

Puffer fish (Toad fish, fugu)



Overview: Most commonly from badly prepared fugu in Japanese restaurants.

Toxin: tetrodotoxin (blocks voltage sens Na channels of nerves/muscle cell membranes). Present throughout fish, but conc in ovaries, liver, intestines & skin. Heat stable.

Features: Dose dependent. Onset <1h → sev toxicity. Sev symptoms may be delayed many hours.

Mild: Paraesthesia/anaesthesia of lip/tongue. GIT upset.

Severe: Facial, bulbar & distal muscle fasciculation & weakness, dysphonia or aphonia, diaphoresis, salivation, ataxia, fixed dilated pupils, generalised flaccid weakness, resp failure, CVS effects (brady, AV block, asystole, arrhythmias), apparent coma.

Inv: ECG, ABG, CXR if severe

Mx:

- Resus: maintain ABCs with O₂, intubation & ventilation as req and replace fluids with NS. If remains hypoBP use pressors. Bradycardia not responsive to atropine should be paced.
- Decontamination: Consider charcoal or gastric lavage if <1hr, co-op & airway protected.
- Supportive:
 - Monitor closely with serial neurological/resp/CVS exams.
 - Use appropriate sedation if paralysed.

Disposition: If asymptomatic at 3hrs may be d/c, admit all symptomatic patients. If sev may require ventilation for 3-5 days.

Paralytic shellfish

Overview: Due to ingestion of saxitoxin made by dinoflagellates & filtered in clams & mussels.

Toxin: Saxitoxin has similar but more potent effect than tetrodotoxin.

Features: Onset <30mins. Similar to puffer fish toxicity.

Mx & Disposition: As for puffer fish poisoning.

Ciguatera

Overview: Most common marine poisoning. Conc of toxin produced init by dinoflagellates which live on algae, eaten by fish, which are then eaten by larger fish (coral trout, Spanish mackerel, barracuda, red snapper, grouper) and then the patient.

Toxin: Neurotoxin (ciguatoxin) binds & keeps open voltage sens Na channels prolonging depolarisation of neurons & skeletal/cardiac myocytes.

Features: Onset usually 1-6hrs. GIT upset init, followed by myalgia, paraesthesias, cold allodynia, pruritus. Other symptoms incl arthralgias, diaphoresis & bizarre sensations.

Mx:

- Supportive: IV fluids for dehydration, anti-histamines for pruritus, analgesia for aches
- Decontamination: not recommended as delayed & vomiting.

Disposition: Most take 1-2wks to fully recover, but some have longer lasting altered sensations. Re-exposure may cause sig toxicity.

Scombroid

Overview: Caused by eating tuna, mackerel, mahi mahi, marlin, etc.

Toxin: Scombrototoxin mixture of histamine & similar compounds formed from bacterial breakdown of histidine in blue fish tissue that has not been stored correctly. Heat stable.

Features: Onset 30min-3hrs. GIT upset, headache, skin flushing, occ urticaria, bronchospasm.

Mx: Anti-histamines (H₁ & H₂ blockers) + bronchodilators for symptoms. Occ fluids, **adrenaline**.

Disposition: Unless severe, generally do not need admission.