COMMONWEALTH OF AUSTRALIA

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Lower Urinary Tract Symptoms

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Learning objectives

By the end of this session students should be able to

• identify the main causes of lower urinary tract symptoms (LUTS) in men and women in different age groups
• assess severity and aetiology through focused clinical history and examination and appropriate investigations
• understand the pathophysiology of common conditions that present with LUTS, particularly Benign Prostatic Hypertrophy (BPH)
• describe in broad terms the various medical and surgical treatments available
• understand the difference between painful and painless retention
• understand underlying aetiology (particularly BPH) and role of precipitating factors
• recognize complicated retention and indications for admission (renal impairment, post-obstructive diuresis etc.)
• describe appropriate management options including interval TOV, medical therapy, and surgical intervention.
Scenario

Mr White, a 73 year old man presents with ‘problems with his waterworks’

• *What are the different bladder symptoms that patients can experience?*
• *What questions would you ask?*
• *What is the differential diagnosis?*
# History

<table>
<thead>
<tr>
<th>Obstructive</th>
<th>Poor Flow</th>
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<tbody>
<tr>
<td></td>
<td>Hesitancy</td>
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<td></td>
<td>Intermittency</td>
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<td>Terminal dribbling</td>
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<td>Irritative</td>
<td>Frequency</td>
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<td>Urgency</td>
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<td>Nocturia</td>
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<td>Incontinence</td>
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- Symptom duration and severity
- Degree of bother!!
- Significant medical conditions and co-morbidities
<table>
<thead>
<tr>
<th>Aetiology</th>
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<tbody>
<tr>
<td>Obstructive</td>
<td>BPH</td>
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<tr>
<td></td>
<td>Ca Prostate</td>
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<td></td>
<td>Stricture</td>
</tr>
<tr>
<td>Irritative</td>
<td>Secondary to obstruction</td>
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<tr>
<td></td>
<td>UTI</td>
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<td>Ca Bladder</td>
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<td></td>
<td>Stone</td>
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<tr>
<td></td>
<td>Diabetes</td>
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<td>TB</td>
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</table>
Scenario

What would you look for on examination of Mr. White?
Physical Examination

• Abdomen: Is there a palpable / percussible bladder

• Genitalia: phimosis / balanitis / meatal stenosis / epididymitis

• DRE: CaP? Rectal Mass? (prostate size?)
Scenario

What further assessment would you undertake of Mr. White?
Investigations

• MSU
• U/E and Cr
• ?PSA
• Bladder diary
• Voiding flow rate
• USS
  – residual urine
  – hydronephrosis
Management I

- Exclude Medical Causes
  - Diabetes
  - Diuretics
  - Nocturnal polyuria
  - Caffeine / Alcohol
  - Polydipsia
  - Sleep Apnoea
  - Drugs (anti-cholinergic, sympathomimetic)
Management II

• Observe

• Medical treatment
  – alpha blockers
  – 5-alpha reductase inhibitors
  – Combination

• Surgical treatment
  – TURP / BNI / Open prostatectomy
Urinary Retention - Scenario

Mr White, a 73 year old man now presents to the ED with retention of urine

• What does this mean?
• What are the different types of retention?
• What are the possible causes of acute urinary retention?
• What are the precipitating factors?
Acute Urinary Retention

• Sudden and *painful* inability to pass urine
• Although most frequent urological emergency, relatively uncommon
• If painless, not AUR!
  – Neurogenic
    • Central
    • Peripheral (DM)
  – Longterm voiding dysfunction with decompensated detrusor
  – Aging
What are the causes
Which of these are painful?

