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Scombroid Fish Poisoning

Scombroid fish poisoning is a toxic food reaction – a type of food poisoning. It occurs when people eat fish that contains a large quantity of naturally occurring toxic compounds such as histamine. These are formed when incorrectly stored fish is subjected to early bacterial decomposition before it is eaten. However because the symptoms resemble allergy, many cases are incorrectly diagnosed as fish allergic and this causes unnecessary anxiety. Sufferers may be mistakenly advised to avoid fish for the rest of their lives and wrongly advised to carry an adrenaline auto-injector (e.g. EpiPen). Adrenaline is effective for anaphylaxis (severe allergy), but has no effect on (and might even worsen) a toxic food reaction.

Several people may be affected

Scombroid fish poisoning may occur as an outbreak or as an isolated case. If a batch of fish contains very high levels of histamine, everyone who eats from the same batch will be affected. This means that several cases may occur together, and in this case it is easier to suspect the true cause. For example, in March 2009, four women ate the same fish lunch at the same restaurant and all suffered from similar symptoms. All experienced unpleasant flushing of the skin, dizziness, headache, blurred vision and skin rashes.

An early symptom was a stinging sensation in the mouth and throat followed by intense flushing of the skin with a rapid pulse, nausea and headache. Two of the women suffered an attack of diarrhoea an hour or two later. In this case, the cause was suspected straight away and each sufferer received immediate antihistamine treatment and recovered completely within a few hours. The fish species was identified as marlin, and when a leftover sample was analysed, exceptionally high levels of histamine were found.

In an isolated case, only a single person is affected and unless the physician who is consulted is familiar with the condition and considers it at the time, fish *allergy* is likely to be wrongly diagnosed.

The occurrence of characteristic symptoms (flushing and sweating, burning sensations or a peppery taste in the mouth and throat, dizziness, palpitations, nausea and headache) after eating fish should alert the doctor to the possibility of scombroid fish poisoning.

In the UK tuna is the commonest cause, and so-called 'fresh' tuna is more likely to cause the condition than canned or frozen tuna. Tuna belongs to the fish family *Scombridae* and the other members of this family (mahi mahi, marlin, mackerel and bonito) also cause this condition.

In an isolated case, more than one person may have eaten from the same batch of fish although only one suffers the symptoms. This suggests that some people may be more susceptible than others and it has been suggested that this susceptibility may be due to deficiency of an enzyme called *diamine oxidase.*

However, as there is no simple test for this enzyme, patients who have suffered from an attack of scombroid fish poisoning and (especially if others who ate from the same batch of fish are not affected) should take care when eating fish in future.

Cases are usually diagnosed on the basis of the clinical history, and the only helpful diagnostic test is a *negative* fish allergy skin prick or blood test. Whilst analysis of any leftover fish at the public health laboratory would confirm the diagnosis, this is impossible in most cases as the diagnosis is not usually suspected in time.

Prevention

If fish is incorrectly stored, the production of histamine can be quite rapid. In one outbreak, threshold levels of histamine were reached after only three to four hours when tuna was left at room temperature. The greater the temperature, and the longer the exposure, the higher the level of histamine that can be expected.

Fish is unlikely to cause this problem if the following rules are observed:

1) Fresh fish should be stored at 4°C (40°F) and used within 48 hours of purchase.

2) In a shop or restaurant always choose fresh fish that has been kept refrigerated or stored on ice. Reject the fish if the eyes are not clear or if it has a noticeable fishy odour.

3) Canned fish should be cooked immediately after opening and frozen fish should be cooked straight after de-frosting.

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