently, the area hosts a large flow of tourists in search of boat trips to the closest islands, what led many fishermen to leave their fishing activities behind and become tour guides. In addition, youngsters are no longer interested in the occupation and many are quitting their jobs and selling their fishing tools. This annually reduces the amount of professional fishermen in the area.

Despite all this, there are still old habits, beliefs and folk remedies in the area. This motivated this study, which aimed to

Received 30 March 2017.

Accepted 01 January 2018.

\* Work conducted at the Department of Dermatology, Faculdade de Medicina de Botucatu, Universidade Estadual Paulista, Botucatu (SP), Brazil.

Financial Support: The entirety of the study was financed by a FUNADERSP project, an organ that stimulates Science of the Sociedade Brasileira de Dermatologia, Sectional São Paulo State.

Conflict of interest: None.

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FIGURE 1: Top: view of the Pinguaba beach. Bottom: local Health Center and map with the location of the colony in Brazil  
Photographs: Vidal Haddad Junior

identify the main dermatoses in the community and compare them to other populations, besides evaluating their frequency and their specific relationship with the community.

#### METHODS

The dermatoses were identified and tabulated during 2 years in a cross-sectional, prospective study, conducted in monthly trips to the fishermen colony of Pinguaba. Assistance was provided to the colony's inhabitants during this period through an agreement with the Department of Health of the municipality of Ubatuba, that allowed the use of the local health center, located in a central region of the neighborhood, near the fishermen' beach. Self-referred patients were consulted. Pinguaba is bounded by the sea and by the Atlantic Forest, occupying a small strip between both environments. The consultations were registered with files and images, with the patients returning monthly to be examined. Those who could be treated at the Health Center continued follow-up until discharge. Those who needed surgical treatment or medications supplied by the Health System were referred to the Centro de Saúde Central, in Ubatuba. This study was approved by the Ethics Committee on Human Research, Faculdade de Medicina de Botucatu, Universidade Estadual Paulista, under the registration CAAI 59887316.5.0000.5411, report number 1.759.505 and by the Secretary of Health of the municipality of Ubatuba.

#### RESULTS

One hundred and eighteen patients were seen and followed, what is equivalent to 1/3 of the colony's inhabitants. Of

these, 43 were children (younger than 14 years) and 75 were adolescents and adults. The age of the patients ranged from 1 month to 89 years, with a mean of 48 years among the 75 adults seen with multiple complaints. Male patients were the majority (68 or 57.6%). Conditions seen are shown in tables 1 and 2.

TABLE 1: Conditions and anatomic sites seen in 43 children of the colony of Pinguaba during the study

Conditions	Site
<b>Inflammatory diseases</b>	
Pityriasis alba	Face (6) - Thorax (4)
Eczemas	Typical atopic distribution (7) - Contact areas (2)
<b>Infectious and parasitic diseases</b>	
Scabies	Typical areas (8)
Pediculosis	Typical areas (4)
<i>Larva migrans</i>	Feet (5)
<i>Molluscum contagiosum</i>	Cervical region (2) - Abdomen (1)
Superficial mycoses (tineas)	Scalp (2) - Thorax (1) - Disseminated (1)

TABLE 2: Conditions and anatomic sites seen in 75 adults of the colony of Pinguaba during the study

Conditions	Cause/Site
<b>Inflammatory diseases</b>	
Seborrheic dermatitis	Glabella (1)
Psoriasis	Typical areas (1)
<b>Vitiligo</b>	Periocular (1)
Eczemas	Stasis (2) - Nummular (1) - Circumscribed neurodermatitis (3) - Contact: thorax (1), earlobe (1)
Lichenoid amyloidosis	Pretibial (1)
<b>Infectious and parasitic diseases</b>	
Folliculitis in fishermen	Legs (5)
Bacterial infections	Hands - after trauma with fish (5)
Larva migrans	Feet (4)
Mucocutaneous leishmaniasis	Arms (3) - Leg (1)
Superficial mycoses (tineas)	Feet (4) - Nails (8) - Disseminated (1)
Superficial mycoses (candidiasis)	Paronychia (6)
Injury by venomous fish	Hands and feet: Catfishes (4) - Stingrays (2) - Scorpionfishes (2)
<b>Malignancies</b>	
Actinic keratoses	Hand (1) - Thorax (2)
Seborrheic keratoses	Back (1)
Solar melanosis	Face (2) - Hands (6)
Fibrous papule of the nose	Nasal ala (2)

