

### Bluebottle Jellyfish (*Physalia spp.*, aka Portuguese Man of War)

**Overview:** Common, but relatively mild, self-limiting envenomation.

**Toxin:** Tentacle (up to 10m) nematocysts discharge glycoprotein on contact.

**Features:** Immed burning (<2h), linear/elliptical red welts.  $\pm$ N&V, headache, malaise.

**Mx:** Hot water (45°C) for 20min better than ice. PO analgesia. Avoid PIB & vinegar.



### Box Jellyfish (*Chironex fleckeri*)

**Overview:** Tropical (Northern) waters (highest Oct-Apr). Most only require supportive Mx, but occasionally rapid death from respiratory failure, possibly central in origin, or from direct cardiotoxicity leading to A-V conduction disturbances or paralysis of the myocardium in systole.

**Toxin:** ?Ca channel component, also dermatonecrotic (which can  $\rightarrow$  scars).

**Features:** Immed sev pain (usually<8h), linear, cross-hatched welts. 25-30% still have tentacles adhering to skin. Delayed hypersensitivity (1-2wk) in 50% at sting site. Systemic envenomation (if it occurs) after few mins -  $\uparrow$  $\downarrow$ BP,  $\uparrow$ HR, impaired cardiac contraction, arrhythmias & collapse.

**Mx:**

- Resus: If cardiac arrest - immediate CPR (may need to be prolonged)
- First aid:
  - Apply vinegar (**3-5% acetic acid**) liberally to sting sites to inactivate undischarged nematocysts. If no vinegar wash off with Coke or sea water. Avoid PIB, fresh H<sub>2</sub>O.
  - Apply ice pack (debate as to whether hot immersion is better)
  - Oral analgesia
  - If systemic signs or ongoing pain, convey to hospital.
- Hospital
  - If patient reaches hospital alive, then survival likely.
  - Cardiac arrest: Standard ABCs plus 6 amps Box Jellyfish **antivenom** IV stat may be given<sup>†</sup> followed by **MgSO<sub>4</sub>** 10mmol IV or inotropes if no response.
  - Ongoing hypotension, arrhythmias:
    - Fluids resus with NS
    - 3 amps **antivenom** IV in 100ml NS over 20min has been advocated<sup>†</sup>
    - Inv for cause: ECG (sinus tachy, ventricular ectopy, bigeminy, BBBs, other cause of collapse e.g. ACS), FBC, UEC, CK/Trop, CXR. Micro nematocyst ID
  - Analgesia: **morphine** IV, consider **MgSO<sub>4</sub>**  $\pm$  1 amp **antivenom**<sup>†</sup> IV if refractory
  - Topical steroid or antihistamine may be used for delayed hypersensitivity.

**Disposition:** D/C if no systemic envenomation or sig pain at 2h, else when asymptomatic for 6h.

<sup>†</sup>According to Geoff Isbister, CSL antivenom works in vitro, but venom too fast-acting for it to be clinically useful.

### Irukandji Syndrome

**Overview:** Caused by the small *Carukia barnesi*  $\pm$  other jellyfish, in tropical waters. Delayed distressing symptoms from sting & occ has been fatal.

**Toxin:** Neural Na<sup>+</sup> channel modulator. Thought to  $\rightarrow$  catecholamine shower.

**Features:** Sting often not felt. Minimal local signs. After ~30-120min: sense of impending doom, agitation, dysphoria, N & V, diaphoresis, back/limb/abdo pain.  $\uparrow$ BP &  $\uparrow$ HR common. Symptoms usually <12h. Severe envenoming occurs within 4h and may  $\rightarrow$  cardiomyopathy, cardiogenic shock, APO & ICH.



*Mx:*

- First aid:
  - Apply vinegar (**3-5% acetic acid**) liberally to sting sites to inactivate adherent undischarged nematocysts. Avoid PIB.
  - If systemic signs or ongoing pain, convey to hospital.
- Hospital
  - Resus:
    - Sev HT, APO immed Mx (see Hypertension & Heart Failure articles).
  - Analgesia: titrate **fentanyl** 0.5-1mcg/kg or **morphine** 0.05-0.1mg/kg IV q10min
  - Nausea: **promethazine** 0.25-0.5mg/kg IV
  - Ongoing HT: **GTN** infusion starting at 1-4mcg/kg/min or **phentolamine**.
  - Role of **BDZs** and **MgSO<sub>4</sub>** not fully established but often used.
  - Inv may be req of alt Dx or Cx if unstable: ECG (tachycardia, ischaemia, non-spec T wave changes), CXR (APO), FBC, UEC, Trop/CK. Consider Echo. Nematocyst ID.

