A case of ciguatera fish poisoning in a French traveler

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Ciguatera is a toxic poisoning due to ingestion of fish and is rarely reported in France. Little is known about this imported tropical disease. We present a case observed in Paris in a traveller returning from the Dominican Republic.

Case description

The patient was a man in his late thirties who stayed in a hotel-club of Puerto-Plata, Dominican Republic, during two weeks in August 2008. On 17 August, about four hours after eating fish, he complained about abdominal cramps and diarrhoea. The patient's wife who had not eaten fish did not have any symptoms. In contrast, a friend of the patient's who had consumed the same fish presented similar symptoms with vomiting. These gastro-intestinal symptoms persisted for three days. General pruritus appeared 24 hours after the beginning of the disease preventing him from sleeping. Headache, arthralgia, myalgia and paraesthesia of mouth and extremities occurred at the same time.

After his return to France, the patient presented at our hospital on 3 September. He still had pruritus with scratching laesions, arthralgia, myalgia and weakness. Routine laboratory tests (blood cell counts and biochemical values) were normal and examination of stool samples for parasites was negative. The diagnosis of ciguatera poisoning was made on the basis of the epidemiological data and the association of gastro-intestinal and neurological symptoms. The species of ingested fish could not be specified. The patient remembered only that it was "a big fish". Despite symptomatic treatment, pruritus and asthenia were still present seven weeks after the exposure.

Discussion and conclusion

Ciguatera is the commonest marine poisoning, endemic in tropical zones of the Pacific, Indian and Atlantic oceans [1]. The origin of ciguatoxins is gambiertoxins produced by marine dinoflagellates, in particular *Gambierdiscus toxicus*. Ciguatoxins are lipid-soluble, heat-stable and not destroyed by freezing and cooking. This class of polyether toxins acts by opening the sodium channels in the nerve cell membranes. Ciguatoxins are accumulated in the flesh and viscera of herbivorous fish, which in turn are ingested by larger carnivorous fish which then cause the intoxication in humans.

Many reef fish species have been associated with the disease [1]. An increasing number of ciguatera outbreaks has been reported in the past years in endemic areas. This increase could be explained by the damages to coral reefs and climate modifications [2]. Main Pacific ciguatoxin is much more toxic than the Caribbean one.

In the absence of reliable tests, the diagnosis is based on the succession of gastro-intestinal and neurological symptoms. Gastrointestinal effects predominate in the Caribbean and neurological ones in the Indo-Pacific regions. Gastro-intestinal manifestations (abdominal cramps, diarrhoea, vomiting) start 6-12 hours after consumption of contaminated fish. Neurological and sometimes psychiatric symptoms appear 24-72 hours later, with weakness of the limbs, perioral paraesthesia and dysaesthesia being the most common symptoms suggestive of the intoxication [1,3]. 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, mortality is low. The evolution of ciguatera poisoning is sometimes chronic, associated with depression and persistent asthenia.

Treatment is only symptomatic and requires hospitalisation in severe cases. Mannitol therapy had been proposed as the treatment of choice, but this statement was not confirmed by a double-blind randomised trial. Preventive measures are essential in endemic areas in order to reduce the incidence of the intoxication. The main recommendation is to avoid consumption of large reef fish.

Ciguatera poisoning has been identified in North American travellers for many years [4]. More recently, it has also emerged in travellers from several European countries [5,6,7]. Most of them were returning from the Caribbean, mainly the Dominican Republic and Cuba. In the Paris area, ciguatera poisoning remains a rare and probably under-recognised imported disease. Of 622 adult patients who consulted a tropical disease unit after returning from the tropics, ciguatera poisoning was diagnosed only in five (0.8 %) [8]. The patient described here is the first case observed in a period of 10 years in the department of infectious diseases and tropical medicine. Another patient returning from Vietnam was observed in another department of our hospital last year. The diagnosis was delayed because of the predominant neurological clinical presentation. The main symptom was cold allodynia. A neurologist consultant finally made the diagnosis because of this pathognomonic feature and the exposure history.

Ciguatera is probably more frequent than it is reported due to the lack of knowledge of the disease by French practitioners. European clinicians need to be familiar with diagnosing ciguatera intoxication because the illness has been reported in the United Kingdom and France among patients that did not have a history of travel to the tropics, implicating imported fish as the source [9,10]. Travellers visiting ciguatera-endemic areas should be warned by

travel clinics and tour operators about the risk of fish poisoning and advised that the risk of ciguatera intoxication can be reduced by avoiding consumption of reef fish and large ocean predators (e.g. shark, barracuda).

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