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Case report

Ciguatera fish poisoning in Brazilian traveler to Caribbean

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ABSTRACT

Ciguatera poisoning is the most common form of non-bacterial food-poisoning from fish worldwide. The incidence among Brazilians returning from high-risk regions is unclear because it is not a mandatory reportable disease. We describe a previously healthy 53-year-old Brazilian woman developed Ciguatera fish poisoning while traveling to Havana, Cuba. Physicians and health care professionals should advise travelers to avoid eating ciguatoxic fish species and potentially toxic fish species in the Caribbean islands. Despite the prognosis for most cases is good with a short duration of self-limited symptoms, early recognition of the identifying clinical features of ciguatera can result in improved patient care.

Ciguatera fish poisoning is a food-borne illness caused by the consumption of reef fish containing ciguatoxins.[1,2] Although most ciguatera cases are seen in endemic tropical areas, there is an increasing potential for cases to be encountered in temperate regions. In this report, we describe a healthy 53-year-old Brazilian patient that acquired ciguatera poisoning following travel to Havana, Cuba, for one week on business. She stayed in a hotel and ate foods prepared in restaurants. Three nights before her departure to Brazil, she ate a portion of a fish identified by the host as red snapper. Approximately 10 h after her meal, she went to the emergency room complaining of severe headache accompanied by pain in the back and joints, particularly her knees, abdominal discomfort associated with nausea and vomiting. She also described paresthesia of mouth and extremities, extremity pruritus and cold allodynia. The diagnosis of ciguatera poisoning was made on the basis of the epidemiological data and the association of gastrointestinal and neurological symptoms. Management was supportive including oral hydratation, antiemetics and antihistamines, and non-steroidal anti-inflammatory drugs.

After returning to Brazil, her symptoms persisted, with noted weakness depressed mood despite avoiding heavy exercise, alcohol and caffeine consumption. By three months after onset, the symptoms had resolved entirely, and the patient returned to her normal life without diet restrictions.

Ciguatera is a food-borne illness that occurs in inhabitants, and visitors of islands surrounded by coral reefs. Surface microalgae attached to biodetritus and macroalgae on coral reefs are associated with the causative toxins.[3] Certain strains of Gambierdicus toxicus and Ostreopsis lenticularis produce toxins that are modified in the stomach of fish. Ciguatoxins are predominately concentrated in the Caribbean. It has been estimated that less than 20% of ciguatera illnesses are reported, with the extent of underreporting likely to vary

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Table 1 – Case reports of ciguatera poisoning acquired in the Caribbean.

References	Location	Age/sex	Clinical manifestations	Outcome
1	Bahamas	15/M	Nausea, vomiting, diarrhea, tonic clonic seizures, altered mental status, encephalopathy, dysmetria	Alive
2	Cuba	39/M	Paradoxical dysesthesia, paresthesia, arthralgia	Alive
	Dominican Republic	68/M	Nausea, vomiting, diarrhea, generalized pruritus, paresthesia	Alive
	Dominican Republic	68/F	Nausea, vomiting, diarrhea, generalized pruritus, paradoxical dysesthesia	Alive
3	Cuba	4/M	Gastrointestinal manifestations, arthralgia	Alive
4	Dominican Republic	44/F	Nausea, vomiting, diarrhea, pruritus, myalgia, arthralgia, hypotension, bradycardia	Alive
5	Caribbean	29/M	Vomiting, diarrhea, myalgia, paresthesia, abdominal cramps	Alive
	Caribbean	23/F	Vomiting, diarrhea, myalgia, chill, abdominal cramps, allodynia, mydriasis, photosensitivity, dysphagia	Alive
6	Caribbean	45/M	Nausea, abdominal cramps, diarrhea, pruritus of the feet, paradoxical dysesthesia, paresthesia, fatigue	Alive
7	Aruba	35/M	Nausea, vomiting,abdominal cramps, diarrhea,sweating,myalgia,generalized pruritus	Alive
8	Mexico	32/F	Right hemiparesthesia, insomnia, pruritus, paresthesia myalgia, fatigue, sleepiness.	Alive
9	Tortola	45/F	Abdominal cramps, headaches, fatigue, paresthesias, paradoxical dysaesthesia	Alive
	Bahamas	44/M	Nausea, vomiting, chills, fatigue, headaches, paresthesias, paradoxical dysesthesia	Alive
	Dominican Republic	53/M	Pruritus of extremities, photosensitivity, toothache, paradoxical dysesthesia, paresthesias, fatigue	Alive
10	Caribbean	60/F	Fatigue, myalgia, diarrhea, pruritus, paradoxical dysesthesia	Alive
	Caribbean	63/F	Nausea, diarrhea, headache, myalgia, fatigue, oral paresthesias, pruritus	Alive

