

ENVENOMATION CAUSED BY THE CONSUMPTION OF PUFFERFISH LIVER¹

INTOXICAÇÃO CAUSADA POR CONSUMO DE FÍGADO DE BAIACU

Talita Rebelo FERREIRA², Igor Ricardo dos Santos CORRÊA², Silvana do Socorro Nascimento HOSHINO³, Carla Luciana Queiróz da SILVA³ e Pedro Pereira de Oliveira PARDAL⁴

SUMMARY

Purpose: to report case of poisoning by consumption of the liver of the fresh water baiacu (puffer fish), reported in Toxicological Information Center (CIT) in Belém, Pará, which occurred in 2008. **Case report:** female, 37 years, in July 2008, after ingestion of liver of the marine baiacu presented continuous emesis, gastric fullness, dyspnea, cephalalgia, dizziness, sialorrhea, dysphagia and paresthesia in the lower limbs. Symptomatic treatment was indicated, treatment support, gastric lavage, activated charcoal, saline cathartic and clinical care. When cured, patient was discharged. **Final Considerations:** alert health professionals to the risks of consumption of aquatic poisonous animals.

KEY WORDS: poisoning, tetrodotoxin, baiacu (pufferfish).

INTRODUCTION

The mortality rates of food poisoning vary among different series and countries¹. More than 250 diseases are described like group, with a variety of pathogens, such as: biological, physical and chemical². Patients with food poisoning often have gastrointestinal symptoms, but non-specific neurological symptoms may occur (by ingestion of natural toxins and others)³.

Fish considered poisonous or sarcotoxic have toxins in all tissues principally in the skin, muscles, viscera and gonads^{4,5}. Among the existing species in Brazil, is the baiacu (*Colomesus asellus*), which toxin (tetrodotoxin) has neurotoxic properties. Accidents caused by intake of this fish has been described occasionally, and may be called Fugism.⁶

The baiacú pertenced to family *Tetraodontidae* and to genus *Sphoeroides*. This fresh water Baiacu fish that lived in rivers of the Amazon⁷, can reach maximum size of 130mm, is carnivorous, consuming shellfish and other minor animals invertebrates⁸. The poisoning is caused by ingestion of tetrodotoxin (TTX) accumulated in the gonads and other visceral tissues of some fish known as *Tetraodontidae* (puffer fish), *Diodontidae*

(Porcupinefish) and *Molidae* (Sunfish), their toxic activity is influenced by evolution cycle⁹.

Generally, the muscle tissue of toxic fish is not toxic or carries toxin in small quantities, but there are exceptions¹⁰. Tetrodotoxin is a neurotoxin which specifically blocks the sodium channels in membranes of excitable cells⁸. This is the most potent non-proteic toxin known so far¹¹ and showed lethal potency⁵. Some literatures report that the production of alkaloids tetrodotoxin (TTX) and similars is due to bacteria, colonizing the gonads and visceral tissues, such as *Shewanella putrefaciens*, and others¹².

The gastrointestinal symptoms that frequently occur in such cases are: nausea, vomiting diarrhea and abdominal discomfort and the main neurological symptoms are paresthesias in the face; motor incoordination and generalised muscle weakness. Other symptoms: hypotension, dyspnea, hypoxia, bradycardia, death^{10,13,14} slurred speech, headache, hypertension and tachycardia¹⁵. The patient remains conscious and lucid until near the time of death. The death can occur within a few minutes or some hours⁶. In most cases, the clinical picture is benign, with little or no risk to health². However,

¹Municipal Hospital of Castanhal.

²Student of the Graduate Course in Medicine of Federal University of the Pará.UFPA.

³Student of the Graduate Course in Nursing of Federal University of the Pará.UFPA.

⁴Master and Professor of Infectious and Parasitic Diseases Discipline/Federal University of the Pará.UFPA.

there are situations that lead to significant morbidity and mortality, as in children, elderly, pregnant women and immunodepressed patients¹.

Treatment was supportive, including mechanical ventilation and monitoring of vital conditions^{15,16}. Immediate gastric lavage (until 4 hours of ingestion) and maintenance of blood pressure are indicated. There is no specific antitoxin^{1,17}. This kind of food poisoning is more frequent in Japan, for their eating habits, can be fatal in a short interval of time¹⁰.

Thus, for the rare reports of poisoning due this fish, it is necessary to know the consequences of ingestion of it, describing the symptoms presented by patients.

OBJECTIVE

Report the first case of poisoning by consumption of liver of baiacu (pufferfish) (Tetraodontiformes Tetraodontidae) in the northern region of Brazil, describing the symptoms presented by the patient.

METHODS

For this work, was used notify form of CIT (Center for Toxicological Information), which was reported the case, on July 2008.

CASE REPORT

Anamneses: female, 37 years, from the city of Maracanã, on state of Pará, occupation as fisher, on July 14th, 2008, was received at Municipal Hospital of Castanhal-Pará, Brazil, with continuous vomiting, gastric fullness, intense sialorrhea, dyspnea, difficulty of swallowing, motor incoordination.

Diagnostic: Three hours after mention ingestion of the baiacu fish liver for being slightly drunk, and taken to the referred hospital, where the case was notified to the Toxicological Information Center of Belém (CIT-Belém). The diagnostic was envenomation caused by the consumption of pufferfish liver.

