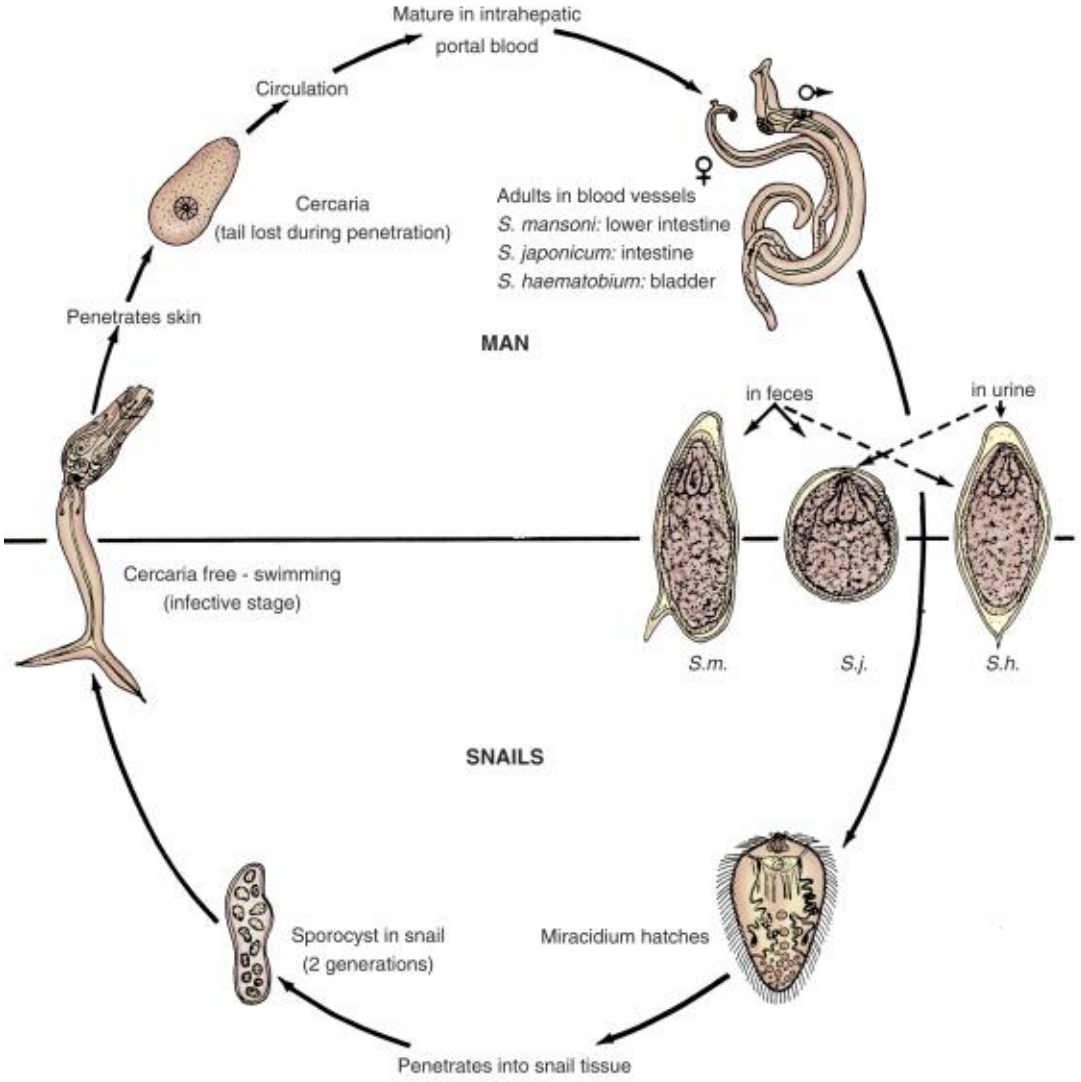
Urinary schistosomiasis

Common parasitic infection with *schistosoma haematobium*, a parasitic digenetic trematode (flukeworm) which resides in perivesical venous plexuses
Endemic in Middle East (Egypt) and most of Africa
Estimated that 80-90 million people worldwide infected with *s. haematobium*
Infection may be acute or chronic; chronic infection may lead to obstructive uropathy