**DISCUSSION**

The dermatoses observed in the colony’s children were similar to those observed in other epidemiological studies conducted in the country, with eczemas, tineas and zoonoses the most frequently registered. In general, the conditions diagnosed in children were of easy resolution, requiring a lower number of visits until cure was achieved.<sup>14</sup>

In regards to adults, some factors should be considered in the analysis: despite the representative number of patients (75), we only had a small fraction of patients and, more importantly, the patients were seen monthly, what limited the documentation of the course of acute diseases, such as injuries with aquatic animals and superficial mycoses. Still, we believe we traced an accurate profile of the dermatoses in the community, with some curious aspects in comparison to other epidemiological studies that will be referred to individually.<sup>5,6</sup>

Injuries with aquatic animals were caused mainly by fish, which is expected since this is the most common work-related injury among fishermen.<sup>7-9</sup> Regardless of the common knowledge on the risks, 8 accidents occurred. Two of them were caused by scorpionfish (*Scorpaena* sp.), and were severe injuries with systemic envenomation.<sup>10</sup> All envenomations (by catfish, stingrays and scorpionfish) were treated at the time of injury, by the fishermen themselves, with alcohol solution and macerated leaves of *erva-baleeira* or black sage (*Cordia verbenacea*), used for centuries by coastal communities in Santa Catarina and by countryfolks in São Paulo and Rio de Janeiro States for acute inflammations, with potent relieving effect.<sup>11,12</sup> Recently, a commercial topical anti-inflammatory was developed from this plant. The inhabitants were not aware of the first-aid treatment involving soaking in hot water, which was adopted with good results after the first accidents seen. Injuries by venomous fish are manifested by intense local pain and occasional necrosis on the area of venom injection through stings or spines (Figure 2).<sup>10,11,12</sup>

Since the Atlantic Forest is very well preserved in the region and almost reaches the beaches, the fishermen and their families are permanently in contact with wild animals. This puts them at risk of acquiring the classic form of American tegumentary leishmaniasis, transmitted when entering the forest from an existing zoonosis. The natural cycle of the disease occurs in rodents and marsupials and sand flies (phlebotomine) transmit protozoan promastigotes to humans by accident. When the disease is established (in the form of classic ulcers with raised borders and granulomatous bottom), the inhabitants of the colony themselves suspect the disease and go to the local Health Center to obtain a referral to the Central Health Center, responsible for the specific medication (Figure 3). Four patients were seen with the typical form of the disease but the reports of those affected indicate that a higher number of sick people can be found in the populations living in the forest region (areas of Atlantic Forest close to the beaches that are known as the “wilderness”).<sup>6</sup>

Putting together both the pediatric and adult patients, nine active cases of *larva migrans* were seen. This is important because *larva migrans* is one of the parameters that demonstrates loss of the village’s customs. The disease did not exist in the colony’s beaches and appeared about 10 years ago, with the higher influx of tourists in the beaches’ sands. Pets followed their owners and used the sand to



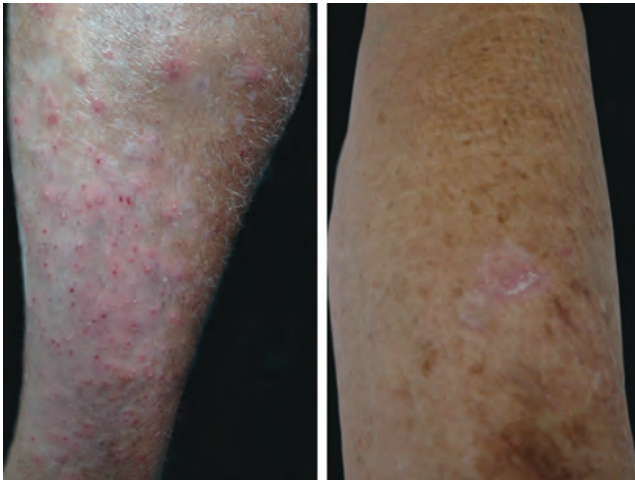
FIGURE 2: Left: marine stingray and injury in a colony’s fisherman. Right: injury caused by a catfish. Close up: *erva-baleeira* or black sage (*Cordia verbenacea*), used in alcohol solution for control of pain and inflammation caused by envenomations  
Photographs: Vidal Haddad Junior