*Disposition:* D/C if no systemic envenomation or sig pain at 2h, else when asymptomatic for 6h.

### Stonefish

*Overview:* Found along northern half of Australian coast. Well camouflaged and dorsal spines inject venom when inadvertently stepped on. No deaths.

*Toxin:* Venom is at least partially heat labile. Contains pre & post-synaptic neurotoxins, a vasodilator, vascular permeability factors & hyaluronidase.

*Features:* Immed sev pain + local swelling, bruising & puncture wounds ± spine FBs. Non-specific N&V, dizziness & SOB reported, but systemic envenoming (paresis, paralysis & shock) is rare.

*Mx:*

- First aid:
  - Hot water (45°C) for 30-90min. Avoid PIB.
  - PO analgesia.
  - If systemic signs or ongoing pain, convey to hospital.
- Hospital
  - Resus: rarely required.
  - Analgesia: continue hot water immersion. Titrate **morphine** 0.05-0.1mg/kg IV q10min. Consider a regional nerve block with long acting LA (& stop hot water)
  - **Antivenom** if pain refractory. 1 amp/2 wounds (max 3 amps) IM or in 100ml NS IV over 20mins.
  - Inv: XR/USS is retained FB suspected.
  - Wound toilet
  - Tetanus ± antibiotic prophylaxis if likely wound infection.

*Disposition:* D/C if no systemic envenomation or sig pain at 2h, else when asymptomatic for 4h.

### Other Stinging Fish (incl catfish, scorpion fish)

Similar to stonefish, except no antivenom.

### Blue-Ringed Octopus (*Hapalochlaena* spp.)

*Overview:* Small docile octopus with potentially paralysing bite if handled.

*Toxin:* Venom includes tetrodotoxin (blocks cell membrane Na channels)

*Features:* Mild bite. Circumoral & other paraesthesia, nausea, dizziness & malaise may develop. Majority do not get rapidly progressive flaccid

descending paralysis that can occur (ptosis, blurred vision, difficulty swallowing, progressing to generalised paralysis, respiratory failure, hypoxic cardiac arrest & death if untreated).



*Mx:*

- First aid:
  - Pressure immobilisation bandage (PIB)
  - Rescue breathing if req.
  - Convey to hospital.
- Hospital
  - Resus: O<sub>2</sub>. Intubation & ventilation if resp failure. Fluids, pressors for hypotension.
  - Wound care + ADT if req
  - Supportive care for up to 2-5d.

*Disposition:* D/C if no systemic envenomation at 6h, otherwise ICU ventilatory support.

### Cone Snail

*Overview:* These inject venom via small harpoon-like radula teeth.

*Toxin:* Numerous neurotoxic peptides that act pre- & post-synaptically

*Features:* Weakness, inco-ordination & visual dist, speech and hearing. Local pain, swelling & numbness common, less so nausea & generalized pruritis. Sev envenoming may result in a rare death 2° to respiratory muscle paralysis.



*Mx:*

- First aid:
  - Pressure immobilisation bandage (PIB)
  - Rescue breathing if req.
  - Convey to hospital.
- Hospital
  - Resus: O<sub>2</sub>. Intubation & ventilation if resp failure. Fluids, pressor for hypotension.
  - ADT & consider prophylactic ABx with large wounds, FB or delayed presentation.

### Stingray

*Overview:* Stingrays if stepped on reflexively whip their tail upward & a bony spine can penetrate the victim & leave venom in the wound. Rarely this can be chest or abdomen rather than an extremity & cause serious trauma or death.

*Toxin:* Contains large polypeptides, serotonin, and hyaluronidases

*Features:* Intense local pain, characteristic bluish-white wound and slowly developing necrosis, possible secondary infection esp if spine penetrates joint space or if poor wound management. Systemic envenomation is rare.



*Mx:*

- First aid:
  - Hot water (45°C) for 20+min. Avoid PIB.
  - PO analgesia.
  - If systemic signs or ongoing pain, convey to hospital.
- Hospital
  - Analgesia: Titrate **morphine** 0.05-0.1mg/kg IV q10min. LA local or regional block.
  - Leave lacs open for delayed primary closure, ensuring adequate drainage.
  - Wounds with FB, which enter sterile body cavities, or late presenting, usually require surgical exploration and debridement.
  - ADT & consider prophylactic ABx with large wounds, FB or delayed presentation.

*Disposition:* D/C if no systemic envenomation or sig wound/pain at 4h.

### Sea Snakes

See Snakebite article.