Male urethral cancer
May be primary or secondary: primary rare; secondary commonly a/w urothelial carcinoma of the bladder
Primary urethral carcinoma usually arises secondary to chronic irritation
  - Urethral stricture
  - Frequent STI/urethritis
Presentation
  - haematuria
  - urethral bleeding
  - persistent urethral stricture
  - urethrocutaneous fistula
Histology
  - 80% squamous cell carcinoma (a/w HPV 16)
  - 15% transitional cell carcinoma
  - 5% other (adenoCa, melanoma etc.)
Location
  - 60% bulbomembranous
  - 30% penile
  - 10% prostatic
  - Generally anterior urethral tumours do better than posterior urethral tumours
Spread
  - Anterior urethra – superficial and deep inguinal LNs (unlike penile carcinoma palpable LNs almost always metastatic)
  - Posterior urethra – pelvic LNs

Staging (UICC)
Tx  Tumour cannot be assessed
T0  No evidence of primary tumour
Tis  CIS
Ta  Papillary, polypoid or verucoid tumour
T1  Tumour invades subepithelial connective tissue
T2  Tumour invades corpus spongiosum or prostate stroma
T3  Corpus cavernosum, vagina or bladder neck
T4  Other adjacent structures
Nx  Nodal disease cannot be assessed
N0  No evidence of nodal disease
N1  Metastasis to a single LN < 2cm
N2  Metastasis to LN 2-5cm, or multiple LNs < 5cm
N3  Metastasis to LN > 5cm
Mx  Distant mets cannot be assessed
M0  No distant mets
M1  Distant mets
**Management**

Depends on location and tumour stage:

(i) **Penile urethra**

- **Superficial (<T2)**
  - Transurethral resection
  - Local excision and anastomosis
  - Local excision and perineal urostomy
  - Penis tip tumours may be treated by local excision and urethral repair

- **Invasive (T2+)**
  - Distal half penile urethra
  - Partial penectomy
  - Prox. Half penile urethra
  - Total penectomy
  - 2cm margin of excision required for both
  - Bilateral inguinal LND for palpable LNs
  - No reported benefit for prophylactic LND

(ii) **Bulbomembranous urethra**

- **Superficial**
  - Uncommon
  - TUR/laser fulguration
  - Local excision and primary anastomosis

- **Invasive**
  - Radical cystoprostatectomy, pelvic LND and total penectomy
  - Possible inclusion of pubic arch excision and adjacent urogenital diaphragm in continuity
  - Limited value for radical radiation therapy – reserved for unfit patients/those who refuse surgery

(iii) **Urethral recurrence after orthotopic substitution**

- Urethrectomy with cuff of pouch. Excision of redundant pouch and use of chimney as ileal conduit is standard management. Occasionally mitrofanoff/monti to neobladder but a/w high revision rate and risk of pelvic recurrence
Female urethral cancer
Primary urethral cancer only urological cancer more common in women than men
4x more common in females cf. males
Still rare however, accounting for ~ 1% female GU malignancies
Whites > blacks
Aetiology – chronic irritation (Urethral diverticula, stricture, leukoplakia)
Presentation
  Bleeding
  Palpable mass
  Obstructive symptoms
  Acute retention
  Palpable lymphadenopathy (30% - higher in more advanced disease)

Microscopy
Squamous cell carcinoma  50-70%  (HPV 16)
Transitional cell carcinoma* 10-25%
Adenocarcinoma** 10-25%

* transitional cell epithelium covers proximal third of urethra (distal two thirds stratified squamous epithelium)
** slightly higher incidence in diverticula

Anterior two-thirds of urethra drain to superficial and deep inguinal nodes: posterior third to internal and external iliac nodes

Diagnosis and staging
Cystoscopy, EUA and biopsy
MRI useful for loco-regional staging
Pelvic lymph node mets in 20%
Staging as for male urethral cancer

Treatment and prognosis
As for males, distal tumours a/w better prognosis
Distal third of urethra may be excised without compromising continence

(i) Distal tumours
  Tend to be low stage
  Local resection acceptable for exophytic tumours of distal third
  Radical urethrectomy reported with bladder closure and diversion (iliovesicostomy or appendicovesicostomy) but local recurrence rates ~20%
  Radical radiotherapy a/w similar five yr-survival to surgery (55-70Gy +/- brachytherapy) – 40% 5YS
  No evidence for prophylactic LN dissection – bilateral LND only recommended in palpable disease.

(ii) Proximal tumours
  Tend to be higher stage
  Poor 5YS with anterior exenteration alone (<20%)
Combination therapy recommended for optimal Rx
  SCC = 5FU and MMC, radiation therapy and surgery
  TCC = MVAC/GemCis, radiation therapy and surgery

Surgery
  Wide vaginal excision +/- partial vulvectomy
  Anterior exenteration and pelvic lymph node dissection
  Pubic arch resection largely historical particularly if pre-operative radiotherapy considered