Conduct: It was performed gastric lavage, symptomatic and supportive treatment, activated charcoal, saline cathartic and clinical observation. The following day

(07/15) the nursing service of the Hospital Municipal of Castanhal provided the results of the blood examination: Hematocrit 42% (N: 37% - 48%); Hemoglobin 14g/dL(N: 12 - 16 g/dL); Red blood cells 4.38 millions/mm³ (N: 4,2-5,9 milhões/μL/mm), leukocytes 6800 cells/μL/mm³ (N: 4.300-10.800 cells/μL/mm³), platelets 196,000 / mm³ (N: 150.000-350.000/mL). These results was considered Normal values.

Prognosis: the intense sialorrhea and motor incoordination were persist until the day after poisoning. The dyspnea at lower intensity cease after 2 days. The paraesthesiae in the lower limbs, dizziness and fatigue were persist for 5 days after poisoning. The symptoms described reducing progressively. The patient was discharged cured on 07/21 still with persistent headache for two days in her house.

When asked about the species of fish, after her recovery, she confirmed that the fish really was a fresh water baiacu fish, which she ingested by distraction. The genus were confirmed by Park Zoobotanic Museum Emilio Goeldi of the Pará, like pertenced genus Sphoeroides.

DISCUSSION

The presentation of this case is due the lack of reports of poisoning by this species in the Amazon region. Very few statistical data on such accidents in Brazil and abroad, although there are reports of deaths and serious poisonings caused by baiacus (pufferfish), and cases reported in poison centers and Centers of Toxicology by Brazil and throughout the world, but it is not possible to measure how many^{18,19}. For this, it becomes very difficult for an epidemiological study of this type of food poisoning in northern region of Brazil or in the whole country.

The diagnosis of tetrodotoxin poisoning was suggested by typical clinical manifestations together with temporal proximity to consumption of tetrodotoxin-containing fish. The patient had persistent emesis, gastric fullness, intense sialorrhea, dyspnea, headache, paraesthesiae in the lower limbs and motor incoordination, consistent with literature^{2,3,10,13,15,18,20,21,22}, but no diarrhea and cardiovascular effects. Many studies refer to death as one of the

consequences of intoxication^{14,15}. However, in this case, neurological manifestations prevailed. The duration of symptoms was 9 days coherent with literature described.

Concerning to the treatment was carried out gastric lavage, symptomatic and supportive treatment¹⁶, activated charcoal⁵, saline cathartic²³ and clinical care, which is recommended by literature (1). The predominant symptom in studies surveyed is paresthesia^{14,16,18,22}.

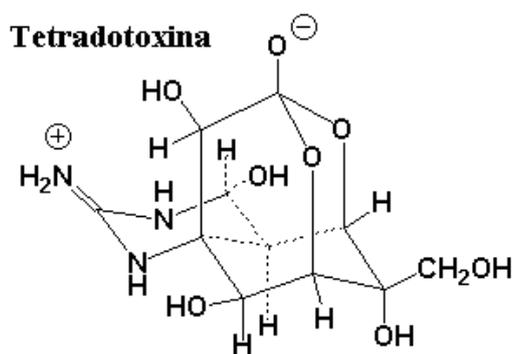
It is important that health professionals are aware of TTX poisoning because of the potential for severe and life-threatening effects. The patient should be admitted to hospital for observation until the peak of the clinical effects has passed²⁴.

CONCLUSION

Rare are the descriptions of cases of poisoning by consumption of baiacu (pufferfish), with a few in regional literature. This report is to alert health professionals to the risks of consumption of toxic shares of aquatic animals, as well as for the wider community of the danger that toxic fish can cause, due to indiscriminate consumption within homes.

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Picture 01: Molecular estrutura of the Tetrodotoxin.

SUMÁRIO

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RESUMO

Objetivo: relatar caso de intoxicação pelo consumo do fígado do peixe baiacú (*Colomesus asellus*), descrevendo a sintomatologia dos agravos ocorridos com a paciente notificada no Centro de Informações Toxicológicas (CIT) em Belém-Pará, ocorrido no ano de 2008. **Relato de caso:** sexo feminino, 37 anos, apresentou em 14 de julho de 2008 êmese incoercível, indigestão, dispneia, cefaleia, tontura, sialorreia intensa, dificuldade de deglutição e parestesia nos membros inferiores. A paciente havia ingerido fígado do baiacu, peixe venenoso. Foi indicado tratamento sintomático, tratamento de suporte, lavagem gástrica, carvão ativado, catártico salino e observação clínica. A paciente evoluiu com alta médica. **Considerações**

finais: alertar os profissionais de saúde para os riscos do consumo de animais marinhos venenosos.

DESCRITORES: Intoxicação, Tetradotoxina, Baiacú.

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CORRESPONDENCE TO:

Pedro Pereira de Oliveira Pardal; Talita Rebelo Ferreira,
Hospital Universitário João de Barros Barreto; Centro de Informações Toxicológicas;
Street: Mundurucus, 4487. Guamá. Zip Code: 66073,000.
Belém-Pará-Brasil.
Phone number: 3249-6370/ 08007226001.
E-mail: pepardal@ufpa.br; talitarebelo@gmail.com

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