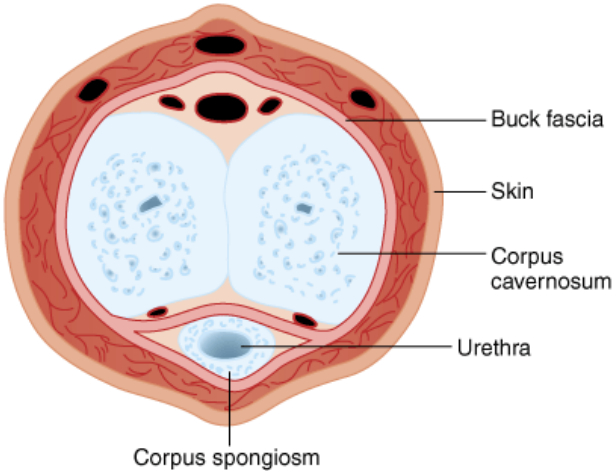
MALE GENITAL PROBLEMS

MALE GENITAL PROBLEMS MAY BE THE CAUSE OF SIGNIFICANT MORBIDITY

PATHOPHYSIOLOGY:

PENIS:

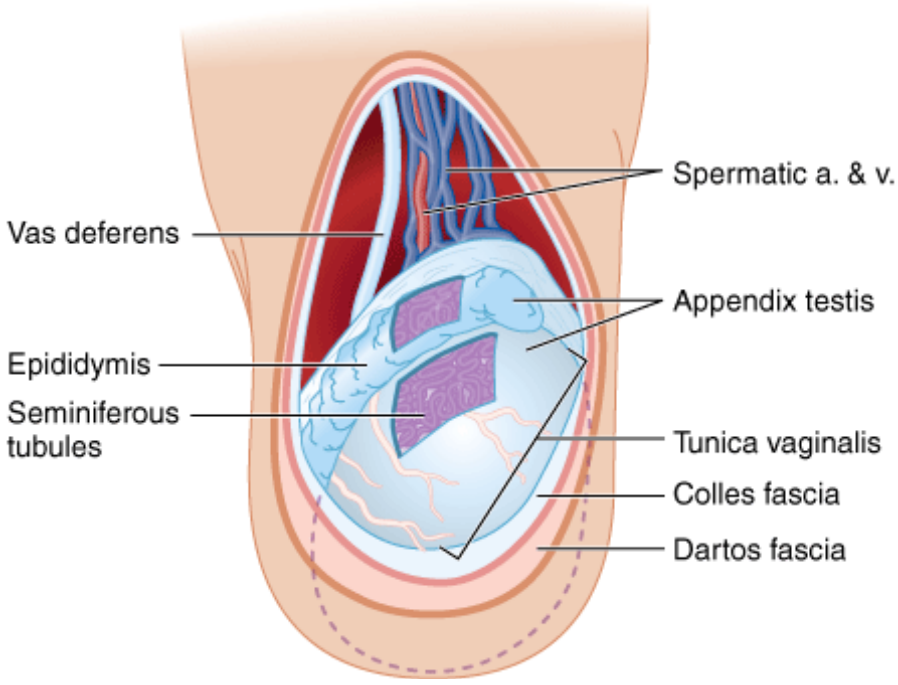
- The penis is composed of THREE CYLINDRICAL BODEIS:
  - The corpus spongiosum → surrounds the urethra
  - Two corpora cavernosa → form the bulk of the penis and are the major erectile bodies and are capped by the glans penis
- These cylindrical structures are encased in a thick tunic of dense connective tissue → TUNICA ALBUGINEA → all three are encased in BUCK FASCIA
- The internal pudendal artery provides the blood supply



SCROTUM AND TESTES:

- Immediately beneath the skin are smooth muscle and elastic tissue of DARTOS FASCIA
- Blood supply from femoral and internal pudendal arteries
- The testes average between 4-5cm in length and 3cm width
  - Usually lie in the upright position, with the superior portion TIPPED SLIGHTLY FORWARD and OUTWARD
  - Each testis is encased in fibrous tunica albuginea → except posterolaterally, where it is in tight apposition with the epididymis
  - Superiorly, the testis is anchored to the scrotum by the scrotal ligament (GUBERNACULUM)
  - The internal spermatic and external spermatic arteries provide the blood supply, travelling together in the spermatic cord
    - Venous return is primarily by the internal spermatic, epigastric internal circumflex and scrotal veins

- The epididymis is a single fine tubular structure that serves to promote sperm maturation and motility



PHYSICAL EXAMINATION:

- The GU exam in the male patient should be performed both in the SUPINE AND UPRIGHT POSITIONS
- Fully retract the foreskin to properly examine the glans, coronal sulcus etc
- Note location and patency of uretral meatus
- Testicular nodularity or firmness should be noted and considered carcinoma until proven otherwise
- The epididymis usually lies on the posterolateral aspect of the testis with soft, fleshy feel
- Examine the prostate → PR will not be able to assess anterior or median lobes
- Examine the inguinal canals for hernias and spermatic cord of varicocele → best done in upright position
- Note alignement of testis → horizontal position more prone to torsion

COMMON GU DISORDERS

SCROTUM:

SCROTAL OEDEMA:

- Simple, isolated scrotal oedema is UNCOMMON → usually in patients with anasaraca who develop contiguous scrotal oedema

SCROTAL ABSCESS:

- Important distinction is whether the phlegmon is localised to the scrotal wall and even perhaps originates from infection in one of the primary intrascrotal organs (testis, epididymis)
- Simple hair follicle scrotal wall abscess managed with I&D only → antibiotics only if the patient is immunocompromised or there is cellulitis/systemic involvement

FOURNIER GANGRENE:

- This is a POLYMICROBIAL, SYNERGISTIC, INFECTIVE **NECROTISING FASCIITIS** OF THE PERINEAL, GENITAL OR PERIANAL ANATOMY
- The process typically begins as a benign infection or simple abscess that QUICKLY BECOMES VIRULENT → especially in an immunocompromised host → results in microthrombosis of the small subcutaneous vessels → gangrene of the overlying skin

Note sharp demarcation of gangrenous changes and the marked oedema of the scrotum and penis

- Patients with DIABETES AND ALCOHOLISM ARE DISPROPORTIONATELY AFFECTED
    - Diabetes is present in 20-70% of patients and chronic alcoholism in 25-50%
- LOCAL SIGNS/SYMPTOMS ARE USUALLY DRAMATIC:
    - Marked pain and swelling
    - Crepitus and ecchymosis of the inflamed tissues is COMMON
- Aggressive fluid resuscitation, and BROAD-SPECTRUM COVERAGE WITH GRAM-POSITIVE, GRAM-NEGATIVE AND ANAEROBIC ANTIBIOTIC COVERAGE → **COUPLED WITH EARLY SURGICAL INTERVENTION**

AND WIDE SURGICAL DEBRIDEMENT → MAINSTAY OF TREATMENT

Empirical therapy

For empirical therapy, where the diagnosis is uncertain and until tissue and blood culture results are available, use initially:

meropenem 1 g (child: 25 mg/kg up to 1 g) IV, 8-hourly

PLUS EITHER

1 clindamycin 600 mg (child: 15 mg/kg up to 600 mg) IV, 8-hourly

OR

1 lincomycin 600 mg (child: 15 mg/kg up to 600 mg) IV, 8-hourly.

