Bees, Wasps, Ants and Ticks

Hymenoptera – bees, wasps, ants
Hymenoptera means membrane wings, includes:
- Vespids (yellow jacket or European wasp and paper wasps)
- Aspids (honey bees)
- Ants
- Saw flies

Bees can only sting once, wasps may sting multiple times. Stinging causes local pain and irritation.
Reaction to a sting depends on prior exposure and sensitivity.
Bee stings cause approximately one death per year in Australia.
Nearly all deaths due to anaphylaxis, Occasionally due to massive envenomation
Venom contains: Melittin, Phospholipase A2, Hyaluronidase

Management
Triaged according to severity of reaction
Beware, condition can deteriorate rapidly
Team approach in a RESUS area
Vital signs, IV access, cardiac monitoring, pulse oximetry
ABC: O2 to maintain sats >90, RSI, iv access, fluid resus, adrenaline, plan alt airway options
Decontamination by removal of barb

First-line therapy
Severe - anaphylaxis
Adrenaline 100μg (0.1 mg) IV as a 1:100,000 dilution over 5-10 min (ie. 0.1ml 1:1000 in 10mls N/S)
Children get Adrenaline 0.01mg/kg (0.01ml/kg 1:1000) IM
If refractory commence Adrenaline IV infusion 1mg (1.0ml of 1:1000) in 500ml NS at 0.5-2ml/min
Children get Adrenaline IV infusion 0.1-0.3 μg/kg/min
N/S bolus 1-2L (10-20ml/kg in children)
Moderate systemic reactions
Adrenaline 0.3-0.5mg (0.3-0.5 ml 1:1000) IM every 5 min-10 min - Most need only one dose

Second-line therapy
Corticosteroids, H1 blocker (phenergan), H2 blocker(ranitidine)
Bronchodilators (ventolin, ipratropium, magnesium iv), Glucagon for patients on β-blockers
Analgesics, Ice packs

Disposition
Low risk patients, symptom free after appropriate treatment D/C after 4hrs observation
High risk patients: previous severe reactions, extreme ages, severity/speed of presentation, β-blockers, asthmatics, unreliable patients, long distances to return
Patients who have suffered severe systemic reactions should be admitted/monitored for complications: Skin testing / RAST (Radioallergosorbent tests): In ALL cases of systemic reactions
Epipen: Extensive/prolonged local reactions + ALL systemic reactions that have negative skin test
Venom Immunotherapy: ALL systemic reactions that have a POSITIVE skin test
Allergist referral: ALL systemic reactions
Medic Alert Tag
Change antihypertensives if currently on a β-blocker
Detailed advice on discharge: use of epipen, avoid exposure, written action pain, return if recur
**Massive envenomation**
Vomiting, diarrhea, Shock, MOF, myocarditis, hepatitis, haemoglobinuria, rhabdomyolysis
Signs of anaphylaxis if sensitive
15% mortality with massive envenomation: Death likely if >20stings/kg, mild illness if 1-4stings/kg.

**Delayed Reaction**
5-14 days post sting: serum sickness-like signs. Immune complex mediated

**Ants**
Bull ants – 3% are allergic; incr risk death if on ACEi
Red fire ants – very aggressive; sterile pustules form after bite

**Ticks**
3 of 19 Australian species known to secrete paralytic toxin
Nearly all cases due to scrub tick (Ixodes holocyclus), East Coast Australia
Attaches to host via proboscis - attachment may cause local necrosis
Larval forma may cause allergic reaction in infested host

**Tick venom**
Holocyclotoxin – neurotoxin similar to botulinum toxin, also haemostatic and anti-inflamm agents

**Effects of tick bites**
Local skin irritation, rash and tick paralysis
Local and systemic allergic reaction
Bite site infection and Tick borne disease (Rickettsia: regional LN, malaise, fever, rash, tache noir)

**Tick paralysis**
unsteady gait, drowsy, limb paraesthesia - after 4-5/7 attachment: ascending, symmetrical flaccid paralysis, CN involvement (eg. Swallowing, Bells palsy, eye mvmt), resp involvement - more likely <5yrs

**Assessment**
Onset of symptoms 4-5 days after attachment - longer the attachment – more likely the paralysis
Unsteady gait, ataxia, distal muscles first affected
Generalized weakness – unable to walk; swallowing difficulties, Bell’s palsy
Ascending flaccid paralysis – GBS important DD - Paralysis may worsen for up to 48hrs after tick removal

**Management**
Remove tick (don’t squeeze body), look for others
Antihistamine / steroids if local reaction
May need Abx for secondary bacterial infection (doxycycline for rickettsia)
Tick paralysis may worsen after removal of tick (24hrs close observation)
Tick antivenom: 1 vial, give early. May confer some benefit but not reverse established paralysis
Supportive management, ventilatory support as indicated + ADT

**Australian Scorpions**
Not life-threatening, resuscitation not required
Local symptoms: Severe local pain for several hours, inflammm, paraesthesia, numbness for days
Systemic symptoms: Uncommon – N+V, malaise, incr HR
Management: Ice, analgesia; PIB- NO. Transfer to hospital if refractory pain or diagnosis in doubt