- BPH
- Prostate cancer
- Stricture
- Acute precipitants:
  - UTI
  - Diuresis
  - Constipation
  - Drugs
  - Postoperative
  - Bleeding (clot retention)
- Neurological (beware spinal cord compression!!)
  - Diabetes Mellitus
  - Stroke
  - Parkinsons disease
  - Acute spinal cord injury
Pathophysiology

Spontaneous

• Usually history of progressive LUTS (like Mr White)
• Risk factors
  – Aging
  – Established LUTS
  – Low urinary flow rate
  – ‘Large’ prostate
  – Raised PSA

Precipitants

• Medication (anticholinergic/sympathicomimetic)
• UTI
• Diuresis (alcohol)
• Postoperative (pain, anesthetic, analgesics, loss of mobility)
Pathophysiology

• Usually related to BPH
  • Urethral stricture
  • Pelvic trauma
  • Cancer

• Fixed component
  • Hyperplastic tissue

• Dynamic component
  • Muscle contraction
Scenario

What if it was Mrs. White rather than Mr. White with the same presentation?

• How are the causes different between men and women?
• Can you think of any additional causes in women?
Female AUR

• Reflex AUR
  – Urethritis / UTI
• Intrinsic compression
  – Meatal stenosis / stricture
  – Tumour
  – Urethral diverticulum / stone
• Extrinsic compression
  – Severe prolapse
  – Pelvic space occupying lesion
Scenario

Mr. White has had mild LUTS for six months, mainly decreased flow and nocturia. He was at a wedding reception that evening, prior to presenting in ED.

• What are some of the likely precipitants for Mr White?
• How will you assess and treat him initially?
Assessment

Initial Management
• Brief history
• Anything that might complicate catheterisation (PHx TURP, strictures)
• Pass catheter

History
• LUTS
• Ask about precipitants
• Neuro conditions etc.
• Medication

Physical examination
• Residual urine
• DRE
• Focused neurological Investigation
• CSU -> M/C/S
• U/E
• Urinary tract USS
  – Prostate size
  – Complications (bladder calculi, hydronephrosis)
• ?PSA – not usually
Treatment

• Establish drainage
  – Indwelling urethral catheter
  – Intermittent self catheterisation
  – Suprapubic catheter

• Evidence of complicated retention
  – Obstructive nephropathy
  – Sepsis
Passage of IDC

• Sterile technique
• Lignocaine jelly
• Patient supine and relaxed (analgesia & confidence!)
• Catheter sizes:
  – 12-14F for man
  – 14-16F for woman
  – 22-24F 3-way for haematuria
• How do you know you are in?
  – Return of urine
  – Catheter up to the hilt
  – Do not inflate balloon unless sure
Unable to pass IDC

• ?Hx of stricture or TURP
• Evidence of trauma? Blood on catheter?
  – Possible false passage
• Ask for help
• Try different size
• Other options (only for experienced)
  – SPC (US guided)
  – Catheter introducer (only if urologist)
  – Flexi cysto and IDC insertion
Obstructive Nephropathy

• Back pressure from AUR sufficient to cause renal dysfunction
• Defined by:
  – Elevated Cr
  – B/L hydronephrosis
• Postobstructive diuresis
  – >200ml/hr for >2 hr
  – Usually osmotic with some impaired tubular function
  – Usually self-limiting

Management
• Admit
• Monitor urine hourly
• Replace urine output with ½ volume 0.9% NaCl
• Monitor U+Es regularly
• Beware ↑ volume & ↓ sodium
• Replace Mg$^{2+}$ PO$_4^{3-}$ as required
What are the treatment options?

- Alpha-blocker and Trial of Void (TOV)
- Surgery
  - TURP
  - Laser
  - Open
- Longterm IDC / ISC
What are the side effects of each of these treatments?

• Alpha-blocker and Trial of Void
• Surgery
  – TURP
  – Laser
  – Open
• Longterm IDC/ISC
TOV (Trial of Void)/TWOC

- Acute surgery associated with ↑ morbidity/mortality
- Long term IDC associated with ↑ sepsis
- Timing
  - Simple: 2-3 days
  - Complicated: 1-2/52
- Role of alpha-blockers
  - Improve TOV success rate
- Natural history
  - 25-30% successful
  - Remainder -> bladder outlet surgery
Practicalities

• Leg-bag education and two different types of drainage bags (day and night)
• Ensure right length of tubing for patient preferred bag position
• Anchor catheter- if pulls on urethral meatus will erode through -> hypospadias
• Consider starting on tamsulosin 0.4 mg OD
• Consider admission if safety issue