- **DESPITE THIS → MORTALITY REMAINS ~40%**
- **Suspect the diagnosis in any immunocompromised patient with complaint of genitalia pain out of proportion or extending beyond the confined area of infection**

PENIS:

BALANOPOSTHITIS:

- Balanitis → inflammation of the glans penis. Posthitis → inflammation of the foreskin. Balanoposthitis → both
- Aetiology is POOR HYGIENE or external irritations with subsequent candida colonisation
- The glans and apposing prepuce appear PURULENT, EXCORIATED, MALODOROUS AND TENDER
- Recurrent episodes may be a feature of DM
- TREATMENT → cleansing with mild soap, ensure area is dry, application of antifungal creams and treat with oral azole. CIRCUMCISION MAY BE NEEDED
- Bacterial infection is suggestd by warmth, erythema and oedema of the glans, foreskin and penile shaft

PHIMOSIS:

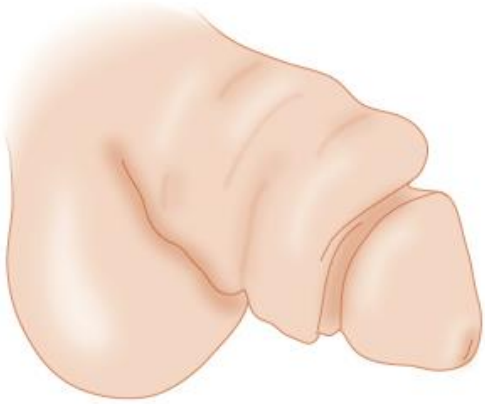
- The inability to retract the foreskin proximally and posterior to the glans penis → caused by infection, poor hygiene or previous injury with scarring. May cause urinary retention infrequently

Phimosis

- Definitive treatment is circumcision → but recently, topical steroids for 4-6 weeks have been shown to be effective in 70-90% cases

PARAPHIMOSIS:

- A TRUE UROLOGIC EMERGENCY → the inability to reduce the proximal oedematous foreskin distally over the glans penis → the resulting glans oedema and venous engorgement can progress to arterial compromise and gangrene



Paraphimosis

- Can often be reduced by compression of the glans for several minutes to reduce oedema → can be aided by tightly wrapping the glans with an elastic bandage for 5 minutes to reduce oedema
    - Less commonly → perform penile block/sedation and make many small micropunctures in glans to remove fluid
    - Can make superficial dorsal incision of the band which will allow foreskin reduction → urology should perform this, but we need to be able to do it if they are unavailable

ENTRAPMENT INJURIES:

- Various objects can be placed around the penis → initially obstructing venous then arterial flow
- Removing the object requires ingenuity → compression, cooling, removal by cutting, urologic surgical removal
    - Compression technique involves wrapping the penis in a distal to proximal direction with thick suture and under the object and uncoiling the string
- HAIR-THREAD TOURNIQUET SYNDROME → hair or filament becomes wrapped around an end-perfusion appendage → leads to hyperaemia, swelling and pain and if uncorrected, the area will necrose → most often seen in males age 3-5 with swelling of the glans. If the hair has been present for some time – urethral injury may occur → urethrogram if suspected
- Another common entrapment injury is PENILE OR SCROTAL ENTRAPMENT IN A ZIPPER
    - Cleanse the area and then provide local anaesthesia with 1% lignocaine, then coat zipper with mineral oil

- If this does not work → cut the zipper away form clothing and cut the sliding bar of the zipper from the zipper teets → the zipper can then be unzipped from below

FRACTURE OF THE PENIS:

- A penile fracture occurs when the TUNICA ALBUGINEA of one or both corpus cavernosa ruptures due to direct trauma to the erect penis
- Can be associated with partial or complete urethral rupture or deep dorsal vein injury → most common cause is sexual intercourse
- On exam → penis is acutely swollen but flaccid, discoloured an dtender
- Retrograd urethrogram may be necessary to assure integrity of the urethra
- Surgical treatment → haematoma evacuation and suture apposition of the disrupted tubica albuginea

PEYRONIE DISEASE:

- Progressive penile deformity, typically curvature with erections, that is painful and may result in erectile dysfunction and preclude adequate penetration
- Consists of plaques along the penile shaft
- Urologic referral is needed

PRIAPISM:

- A UROLOGIC EMERGENCY → presents as a persistent and usually painful pathologic erection in which both corpora cavernosa are engorged with stagnant blood.
  - Impotence can result in 35% cases with sustained erections → emergency urologic consultation is needed
- Many cases in adults are pharmacologically related to impotence agents, as well as oral antihypertensives (hydralazine, prazosin or CCB), antipsychotics (chlorpromazine, trazaodone, thioridazine)
  - In kids → THINK SICKLE CELL DISEASE or other haematologic disorder
- DIVIDED INTO HIGH-FLOW (nonischaemic) and LOW-FLOW (ischaemic) PRIAPISM:
  - High flow is rare and usually results form traumatic fistulae between the cavernosal artery and the corpus cavernosum → diagnosied by Doppler US and successful treated by embolisation
  - Low flow → more common, quite painful
- TREATMENT:
  - Appropriate analgesia
  - Patient should be advised to take 120mg PSEUDOEPHREDINE if they should encounter this issue at home
  - No matter the cause → TERBUTALINE 0.25-0.50MG S/C
  - Corporal aspiration followed by irrigation (preferably with alpha adrenergic agents (PHENYLEPHRINE) is primary treatment method for persistent priapism

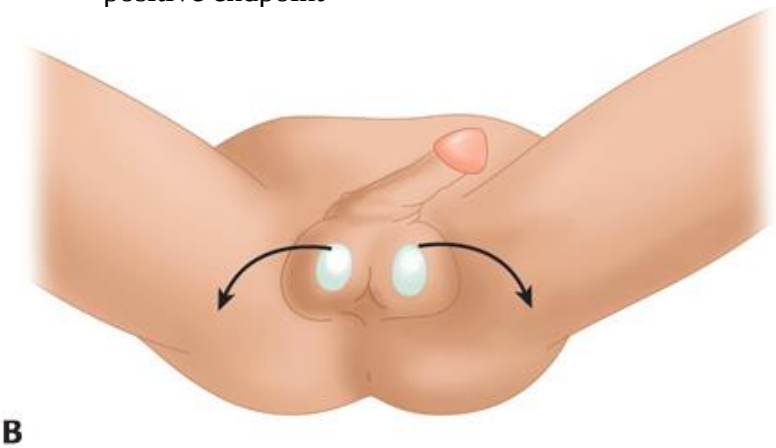
- If medical therapy or phenylephrine infusion fails to produce detumescence, surgery may be required

TESTIS AND EPIDIDYMIS:

TESTICULAR TORSION:

- Differential diagnosis of acute scrotal pain includes:
  - Testicular torsion
  - Torsion of the testicular appendage
  - Epididymitis
  - Incarcerated hernia
  - Trauma
  - Vasculitis
    - Because of potential for infarction and infertility, testicular torsion should be the primary consideration in acute scrotal pain
- Incidence 1 in 4000 males under 25
- BIMODAL AGE DISTRIBUTION → neonates, puberty
  - BUT IT CAN OCCUR AT ANY AGE
- Torsion results from abnormal fixation of the testis within the tunica vaginalis → allows the testis to twist, especially after episodes of minor trauma and during periods of testicular growth → i.e. puberty
- Torsion usually occurs in the ABSENCE OF A PRECEDING EVENT → only 4-8% of cases occur due to associated trauma
- Patients usually complain of ACUTE, SEVERE PAIN, usually felt in the lower abdomen, the inguinal canal or the testis
  - Although the pain may be constant or intermittent, IT IS NOT POSITIONAL IN NATURE
- EXAMINATION:
  - When examined early, the involved testis is FIRM, TENDER AND OFTEN HIGHER THAN THE CONTRALATERAL TESTIS → frequently with a transverse lie
  - The most SENSITIVE FINDING (99%) → UNILATERAL ABSENCE OF THE CREMASTERIC REFLEX
  - Relief of pain with elevation of the affected testicle (PREHN SIGN) is more an indicator of epididymitis and does not reliably distinguish torsion from epididymitis
- TREATMENT:
  - In obvious cases → emergent urologic consultation and surgical exploration are essential
  - With acute torsion → testicular salvage is related to duration of symptoms before surgical detorsion
  - Excellent salvage rates are expected within 6 ohurs of symptoms
  - If equivocal → Doppler US to demonstrate absent or clearly reduced ipsilateral intratesticular blood flow → normal if flow increased or normal

