

Kerionrhoea After Consumption of Blue Marlin

Guedes Laura Vilar^{1*}, Rebouças Daniel Santos² and Guedes Jorge Carvalho³

¹Universidade Federal da Bahia, UFBA, Clerkship student at Centro de Informações Antiveneno do Estado da Bahia, CIAVE, Brazil

²Director of Centro de Informações Antiveneno do Estado da Bahia, CIAVE, Brazil

³Department of Gastroenterology, Universidade Federal da Bahia, UFBA, Brazil

Abstract

Introduction: Kerionrhoea is a benign, self-limited symptom caused by indigestible wax esters contained within some fish, often escolar (*Lepidocybium flavobrunneum*) or rudderfish (*Centrolophus niger*).

Case report: A 53-years-old male patient presented, two hours after consumption of Blue Marlin (*Makaira nigricans*), oily orange discharge from the rectum, a condition known as kerionrhoea or gempylotoxism.

Discussion: The Blue Marlin does not contain indigestible lipids and it was not described as capable of inducing kerionrhoea in published articles. However, its diet sporadically includes some species of fish of the family Gempylidae, which was probably the source for intoxication.

Keywords: Fishes; Poisonous; Diarrhea; Toxicology; Fish oils

Introduction

Kerionrhoea (in Greek: “flow of wax”) is a gastrointestinal condition described as oily orange rectal discharge that occurs after consumption of fish with high content of non-saponifiable lipids (wax esters), which are non digestible by humans [1-5]. The condition has been classically associated with the consumption of escolar (*Lepidocybium flavobrunneum*) or rudderfish (*Centrolophus niger*) [2,3,5,6]. Eventually, the poisoning is called “gempylotoxism” in reference to the family Gempylidae also able to trigger the symptom [7].

Case report

In January 2010, an Antivenom Information Centre noted a case of a male 53-years-old patient, presenting oily substance discharge from rectum, which started two hours after consumption of Blue Marlin fish (*Makaira nigricans*) and achieved complete regression after 12 hours of onset. He did not present other symptoms as abdominal pain, malaise, nausea, vomiting or fever and rectal discharge was continuous and not noticeable, in small quantity. The patient did not seek medical attention during the presentation of symptoms, but sought the Antivenom Information Centre subsequently to clarify the nature of the condition. He reported previous ingestion of Blue marlin, but never presented similar symptoms. Four other people (one male and three female) ingested smaller quantities of the same fish, and remained asymptomatic. The fish had been purchased in the market, properly identified by label, and was prepared in the patient’s own residence in adequate hygienic conditions.

Discussion

The symptoms resulting from ingestion of fish with high content of wax esters was widely described in a retrospective cohort study in Australia [5] after a conference of the Public Health Unit of that country. At the time of the conference, several participants had health problems after eating rudderfish at lunch. The results showed that 46% of respondents who ate the fish had gastrointestinal symptoms (no significant difference between sexes) and the symptoms appear on average 2.5 hours after ingestion lasting on average 22 hours. Diarrhoea was the most frequent symptom, and 38% had defined as “oily diarrhea”. In this study, other symptoms included nausea, malaise, vomiting and

headache. Although the patients have been away from their activities, none of the affected sought medical assistance.

The poisoning presented in this case seems to be the condition described as kerionrhoea especially because of the description of symptoms, but also fits in the history of fish consumption, evolving with sudden onset of symptoms but not immediate, lasting about 24 hours.

Kerionrhoea been reported in other studies, which pointed out several species of fish capable of inducing the symptom, like *Lepidocybium flavobrunneum*, *Ruvettus pretiosus*, *Centrolophus spp.*, *Tubbia spp.*, *Scatophagus spp.* [1-3,6-9]. However, there are no reports in the literature of kerionrhoea secondary to the consumption of Blue Marlin.

One study pointed the misclassification of fishes as one of the obstacles for the proper market and consumption control of species that trigger kerionrhoea, especially the confounding between escolar (*Lepidocybium flavobrunneum*) and rudderfish (*Centrolophus niger*). According to the article, the real rudderfish does not contain the nondigestible wax esters that induce oily diarrhea [6]. The Hong Kong Centre for Food Safety published on its homepage a warning to the citizens about the consumption of escolar fish being sold as cod. In the same document, the institution explains that the dispensation of rudderfish without proper identification is prohibited in Hong Kong and warns consumers about the possibility of appearance of oily diarrhea [10].

