

## CASE REPORT

### THE VENOMOUS TOADFISH *Thalassophryne nattereri* (NIQUIM OR MIQUIM): REPORT OF 43 INJURIES PROVOKED IN FISHERMEN OF SALINÓPOLIS (PARÁ STATE) AND ARACAJU (SERGIPE STATE), BRAZIL

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#### SUMMARY

Fishes of family Batrachoididae are responsible for great number of injuries in fishermen in North and Northeast regions of Brazil. The genus *Thalassophryne* presents various venomous species of fishes found in the Brazilian coast, *T. nattereri* being the most common of them. The venom is ejected through two hollow spines on the dorsal fin and two on pre-opercular regions, which present a venomous gland in the base and can be erected or depressed by the fish. The manifestations of the envenoming were intense local pain, edema and erythema in 43 patients observed in Salinópolis (Pará State) and Aracaju (Sergipe State). There were no systemic manifestations, but necrosis was detected in eight and bacterial infection in ten injured fishermen. The circumstances of the contacts and therapeutic aspects are discussed. Envenoming by the genus *Thalassophryne* is important and frequent and should be considered of moderate severity grade, since there are not the excruciating pain or the massive local necrosis provoked by scorpionfishes (*Scorpaena*) or stingrays injuries nor the systemic manifestations that are the most important marker of severe envenoming.

**KEYWORDS:** Venomous fishes; Toadfishes; *Thalassophryne nattereri*; Venomous marine animals.

#### INTRODUCTION

Injuries provoked by toadfishes are common in the North and Northeast regions of Brazil<sup>1</sup>. The first reports and studies of the venom actions and clinic aspects of the envenoming caused by Brazilian toadfishes (*Thalassophryne nattereri* and *Thalassophryne punctatus*) were published by FRÓES, in 1932<sup>1</sup> and 1933<sup>2,3</sup>.

There are various species of fishes of the family Batrachoididae in the Brazilian coast, but *Thalassophryne nattereri* is the most common (Fig. 1). The Brazilian toadfishes have small to medium length (about 15 cm) and they are numerous in estuarine areas. Their venomous apparatus presents two dorsal fin and two gills cover hollow needlelike spines with venomous glands in the base (Fig. 2). The fish stays motionless in the sandy or muddy bottoms and the venom is injected in the flesh of the victim through the spines when the gland is pressured by stepping of a fishermen or bather. Experimental studies about the venom report the development of one potential antiserum to neutralize the nociceptive, edematogenic and necrotic effects of the venom<sup>5,6,7</sup>.

#### CASES DESCRIPTION

The authors observed 26 patients injured by niquims (*Thalassophryne*



Fig. 1 - *Thalassophryne nattereri*, the niquim or Brazilian toadfish. Note the venomous spines on the dorsal fin and gills cover.

*nattereri*) in Salinópolis (Pará State) in a fifteen-day period and 17 injured in the Vaza-Barris region (Aracaju, Sergipe State) in a ten-day period. The fishes collected by the victims were classified by an author (IAM) and were donated to the Ichthyology Collection of the "Universidade de Taubaté" (São Paulo State).

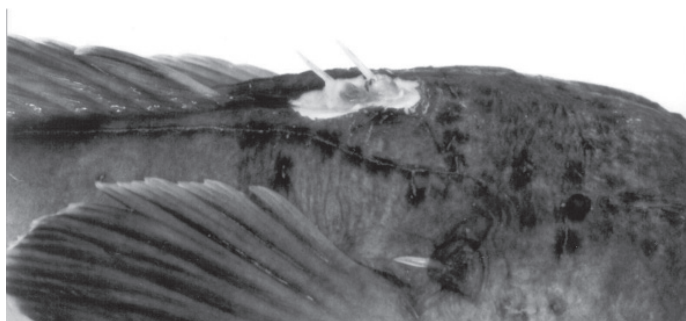
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**Fig. 2** - Preparation of the dorsal fin spines and venomous glands of *T. nattereri*. Note the sharp tips and the pre-opercular spine.

All the patients were male fishermen, aging from 7-64 years old. About 80% of the fishermen were injured stepping on the fish in shallow waters and 20% while removing the fishes from the fish-nets. The main manifestations were intense local pain, erythema and edema (100% of the victims – Fig. 3). Follow-up by one week was possible in 28 patients (65%). Four of these patients (14%) developed local blisters, nine (30%) presented local skin necrosis (Fig. 4) and 10 (36%) presented local bacterial infection that was treated with cefalexin 2 gr/day for 10 days. Skin necrosis and clinic bacterial infection in the same patient were noted in three fishermen, but the importance of venom, infection or both in the necrosis is not clear for us.



**Fig. 3** - Recent injury in a fisherman. The punctures reproduced the anatomy of the dorsal fin spines. There were erythema, edema and intense pain (6 hours).

Systemic manifestations were absent in the series, but there were agitation and malaise, probably caused by the pain. The immersion of the wounded extremity (the foot in 80% and the hand in 20% of the patients) in hot water decreased the pain, but it had no effect in the initial edema and erythema.

#### COMMENTS

Injuries provoked by toadfishes of the specie *T. nattereri* were reported in Brazil seventy years ago<sup>2,3,4</sup>. These fishes present the most advanced venomous apparatus of all the venomous fishes of the world,



**Fig. 4** - Cutaneous necrosis caused by *Thalassophryne nattereri* envenoming (4 days). Necrosis was observed in about 10% of the injured fishermen.

with hollow spines and glands in the base. They are very common in estuarine areas and provoke injuries with frequency, when they are stepped by fishermen and bathers.

In our series, envenoming should be classified as moderate based on the signs and symptoms presented. The pain was intense and the erythema and edema were present in the wound, but there were no systemic manifestations like dyspnea, cardiac arrhythmias, systemic bleeding nor the excruciating pain observed in injuries by scorpionfishes<sup>4</sup> or the massive and frequent areas of cutaneous necrosis caused by stingrays envenoming, especially freshwater stingrays<sup>4</sup>. However, the pain, inflammation and occasional necrosis caused severe incapacity of the victim and these facts and the frequency of the injuries in North and Northeast regions justify further clinic and experimental studies on toadfish envenoming.

#### RESUMO

##### **O peixe-sapo venenoso *Thalassophryne nattereri* (niquim ou miquim): relato de 43 acidentes provocados em pescadores de Salinópolis (Pará) e Aracaju (Sergipe), Brasil**

Os peixes da família Batrachoididae causam um grande número de acidentes em pescadores das regiões Norte e Nordeste do Brasil. O gênero *Thalassophryne* apresenta várias espécies no Brasil e a espécie *Thalassophryne nattereri* é a mais comum, todas apresentando veneno. O veneno é inoculado por duas espículas ocas na nadadeira dorsal e duas nas regiões pré-operculares, ligadas a uma glândula de veneno na base. Os envenenamentos causaram dor intensa, edema e eritema iniciais em 43 pescadores observados em Salinópolis (Pará) e Aracaju (Sergipe). Em todos os casos, não ocorreram fenômenos sistêmicos dignos de nota, mas ocorreu necrose local em oito pacientes e infecção bacteriana em dez. As circunstâncias dos acidentes são comentadas, assim como aspectos terapêuticos. Nossa conclusão foi que o envenenamento por *Thalassophryne* é importante e freqüente e deve ser considerado de média gravidade, em função de não haverem fenômenos sistêmicos, como observado nos acidentes por peixes-escorpião (*Scorpaena*) ou arraiais marinhas e fluviais.

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