

COMMONWEALTH OF AUSTRALIA

Copyright Regulations 1969

Warning

This material has been reproduced and communicated to you by or on behalf of the University of Melbourne pursuant to Part VB of the *Copyright Act 1968 (the Act)*.

The material in this communication may be subject to copyright under the Act. Any further copying or communication of this material by you may be the subject of copyright protection under the Act.

Do not remove this notice



MELBOURNE
MEDICAL
SCHOOL

Lower Urinary Tract Symptoms

Mr Niall Corcoran

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

Obstructive	Poor Flow
	Hesitancy
	Intermittency
	Terminal dribbling
Irritative	Frequency
	Urgency
	Nocturia
	Incontinence

- Symptom duration and severity
- Degree of bother!!
- Significant medical conditions and co-morbidities

Aetiology

Obstructive	BPH
	Ca Prostate
	Stricture
Irritative	Secondary to obstruction
	UTI
	Ca Bladder
	Stone
	Diabetes
	TB

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

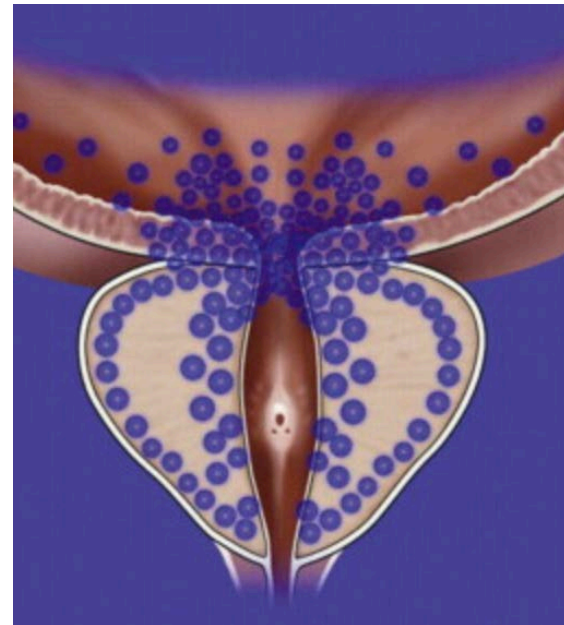
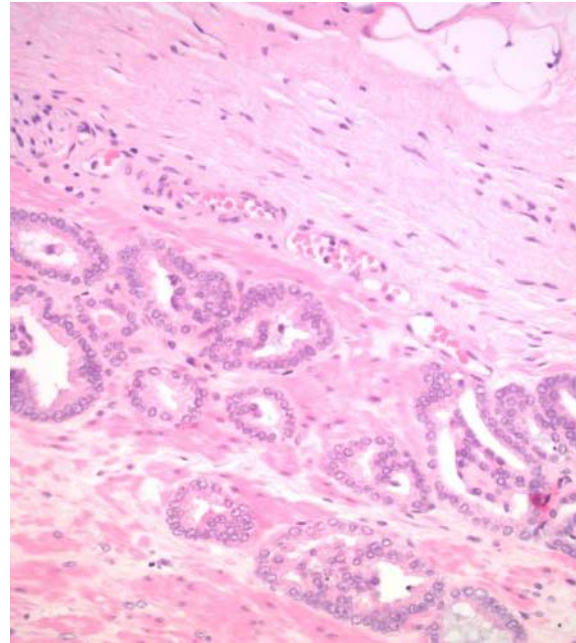
- Usually history of progressive LUTS (like Mr White)
- Risk factors
 - Aging
 - Established LUTS
 - Low urinary flow rate
 - ‘Large’ prostate
 - Raised PSA

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



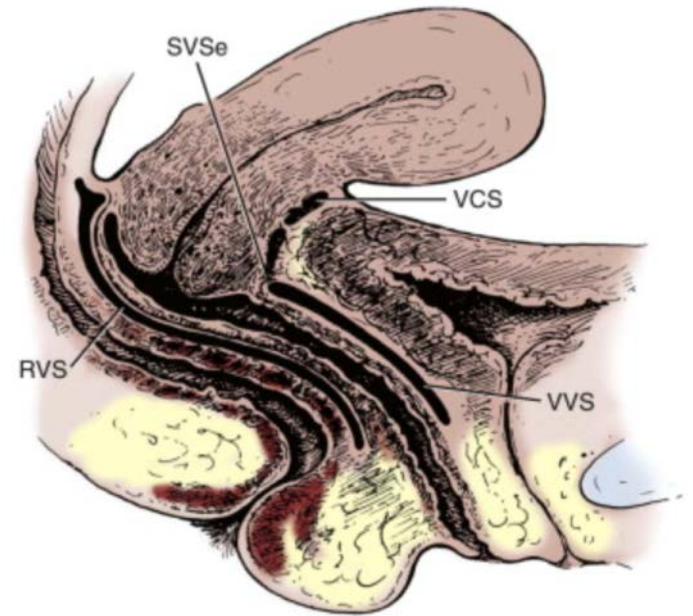
Scenario

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

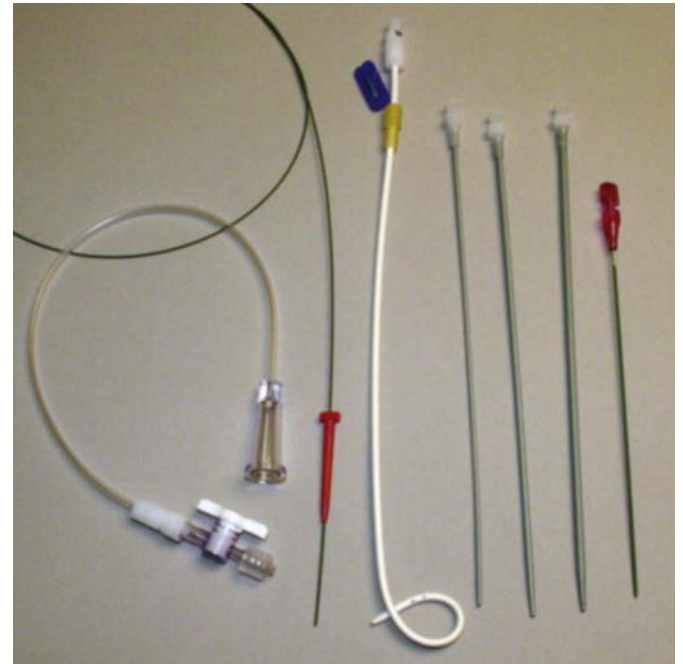
- Residual urine
- DRE
- Focused neurological

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 $\frac{1}{2}$ volume 0.9% NaCl
- Monitor U+Es regularly
- Beware \uparrow volume & \downarrow 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



THE UNIVERSITY OF
MELBOURNE

MELBOURNE MEDICAL SCHOOL