Biology and pathogenesis



Adult worm pairs 1.5cm long
Reside in perivesical plexuses attached to endothelium
Average life expectancy 3-6 yrs
Produce 200-500 eggs/day
Approx 20% transmitted through bladder wall into urine and voided (? requires competent immune system – lower in AIDS)
Remaining eggs deposited in bladder wall or embolise to lungs – stimulate granulomatous response (with subsequent calcification)
Eggs 80 – 150um long, with terminal spines (s. mansoni = lateral spines)
Oocyte develops into miracidium (like blastocyst), which penetrates freshwater snails (bulinus globosus)

Massive asexual amplification from one miracidium to 100,000 cercaria. Released into water, penetrate human skin, shed tails and migrate to liver for maturation

Presentation

Acute infection (Katayama fever)
- Typically traveller rather than in endemic populations
- Occurs 3-9 weeks after infection - coincides with egg laying
- Fever, lymphadenopathy, splenomegaly, eosinophilia, urticaria
- Usually with *s. japonicum*, not often with *s. haematobium*

Chronic active infection
- Active egg-laying stimulates type 4 hypersensitivity with granuloma formation
- Features
  - Haematuria with terminal dysuria
  - Haematospermia, cervicitis and vaginitis
  - Chronic /recurrent UTIs (often salmonella – colonises worms)
  - Bladder ulceration
  - Schistosomiasis bladder
    - Severe late active disease characterised by SP pain, irritative LUTS, haematuria and thick-walled low capacity bladder
  - Polypoid bladder disease
  - Obstructive uropathy (often due to bladder polyps)
  - Ureteric involvement seen in 25% of chronic cases. Lower ureter in 80%
  - Bladder cancer
    - Squamous cell
    - Early age of onset (40-50)
    - Posterior and lateral walls
    - Typically exophytic, well-differentiated tumours
    - Occasionally ulcerative poorly-differentiated

Chronic inactive infection
- Disappearance of eggs from urine after worms have died
- Chronic inflammation, typically of bladder base leads to obstructive uropathy (sandy patches typically seen)
- Obstruction at UO, intramural ureter, VUJ or distal third of ureter, but leads to upper ureteric dilatation and renal impairment

Diagnosis

Urine microscopy
- Terminal spines (essentially pathognomonic; also seen in *schistosoma intercalatum* but this confined to rainforest Africa and very rare)
- Yield greatest 10am-2pm

Stool/sperm microscopy may occasionally show terminal spined ova

Eosinophilia

Serological testing
- ~95% sensitive and specific
- No distinction between active infection or chronic disease

Plain AXR
- Calcified bladder
- Mural calcification of dilated ureter (cf cast of non-dilated ureter in TB)

Sandy patch biopsy showing granulomas and eggs

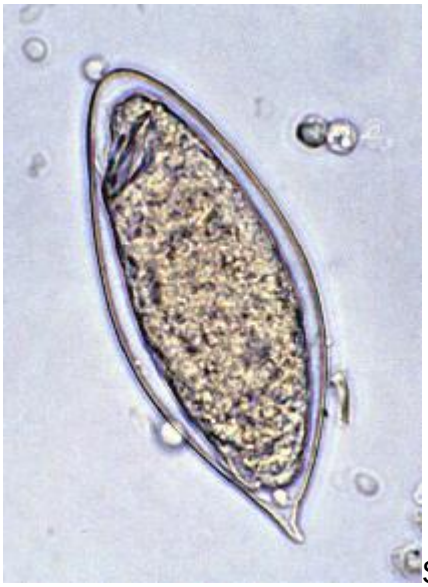
Management

Active infection
- Praziquantel
  - 40mg/kg PO bd for one day
  - Well tolerated - N&V and diarrhoea main side effects
  - Response rate 83-100%

Sequelae of chronic disease
- Surgery for complications (intractable haemorrhage) or neoplastic change
- Obstructive uropathy often resolves with medical management alone (resolution of bladder polyps)

Prognosis and prevention

Mortality for severe disease 50% in 5 yrs (renal failure 2' obstructive uropathy)
Sensible travel advice to avoid bathing in fresh water. Boiling water kills cercaria. Generally eradication difficult.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