Tetanus

Clostridium tetani, spore-forming Gram-pos rod & obligate anaerobe. Spores (soil, house dust and both animal & human faeces) enter wounds and in anaerobic conds (necrotic tissue, active infection or FB presence) → tetanospasmin binds irrev to neurons, preventing inhibition of motor reflex responses to sensory stimuli → sustained muscle spasms and rigidity.

Epidemiology

Incidence: Rare in Australia: <10 cases/year. Much higher where inadequate vaccination.
Risk factors: Age>60y, unimmunised, poverty, drug addiction, dirty wounds (esp puncture), complex wounds (compound #, burns, ulcers, gangrene, envenomation, OM) septic abortion, childbirth, Tetanus neonatorum (applying cow dung or clarified butter to umbilical cord).

Presentation

Mean incubation 7-10d (range 1-60d). Shorter incubation=↑severity. 15-25% no wounds.
Generalised tetanus (80%): descending pattern after prodromal fever, malaise and headache:

- Trismus (lockjaw, risus sardonicus)
- Neck stiffness (may → opisthotonus)
- Swallowing difficulties
- Abdominal muscle rigidity
- Muscle spasms (reflexive, spontaneous)
- Autonomic instability develops in ~90%

Neonatal tetanus: non-immune mother. Poor suck, irritability, grimaces, and rigidity.
Local tetanus: uncommon local painful muscle spasms around injury, may → generalised tetanus
Cephalic tetanus: usually 2° to OM or HI. Cranial (esp facial) nerve palsies. May → generalised

Complications

- Aspiration pneumonia
- Laryngospasm
- Fractures from sustained contractions or convulsions
- Respiratory embarrassment
- Autonomic nervous involvement (BP, dysrhythmias)
- Tetanic seizures mimicking epilepsy
- PE particularly in drug abusers and the elderly.

Investigations

Diagnosis is clinical. CK and WCC may be ↑. *C.tetani* found in wound even without tetanus.
Spatula test: touching back of pharynx with a spatula elicits a bite reflex instead of gag reflex.

Management

Antitoxin only neutralises unbound toxin so recovery of nerve fn requires regrowth.

- Intubation/tracheostomy and ventilation may be reqd ± neuromuscular blocking agents.
- Give **Human TIg** (antitoxin) 5000u IM/IV first. (however doesn't cross BBB)
- Local debridement (after TIg) to remove orgs & make aerobic env.
- **Metronidazole** or **penicillin** to eradicate orgs.
- Supportive treatment with **BDZs** ± **phenobarbital**/**chlorpromazine**. Intrathecal **baclofen**.
- Autonomic disturbance requires appropriate treatment.
- Will need vaccination as tetanus infection does not confer immunity

Prevention

Immunity conferred if received 3 tetanus toxoid doses. Std schedule: 2m, 4m, 6m, 18m, 5y, then q10y boosters. If 5-10yrs since last ADT & high risk wound: tetanus toxoid only
If immune status unknown/incomplete/>10yrs since last dose: tetanus toxoid for all wounds. Complete full vaccination course. Also give TIg if wound not clean/minor.

Prognosis

Average paralysis duration = 21 days. Mort: 50% if untreated, <10% if treated or immunized.