FIGURE 3: Left: cutaneous leishmaniasis with 1-year course in a patient going to the forest. Right: *larva migrans* in a colony’s child  
Photographs: Vidal Haddad Junior

defecate and urinate. Over time, hookworms’ larvae occupied passageways and the sand of local beaches. Added to this fact, countryfolks walk barefoot most of the time, what lead to a currently uncontrolled outbreak, reflecting in the statistics of the consultations (Figure 3). For certain, the number of people affected is higher than what we observed, but the monthly consultations hindered a more accurate assessment of the incidence of this problem.<sup>6</sup>

Regarding chronic lesions caused by sun damage, we expected to find many patients in the adult population with a large number of actinic lesions (mainly in the elderly, due to the time of exposure to solar radiation). Patients older than 40 years had tanned skin and few lesions were observed. The skin of these patients is thick, coppery in color, many times coinciding with light-colored eyes. Only one basal cell carcinoma and a few actinic keratoses were recorded in 75 patients working permanently under the sun, suggesting an adaptive mechanism (Figure 4). Consanguineous



**FIGURE 4:** Left: typical fishermen folliculitis, who keep their legs constantly moist while loading and unloading the boats. Right: actinic keratoses in a fisherman, uncommon in the sample studied  
Photographs: Vidal Haddad Junior

marriages are not common in the community since the number of inhabitants is not that small, and there is some contact with other colonies via boat trips before the advent of roads.

These clinical results match a previous study that approached clinical and laboratory data of 19 fishermen and observed that, when compared to protected skin, elastosis, ectasia of vessels in the dermis and the number of cells in the areas of the epidermis between the rete ridges were significantly more frequent in the exposed skin, as well as the markers CD45RO+, CD68+ and mast cells. Since the barrier effect to the penetration of the solar radiation in the skin is represented by elastosis, increased number of cells in the layers between the rete ridges, increased melanocytes and dermal vessels, represented by ectasia, it is possible that there is a toler-

ance effect to solar damage in these communities that probably also inhibits the development of immunosuppression. Our plan is to undertake genetic studies in the population of Picinguaba to better evaluate what activates these factors of protection.<sup>13</sup>

Due to the fact the fishermen spend long periods of time with the distal third of their legs immersed in water (for loading and unloading canoes, for example), five cases of folliculitis were observed (Figure 4). Histopathologic examination of the folliculitis was nonspecific and bacterial culture did not grow any organisms, suggesting an obstructive or irritant mechanism of the water in triggering the condition. The author already found similar cases in freshwater fishermen, who also spend long periods of time with their legs immersed in water and, although common, dermatitis seems to be an occupational disease not yet described in fishermen. Disappearance of the lesions was more associated to prevention measures than to medical treatments.

#### CONCLUSIONS

Although the spectrum of dermatoses observed in the study is similar to the typical pediatric population, adult diseases had certain characteristics and particular features which deserve more studies, especially those related to the low rates of cutaneous malignancies and pre-malignant lesions in a population permanently exposed to the sun, to dermatitis not yet reported or even diseases that established in the community after an increasing loss of local character with the advent of tourism.<sup>14,15</sup> □

#### ACKNOWLEDGEMENTS


The entirety of the study was financed by a project of FUNDERSP (SBD-RESP). the author would like to thank the population of Picinguaba, the fisherman Elias Lopes de Oliveira in particular (*in memoriam*) and to the nurse Julene Saturnino Mariano da Silva, for the great help offered.

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## AUTHORS' CONTRIBUTIONS

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Statistical analysis; Approval of the final version of the manuscript; Conception and planning of the study; Elaboration and writing of the manuscript; Obtaining, analyzing and interpreting the data; Effective participation in research orientation; Intellectual participation in propaedeutic and / or therapeutic of cases studied; Critical review of the literature; Critical review of the manuscript

**How to cite this article:** Haddad Jr V. Profile of skin diseases in a community of fishermen in the northern coast of the state of São Paulo: the expected and the unusual. *An Bras Dermatol.* 2019;94(1):24-8.