

Urology Teaching

Continence

Types

- Urge
 - Urine loss accompanied by urgency resulting from abnormal bladder contractions
- Stress
 - Urine loss resulting from sudden increased intra-abdominal pressure
- Mixed
 - Combination of the two forms of incontinence

Affects ~15% of females and 5% of males, with prevalence increasing with age. Cost to NHS of £1.5-1.75 billion annually.

Major effect on quality of life – limits some activity, limits sexual contact, travel planned around availability of toilets, social isolation, increased risk of institutionalisation of the elderly.

Bladder pressure inappropriately high – unstable bladder
Urethral pressure inappropriately low – ‘true’ stress incontinence

Aetiology:

- Dementia-behavioural
- Genuine stress incontinence
 - Exact cause unclear
 - Associated with pregnancy, previous vaginal delivery, pelvic floor prolapse, pudendal neuropathy, biochemical lesions of pelvic floor collagen
- Detrusor instability
 - Involuntary detrusor contractions, during the filling phase, which may be spontaneous or provoked
 - Obstructive, neuropathic (MS, stroke, spina bifida, etc), idiopathic
 - Exact cause unclear – neurogenic and myogenic theories
- Overactive bladder
 - Urgency, frequency, urge incontinence, singly or in combination
- Overflow incontinence
- Post-micturition dribble

History

- Urge-related or stress-related
- Frequency of leakage
- Degree of leakage (pad use)
- Length of history
- Other symptoms (haematuria?)
- Symptoms correlate poorly with urodynamics

Examination

- Palpable bladder
- Pelvic floor contraction strength
- Pelvic floor prolapse
- Prostate
- Neurological, if indicated

Investigations

- Urinalysis
- Frequency-volume chart
- Flow rate
- US residual
- Urodynamics

Treatment

- Behavioural
 - Fluid management
 - Voiding frequency
 - Scheduled/prompted voiding
 - Bladder training
 - Pelvic floor physiotherapy
- Medical
 - Anticholinergics
 - Oxybutinin XL, Tolterodine XL
- Surgical
 - Stress – Burch/injections/sling
 - Overactive bladder – clam cystoplasty

LUTS (Lower Urinary Tract Symptoms)

Typically frequency, nocturia, urgency/incontinence, hesitancy, etc

Not specific to any one condition

BPE – Benign Prostatic Enlargement (Clinical diagnosis)

BPH – Benign Prostatic Hyperplasia (Pathological diagnosis)

BPO – Benign Prostatic Obstruction (Clinical and urodynamic diagnosis)

BOO – Bladder Outlet Obstruction

BPH:

- Ubiquitous in men as they age
- Transition zone (around urethra)
- BOO – dynamic (α -adrenergic control) and static (tissue bulk)
- Treat – α -blockers (dynamic factor), finasteride, TURP (static factors), phytotherapy (mechanism unknown)

Palpable bladder (>500ml to be palpable) indicates retention (defined as residue >300ml). Tender if acute, chronic retention may not be.

Urodynamics – look at trace as well as figures to get picture of problem. Residual volume of 50-100ml is significant.

TRUSP – Transrectal U/S Prostate

Haematuria and Urothelial Tumours

Haematuria – frank/macro or ‘dipstick’/micro. Always consider bladder cancer as a cause – can present painlessly.

Sources:

- Kidney (U/S)
- Bladder (Cystoscopy)
- Urethra (Cystoscopy)
- Ureter (U/S ± IVU, urine cytology)

CT with contrast (relatively new technique) can be used in high risk patients.

Urothelial tumours:

- Usually transitional cell carcinoma, rarely squamous cell carcinoma.
- Main risk factors are smoking and exposure to aniline dyes.
- Grade 1-3 (1 – well differentiated, 3 – poorly differentiated)
- Stage:
 - TA – Bladder lining
 - T1 – To lamina propria
 - T2a – Up to ½ of muscle
 - T2b – Deeper muscle
 - T3 – Peri-vesicular fat (a – micro, b – macro)
 - T4 – Surrounding structures
- TA/1, G1/2
 - TU resection, mitomycin to reduce recurrence
 - Higher risk if >2cm diameter, multifocal, CIS
- T1, G3
 - 1/3 are progressive, patient will die
 - 1/3 No progression
 - 1/3 Require Cystectomy
 - Resect, BCG therapy
 - Biopsy area to look for invasion
- T4
 - Refer to oncologist
 - Palliative radiotherapy/chemotherapy
- CIS
 - Red patches on bladder wall
 - Dysuria, urgency
 - Mitomycin

Urothelial tumours may extend to prostatic urethra – these cases are often higher risk. Ureteric tumours are often high grade, and difficult to diagnose.