The Blue Marlin (*Makaira nigricans*) differs greatly in appearance of the fishes which cause kerionrhoea. It has rapid growth, reaching 11,3 feet in length and 396 pounds, and has elongated structure in the form of needle. The species have commercial importance and is known to have high fat content, although there are no reports contain unsaponifiable

***Corresponding author:** Guedes Laura Vilar, Universidade Federal da Bahia, UFBA, Centro de Informações Antiveneno do Estado da Bahia, CIAVE, Brazil, Tel: 55 71 33363341; E-mail: lauvg@hotmail.com

Received March 06, 2012; Accepted May 21, 2012; Published May 23, 2012

Citation: Vilar GL, Santos RD, Carvalho GJ (2012) Kerionrhoea After Consumption of Blue Marlin. J Clin Toxicol 2:123. doi:10.4172/2161-0495.1000123

Copyright: © 2012 Vilar GL, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and

lipids [11]. The Blue Marlin belongs to the family Istiophoridae, that inhabits tropical and temperate waters and makes great migrations [12]. Its habitat shift behaviours allow a diet composed by variety of species, from animals that inhabit the surface to depth [11,13]. It was demonstrated that its diet may include fish of the family Gempylidae, capable of causing keriorreia, although these are not the basis of their usual diet [11,13].

The symptoms identified in this case is a condition already described in medical literature, with legal implications in the marketing of certain fish in some countries, although it is poorly known. Due to the characteristics of being a potentially embarrassing symptom and also self-limited, only a few affected by this poisoning seek medical care, difficulting the production of knowledge. We didn't find in the literature another case of keriorreia occurred in Brazil, although this certainly was not the first one.

The original source of wax esters in this case description remains unknown. Misidentification of the fish, witch could be actually a escolar or rudderfish is one possibility, although the Blue Marlin has physical peculiarities that make it difficult to confound. The hypothesis of contamination of food through the Blue Marlin's diet is plausible, although it has sporadic feature. Thus, it should not be considered a fish capable of inducing poisoning. It is worth noting that the ingestion of non-saponifiable lipids causes keriorrhoea only in susceptible individuals, and the nature of the predisposition remains unclear.

References

1. Caro RJ, Cosculluela AM, Beltran LF, Rihuete HMA (2011) Diarrea oleosa anaranjada. Keriorrhea inducida por pescado. An Pediatr 74: 67-68.
2. Givney RC (2002) Illness associated with rudderfish/escolar in South Australia. Commun Dis Intell 26: 440.
3. Ling KH, Nichols PD, But PP (2009) Fish-Induced Keriorrhea. Adv Food Nutr Res 57: 1-52.
4. Nichols PD, Mooney BD, Elliott NG (2001) Unusually high levels of non-saponifiable lipids in the fishes escolar and rudderfish Identification by gas and thin-layer chromatography. J Chromatogr A 936: 183-191.
5. Yohannes K, Dalton CB, Halliday L, Unicomb LE, Kirk M, et al. (2002) An outbreak of gastrointestinal illness associated with the consumption of escolar fish. Commun Dis Intell 26: 441-445.
6. Shadbolt C, Kirk M, Roche P (2002) Diarrhoea associated with consumption of escolar (rudderfish). Commun Dis Intell 26: 436-438.
7. Bagnis R, Berglund F, Elias PS, Van Esch GJ, Halstead BW, et al. (1970) Problems of toxicants in marine food products. 1. Marine biotoxins. Bull World Health Organ 42: 69-88.
8. Berman P, Harley EH, Spark AA (1981) Keriorrhoea -- the passage of oil per rectum -- after ingestion of marine wax ester. S Afr Med J 59: 791-792.
9. Gregory J (2002) Outbreaks of diarrhoea associated with butterfish in Victoria. Commun Dis Intell 26: 439-440.
10. Hong Kong Centre for Food Safety (2007) Risk in brief: Oily diarrhoea (keriorrhoea) after fish consumption.
11. Brock RE (1984) A contribution to the trophic biology of the blue marlin (*Makaira nigricans* Lacepede 1802) in Hawaii. Pac Sci 38: 141-149.
12. Cárdenas LA, Rodríguez DA, González NG, Magana FG (2006) Feeding the blue marlin *Makaira nigricans* of Mazatlan, Sinaloa, Mexico. Lat Am J Aquat Res 38: 281-285.
13. Shimose T, Shono H, Yokawa K, Saito H, Tachihara K (2006) Food and feeding habits of blue marlin, *Makaira nigricans* around Yonaguni Island, southwestern Japan. Bull Marine Sci 79: 761-775.