between countries. Tourist arrivals to Caribbean destinations reached 29.9 million tourist visits in 2018. Table 1 describes the case reports of patients with ciguatera poisoning acquired in the Caribbean.[4–13] The incidence among Brazilians returning from high-risk regions is unclear because it is not a mandatory reportable illness. There has been a previous report of ciguatera poisoning in Brazilians travelers.[8] Although the mortality rates from ciguatera poisoning are low, the morbidity is high. Gastrointestinal manifestations start 6–12 h after consumption of contaminated fish. Neurological and sometimes psychiatric symptoms appear 24–72 h later, with weakness of the limbs, perioral paresthesia, and sensation of hot/cold temperature reversal (paradoxical dysesthesia or cold allodynia). Myalgia, arthralgia, headache, ataxia, and dizziness can also be observed. Other manifestations include asthenia, pruritus, cutaneous rash, eye and dental pain, and dysuria. In severe cases, cardiovascular disorders (hypotension, bradycardia) can occur. There is currently no standard laboratory test to confirm ciguatera poisoning, however, there are assays that can qualitatively measure ciguatoxin in the fish fluid.[1] Management includes avoidance of potential exacerbating triggers.[2] Report of heavy exercises, consumption of caffeine, peanuts, seafood, and alcohol have all been associated with worsening of symptoms. Although there are no consistent studies, intravenous mannitol therapy had been proposed as the treatment of choice. The effect of mannitol is thought to be mediated by the reduction of neuronal edema through the modulation of sodium ion concentrations across cell membranes. Gabapentin and amitriptyline were used to treat pain, and paresthesias and fluoxetine for neuropsychiatric conditions such as anxiety and chronic fatigue. To prevent mass ciguatera fish poisoning, physicians and health care professionals should advise travellers to avoid eating ciguatoxic fish species and potentially toxic fish species in the Caribbean islands including large reef fish and ocean predators such as barracuda, grouper, and snapper.[3]

REFERENCES

1. Isbister GK, Kiernan MC. Neurotoxic marine poisoning. Lancet Neurol. 2005;4:219–28.
2. Friedman A, Fleming E, Fernandez M, et al. Ciguatera fish poisoning: treatment, prevention and management. Mar Drugs. 2008;6:456–79.
3. Lange WR. Ciguatera fish poisoning. Am Fam Physician. 1994;50:579–84.
4. Derian A, Khurana S, Rothenberg J, Plumlee C. Intractable seizures and rehabilitation in ciguatera poisoning. Am J Phys Med Rehabil. 2017;96:e89–92.
5. Thompson CA, Jazuli F, Taggart LR, Boggild AK. Ciguatera fish poisoning after Caribbean travel. CMAJ. 2017;189:E19–21.
6. Menéndez AF, Teixeira LS, Calonge AM, Gutiérrez MM. Caso de intoxicación por ciguatera en paciente pediátrico. An Pediatr (Barc). 2014;81:139–202.
7. Herrero-Martínez JM, Pérez-Ayala A, Pérez-Molina JA, López-Vélez R. Un caso de ciguatera en viajera a la República Dominicana. Enferm Infecc Microbiol Clin. 2011;29:71–2.

8. Oliveira LC, Gontijo LC, Bustamante PD, Marins AB. Turistas Brasileiros acometidos por Ciguatera no mar do Caribe: relato de dois casos. Maceió, Brasil: Anais do 52º Congresso da Sociedade Brasileira de Medicina Tropical; 2016.
9. Achaibar KC, Moore S, Bain PG. Ciguatera poisoning. Pract Neurol. 2007;7:316–22.
10. Asaeda G. The transport of ciguatoxin: a case report. J Emerg Med. 2001;20:263–5.
11. Keynan Y, Pottesman I. Neurological symptoms in a traveller returning from Central America. J Intern Med. 2004;256:174–5.
12. Lange W, Kreider SD, Hattwick M, Hobbs J. Potential benefit of tocainide in the treatment of ciguatera: report of three cases. Am J Med. 1988;84:1087–8.
13. Johnson R, Jong EC. Ciguatera: Caribbean and Indo-Pacific fish poisoning. West J Med. 1983;138:872–4.