Other causes of haematuria

- Viral warts in urethra
- Recent TURP
- Prostate cancer
- Renal lesions
- Kidney/ureteric/bladder stones
- Infection

Prostate Cancer

Stage:

- T1 – Intracapsular (found in ~1/4 of men >50 at post-mortem)
- T2
- T3 – Locally advanced
- T4 – Invading other structures

Risk factors – age, FH (BRCA2 – prostate and breast ca.) western lifestyle)

Diagnosis

- Screening has significant impact on death rate
- Often asymptomatic
- LUTS
- Haematuria
- Bone pain
- Suspicious DRE
- High PSA
- TRUS, biopsy

Prognosis:

- Good in early disease, improved with radical prostatectomy
- Poor if metastatic disease

Complications of treatment

- Prostatectomy
 - Death (very rare), bleeding, incontinence, impotence
- Radiotherapy
 - Tired/nausea, inflammation of bowel/bladder, incontinence, impotence
- Surveillance
 - None immediate
 - Anxiety of living with cancer

Scrotal swelling

- Tumour
 - Typically present with lump attached to testis
 - Prognosis usually good
- Torsion
 - Testicular pain in child (<4, 12+)
 - Needs surgery within 2-4 hours to salvage testis.
 - Main differentials are torsion of hydatid, or epididymal orchitis (infection – may take months to resolve)
- Hydrocoele
 - Most idiopathic, can be a reaction to insult. ~10% recur
 - US if testes not palpable or to confirm diagnosis
 - Aetiology:
 - young - patent processus
 - old - fluid forms in scrotum

- Epididymal Cysts
 - Can be excised, but frequently recur
 - Often multiple small cysts as well as presenting lump
 - Main differential – spermatocele.
- Varicocele
 - Look like hernia, but no cough impulse, tend to go if patient supine.
 - More common on the left.
 - Can be caused by renal tumour
 - Consider surgery:
 - Embolise
 - Laparoscopic
 - Open - least chance of recurrence
 - Pain may persist after surgery
- Haematoma
 - Should be history of trauma
- Inflammation
- Hernia

Urological Trauma

Resuscitation

Renal Trauma

- Imaging
 - AXR
 - Haematoma:
 - Loss of psoas shadow
 - Loss of renal shadow
 - Lower rib# suggests renal damage possible
 - CT - best modality
 - Everyone with gross haematuria after trauma
 - Microhaematuria after deceleration injury
 - Any penetrating injury
 - Nephrogram phase - contrast in tubules - small lacerations
 - Excretory phase - extravasation of contrast
 - IVU
 - Unstable patient - check two functioning kidney before surgery
 - Renal angiogram
- <3% injuries need surgery
- Consider embolisation

Bladder Trauma

- Rare – typical mechanism blunt trauma on full bladder
- 20% have no haematuria
- Imaging: cystogram/CT cystogram
- Most ruptures are extra-peritoneal, ~20% intraperitoneal
 - Intra need repair, but tend to recover rapidly
 - Extra – conservative treatment, longer term catheter
- Any penetrating injuries need surgery

Urethral Trauma

- Rare unless patient has #pelvis
- Usually membranous urethra affected
- Signs:
 - Butterfly haematoma
 - High riding prostate
 - Blood at meatus
- Do not insert a catheter!
- Suprapubic catheter and wait – poor outcome if early repair

Testicular Trauma

- Need to exclude torsion
- Usually clear history and obvious signs of injury
- Examine both testes and epididymes
 - Should all be palpable and distinct
- Normally clinical diagnosis, U/S if needed
- Look for split in tunica albuginea – rupture needs repair, haematoma usually doesn't

Penile Trauma

- Audible crack – '#' bucks fascia
- Exclude urethral trauma
- Explore urgently - better outcome if early repair

Paediatric Urology

Only two medical indications for circumcision:

- Balanitis xerotica et obliterans (BXO)
 - Thickening and depigmentation of foreskin, often adherent to glans
- Balanitis
 - Infection of foreskin and shaft of penis
 - Consider circumcision for one episode, definitely if recurrent

Other conditions:

- Prepuce adhesions
 - Normal at birth, settle with time. No treatment if asymptomatic
- Non-retractile foreskin
 - No problem if asymptomatic
- Hypospadias
 - Urethral meatus too proximal (ventral)
 - Hooded foreskin
 - Do not circumcise – foreskin used in reconstruction
- UTI
 - Warning sign of underlying pathology
 - May have congenital malformation

- Undescended testis
 - 3-4% of newborn, <1% at 1 year
 - Positions:
 - Scrotal (normal)
 - Ascending
 - Ectopic
 - Retractable (not a problem)
 - Undescended
 - Increased risk of malignancy
 - Decreased fertility (even if corrected)
 - Increased risk of torsion
 - Cosmetic problem