



Blue Ridge Poison Center's

# Tox Talks

Vol. 6, No. 6 June 2008 A Bulletin for Health Care Professionals Who Manage Poisoned Patients <http://hsc.virginia.edu/brpc/>

## Food Poisoning Syndromes Caused by Fish Ingestion

### DOES YOUR FACILITY HAVE TELEMEDICINE?

The Blue Ridge Poison Control Center offers CME-accredited toxicology lectures through telemedicine. To request a topic, schedule a lecture for your staff, or more information contact Heather Collier: 434-924-5185 or [HLC8E@virginia.edu](mailto:HLC8E@virginia.edu).

**THE UVA CENTER OF CLINICAL TOXICOLOGY** associated with the Blue Ridge Poison Center manages over 500 patients each year on site in the University of Virginia Health System - from outpatient clinic visits to critically ill inpatients managed in our pediatric and adult intensive care units. In addition, over 2,000 requests are made each year for consultation with our physicians from other healthcare facilities by phone or telemedicine. Our Boarded Medical Toxicologists are internationally known for the expertise in the care of poisoned patients. Call 1-800-222-1222 24 hours a day, every day. [Cell users: 1-800-451-1428]

<http://www.healthsystem.virginia.edu/internet/medtox/cct/ccthome.cfm>

### IN CHARLOTTESVILLE

Reminder: At University of Virginia Hospital, the first Wednesday of every month features toxicology Grand Rounds. For more information, contact Heather Collier: 434-924-5185 or [HLC8E@virginia.edu](mailto:HLC8E@virginia.edu)

### Case 1

-A 42 year old man complains of parasthesias in his extremities and peri-oral area. Also, he is concerned because he experiences a painful, burning sensation when he touches cold objects. He had eaten a grouper sandwich the night before and had developed nausea, vomiting, and diarrhea about four hours later that lasted 2 hours. Upon resolution of his gastrointestinal disturbance he began to notice the neurological symptoms.

### Case 2

- A 37 year old woman began to experience an intense flushing sensation about 30 minutes after eating a tuna steak. She is also complaining of crampy abdominal pain and diarrhea.

### Discussion

These cases demonstrate two different food poisoning syndromes caused by the ingestion of fish. They are *ciguatera poisoning* and *scombroid poisoning*.

**Ciguatera poisoning** is the most commonly reported marine food poisoning. Ciguatoxin (CTX) is produced by the marine dinoflagellate *Gambierdiscus toxicus*. Dinoflagellates grow on algae and dead coral and are consumed by herbivorous fish. The toxin is concentrated up the food chain as larger predatory fish consume multiple prey fish containing CTX. Large predatory reef fish are commonly implicated in ciguatera food poisoning and include grouper, snapper, barracuda, and sea bass.

Symptoms typically appear within four to six hours after the ingestion of contaminated fish. However, this time of onset can vary considerably, with symptom onset ranging from several minutes to 24 hours depending on the amount ingested. Symptoms typically resolve within two to five days but some victims will require two weeks to fully recover. Also, a percentage of patients may develop chronic symptoms and experience parasthesias, sensory disturbances, joint and muscle

aches and fatigue lasting months. There are rare reports of fatalities due to ciguatera poisoning.

Gastrointestinal complaints usually manifest first, and may include nausea, vomiting and diarrhea. Neurological symptoms follow. Perioral and limb paresthesias and dysesthesias are common. Pruritis, diaphoresis, myalgias, arthralgias, muscle cramps and weakness have all been reported. There are several peculiar symptoms associated with ciguatera poisoning. Patients will sometimes complain of the sensation that their teeth are falling out. Also, there is a phenomenon known as temperature reversal where cold items feel hot. Cold objects are described to cause a painful tingling, a burning discomfort, or an electric shock sensation. In some case cardiovascular symptoms have been reported, including symptomatic bradycardia

The mainstay of treatment of ciguatera poisoning is supportive care and symptomatic therapy. Patients will often present dehydrated and may have electrolyte abnormalities secondary to vomiting and diarrhea. Symptomatic bradycardia should be treated with atropine. Pruritis can be treated with antihistamines. Mannitol has been considered the treatment of choice for relieving neurological symptoms. This practice has been supported by many reports of successful use in the past and its mechanism is supported by several experimental papers. However, the only randomized trial testing the efficacy of mannitol was unable to show benefit from its utilization. The recommended mannitol dose is 1 gm/kg intravenously. It is essentially to assure adequate rehydration and correction of any electrolyte imbalance before administering mannitol.

**Scombroid poisoning** occurs after ingestion of fish that has accumulated scrombotoxin secondary to spoilage. The fish associated with this toxicity are dark fleshed containing large amounts of the amino acid histidine. Scombroid food poisoning develops when an individual ingests improperly refrigerated fish where bacteria have converted histidine into histamine and histamine like substances. It is commonly misdiagnosed as an allergic reaction.

Fish commonly implicated include those in the *Scombroidae* and *Scomberesocidae* families, such as tuna, mackerel and bonito. Non-scombroid fish, such as bluefish, mahi-mahi, escolar, anchovies, sardines, and swordfish, have been reported to cause this syndrome.

Patients who ingest scombroid will develop symptoms within an hour. The signs and symptoms are those of a histamine reaction: flushing, erythematous and/or urticarial rash, headache, dizziness, crampy abdominal pain, nausea, vomiting, diarrhea, shortness of breath and wheezing. In severe cases it can lead to hypotension and even hemodynamic collapse. The ingested causative fish usually does not smell or taste spoiled, but the victims often report an unusual peppery or metallic taste

The cornerstone of treatment is antihistamines. Intravenous H1 and H2 blockers (i.e. diphenhydramine and cimetidine respectively) should be administered. Bronchodilators (i.e. albuterol) can be helpful if the patient experiences bronchospasm. Severe cases with hypotension and respiratory distress will require aggressive treatment with intravenous fluids, airway control and possibly epinephrine. Scombroid poisoning is a self limited illness; symptoms typically resolve within 12 hours.

Although these syndromes are encountered infrequently in our area it is important to be aware of their clinical manifestations and treatment options. It is also important to recognize the possibility of one of these syndromes so that the appropriate health department officials can be notified.