Scrotal Emergencies

By age

<10yrs: torsion of appendix testis
10-19yrs: testicular torsion 20-40% = torsion of appendix testis
20-29yrs: 75% epididymitis > 20% testicular torsion
>30yrs: nearly all epididymitis > hernia, referred pain

Testicular torsion

True urological emergency

Epidemiology: 2 peaks: newborns (extravaginal), 12-16yrs (intravaginal); <4% occur >30yrs; can get intermittent torsion of testes that lasts <2hrs; 60% on L (due to longer spermatic cord)
RF's: abnormal inf and post attachment of testis by overly long mesorchium (normal attachment is post-lat)
  tunica vaginalis attaches too high and invests entire testicle and portion of distal spermatic cord (bell-clapper deformity; normal attachment is to front and sides of testicle only)
  neonatal due to laxity of gubernacular attachment to scrotal floor (not anatomical abnormalities)
Causes: 4-8% trauma; cremasteric muscle contraction; exercise
Pathogenesis:
  lateral-to-medial turn - venous congestion - oedema - arterial compromise
  360deg - necrosis in 12-24hrs
  >720deg - necrosis in <2hrs
  Loss of Sertoli cell function after 4-6hrs - loss of Leydig cell function after 10hrs
Sx: sudden onset, severe, unilateral, constant; N+V in 2/3; may radiate to loin/groin; may be AP in children
OE: fever in 20% (esp if testis infarcted); oedema; diffuse tenderness; high riding testicle with transverse lie (if >360deg);
  loss of cremaster reflex (99% sens, but maybe not spec); torsion is clinical diagnosis
Ix: don't do; urinalysis normal; USS 88% sens, 90% spec, can miss incomplete torsion, decr sens in low flow states
  (maybe indicated if >6hrs since onset); Doppler US stethoscope 45-60% sens; radionuclide scan 85% sens, 60-95%
  spec, false negative if incomplete
Mng: immediate OT if <24hrs since onset; manual detorsion is temporary measure pre-OT (do if no urology
  immediately available, or duration of Sx too long for surgical salvage; success = resolution of pain; lateral rotation by
  180deg until pain relief; opposite direction if pain increases; 25% have residual partial torsion)
Prognosis: 100% salvage <4hrs  80-90% salvage <6hrs  20% salvage 10-24hrs  0% salvage >24hrs
Fertility declines regardless of duration of torsion

Testicular appendage torsion

Epidemiology: peak 7-13yrs; most common cause of scrotal pain 3-13yrs; 60% on R
Causes: most assoc with trauma / activity
Pathophysiology: 90% appendix testis; 8% appendix epididymis; also paradidymis, vas aberrans
Sx: no systemic Sx, N+V uncommon; pain less severe than testicular torsion
OE: point tenderness over superior pole; rest of scrotum normal; reactive hydrocoele; small dark spot in 20%;
  transillumination shows blue dot sign
Ix: USS 30% sens
Mng: conservative; OT if persistent pain / uncertain diagnosis

Testicular trauma

Scrotal wall haematoma, tunica vaginalis haematoma (haematocoele), intratesticular subcapsular haematoma,
  testicular rupture (in 50% blunt trauma; blood and seminiferous tubules enter tunica vaginalis)
  Do early surgical exploration
**Epididymitis**
Inflammation of epididymis

**Epidemiology:** 19-35yrs (usually STI); if pre-pubertal, 40% have assoc urogenital abnormalities; if >40yrs, may have urogenital abnormality (eg. BPH if elderly)

**Bugs:** Pre-pubertal = coliforms
- 19-35yrs = 30-50% chlamydia > gonorrhoea > ureaplasma urealyticum
- >40yrs = coliforms, E coli, klebsiella from urine; post-procedural (entry into ejaculatory duct and vas deferens helped by urethral obstruction, prostate surgery, inflamm changes, elevated voiding p)
  - Other: TB, H influenzae, trichomonas, brucellosis, amiodarone, cryptococcal (fungal more common in homo), enterovirus, adenovirus

**Sx:** gradual onset; may radiate along spermatic cord; dysuria; penile discharge

**OE:** fever >90%; may be red / swollen / hydrocoele; pain relieved by scrotal elevation (Prehn sign); enlarged tender epididymis, but normal testis; if epididymo-orchitis, distinction between epididymis and testicle less obvious

**Ix:** incr WCC in 50%; pyruria/bacteruria in 50%; do urethral swabs; USS - incr flow and testicular echogenicity (>90% sens/spec for differentiating torsion for epididymitis); do USS / MCU if infection in paeds

**Mng:** analgesia, scrotal elevation
- If STD: ceftriaxone 250mg IM stat + doxycycline 100mg BD 14/7 + roxithromycin 300mg OD 14/7
- If UTI: trimethoprim 300mg OD  or augmentin
- If unwell: ampicillin 2g Q6h IV + gentamicin 4-6mg/kg OD

**Orchitis**
Isolated orchitis rare

Usually viral causes (mumps, coxsackie, EBV, varicella, echovirus); also fungal, bacterial extension of epididymitis, syphilis

**Mumps:** 15-30% incidence in mumps in postpubertal; most common cause; unilateral in 70%, contralat in 1-9/7

**Fournier’s gangrene**
**Definition:** mixed aerobic/anaerobic necrotising subcutaneous infection of the scrotum and perineum - dermal gangrene and massive scrotal swelling

**Epidemiology:** mortality rate 40%

**Causes:** usually due to perirectal disease or minor trauma. Rapidly progressive

**Bugs:** bacteroides and E coli most common; anaerobic Strep, G-ive rods, anaerobes

**RF:** obesity, immunocomp, DM in 20-70%, ETOH in 25-50%, chronic steroid use

**Mng:** ceftriaxone 2g IV + metronidazole 500mg IV + gentamicin 4-6mg IV
  - IVF; urgent OT; HBO not proven useful

**Acute Testicular Pain Ddx**

- Testicular torsion, torsion testicular appendage
- Epididymo-orchitis
- Strangulated hernia
- Haemotcoele, hydrocoele
- Testicular tumour
- HSP in children
- Idiopathic scrotal oedema