- For emergency or PREOPERATIVE TREATMETN → CONSIDER MANUAL DETORSION of the affected testis
  - Most testis twist in a lateral to medial fashion → therefore, detorsion is done in a medial to lateral fashion → SIMILAR TO OPENING A BOOK (SEE BELOW) ➔ any relief of pain is a positive endpoint



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- Worsening of pain suggests detorsion should be done in the opposite direction
- Successful detorsion converts operation from an emergent procedure to an elective one

APPENDAGEAL TORSION:

- There are four testicular appendages, all of which have no known function
- They are all capable of torsion and probably tort more frequentlys
- Classically these torsions lack the systemic symptoms of nausea and vomiting
- If the patient is seen early, pain is localised to the upper pole of the testis and a blue spot may be observed through the scrotal skin → THE BLUE DOT SIGN is pathognomonic
- These are usually self-limiting and best managed with supportive underwear, analgesia and bed rest
- If late in the process and swelling is present or if Doppler US is equivocal → urologic consultation and surgical exploration is indicated

EPIDIDYMITIS/ORCHITIS:

- Onset of pain is usually GRADUAL → bacterial infection is the most common cause, the agent being related to age of the patient
  - Young boys → sterile reflux, but may be due to coliform bacteria, often with congenital malformations of the lower urinary tract
  - In young men < 40 → STD or complications (urethral stricture)
  - In homosexual men → consider fungal infection in addition to STD
  - Men >40 → e coili, klebsiella
- Epididymitis causes lower abdominal, inguinal canal, scrotal or testicular pain (alone or in combination)
  - POSITIVE PREHN SIGN → patient may report relief with scrotal elevation in the recumbent position

- Examination → large, tender scrotal mass → can be difficult to differentiate from abscess or torsion
- UA → may show pyuria in ~ half patients.
- Obtain culture if urethral discharge is present
- Most cases can be managed as outpatients with oral antibiotics → admit if febrile with toxicity → could be indicative of abscess formation.
    - Advise bed rest initially, then appropriate analgesia and scrotal elevation/ice packs

Urinary tract source

For **mild to moderate infection** likely to be from a urinary tract source (older men, prepubertal boys), use:

1 **trimethoprim 300 mg (child: 6 mg/kg up to 300 mg) orally, daily for 14 days**

OR

2 **cephalexin 500 mg (child: 12.5 mg/kg up to 500 mg) orally, 12-hourly for 14 days**

OR

3 **amoxycillin+clavulanate 500+125 mg (child: 12.5+3.1 mg/kg up to 500+125 mg) orally, 12-hourly for 14 days.**

If resistance to the above drugs is suspected or proven, use:

norfloxacin 400 mg orally, 12-hourly for 14 days.

Avoid norfloxacin in children unless required on microbiological grounds—seek expert advice.

For **severe infection**, use:

gentamicin 4 to 6 mg/kg (see Table 2.24) (child less than 10 years: 7.5 mg/kg; 10 years or more: 6 mg/kg) IV, for 1 dose, then determine dosing interval for a maximum of either 1 or 2 further doses based on renal function (see Table 2.25)

PLUS

amoxy/ampicillin 2 g (child: 50 mg/kg up to 2 g) IV, 6-hourly.

In patients hypersensitive to penicillin (see Table 2.2), gentamicin alone will usually suffice.

If gentamicin is contraindicated (see Box 2.7), as a single drug, use:

1 **ceftriaxone 1 g (child: 25 mg/kg up to 1 g) IV, daily**

OR

2 **cefotaxime 1 g (child: 25 mg/kg up to 1 g) IV, 8-hourly.**

Sexually acquired

Sexually active men (especially those less than 35 years) should be treated empirically for gonorrhoea and chlamydial infection. Use:

ceftriaxone 500 mg in 2 mL of 1% lignocaine IM, or 500 mg IV, daily for 3 days (for gonorrhoea) [Note 1]

PLUS

azithromycin 1 g orally, as a single dose

PLUS EITHER

1 **doxycycline 100 mg orally, 12-hourly for 14 days**

OR

2 **azithromycin 1 g orally, as a single dose 1 week later.**

- ORCHITIS → isolated inflammation of the testis is quite rare and usually occurs in conjunction with other systemic infections → e.g. mumps or other viral illnesses
    - Mumps orchitis starts as unilateral involvement in 70% cases → followed by bilateral involvement in 1-9 days
    - Treatment is symptomatic and disease specific

TESTICULAR MALIGNANCY:

- ANY ASYMPTOMATIC TESTICULAR MASS, FIRMNESS OR INDURATION IS THE HALLMARK OF TESTICULAR CARCINOMA
    - 10% of tumours will present with pain secondary to acute haemorrhage within the tumour

ACUTE PROSTATITIS:

- Acute prostatitis is bacterial inflammation of the prostate gland
- Patient complaints include:
    - Low back pain
    - Perineal, suprapubic or genital discomfort
    - Obstructive lower urinary tract symptoms
    - Perineal pain with ejaculation
    - Fever
- Examination findings → perineal tenderness, rectal sphincter spasm, prostatic tenderness or bogginess
- DIAGNOSIS IS CLINICAL as both urine culture and UA may be negative
- If disease mild, treat as below:

1 **trimethoprim 300 mg orally, daily for 14 days**

OR

2 **cephalexin 500 mg orally, 12-hourly for 14 days**

OR

3 **amoxycillin+clavulanate 500+125 mg orally, 12-hourly for 14 days.**

- If more severe, treat as for severe pyelonephritis. More prolonged treatment may be required. Consider the diagnosis in “recurrent UTI”

For patients with sepsis or vomiting, give parenteral treatment initially while awaiting culture results. Use:

gentamicin 4 to 6 mg/kg (see Table 2.24) (severe sepsis: 7 mg/kg) IV, for 1 dose, then determine dosing interval for a maximum of either 1 or 2 further doses based on renal function (see Table 2.25)

PLUS

amoxy/ampicillin 2 g IV, 6-hourly.

In patients hypersensitive to penicillin (see Table 2.2), gentamicin alone will usually suffice.

If gentamicin is contraindicated (see Box 2.7), as a single drug, use:

1 **ceftriaxone 1 g IV, daily**

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2 **cefotaxime 1 g IV, 8-hourly.**

URETHRAL DISORDERS:

URETHRITIS:

- Characterised by purulent or mucopurulent urethral discharge
- Diagnosis is clinical → confirmed by pyuria or bacteriuria in a first void urine specimen
- Most cases due to gonorrhoea or Chlamydia

URETHRAL STRICTURES:

- Becoming more prevalent secondary to rising incidence of STD → in teenagers and young adults → gonorrhoea and Chlamydia results bulbous urethral stricture
- Can be suggested by abnormal post-void residuals (>150mL)
- When a stricture is encountered, consider use of Coude-tip catheter for IDC and ensure copious anaesthetic lubrication
- If two or three attempts are unsuccessful, consult urology for placement of IDC

URETHRAL FOREIGN BODIES:

- May be victims of innocent exploration or attempts to heighten sexual pleasure
- If suspected → consider x-ray to confirm presence and position
- Often require cystoscopic removal

HAEMATOSPERMIA:

- A disturbing symptom that produces extreme anxiety in sexually active males
- Most commonly, it is due to TRAUMA TO THE URETHRA DURING SEXUAL INTERCOURSE THAT MANIFESTS AS BLOOD IN THE SPERM
    - Other cause → tumour with erosion, inflammation, infection of the ejaculatory system
- Long-considered a benign condition → unless STD suspected or if patient >40 → urology follow up for exclusion of malignancy