Management of Urinary Retention & Surgical Management of BPH
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Benign prostatic hyperplasia

Obstructive symptoms
- Hesitancy
- Weak stream*
- Straining
- Prolonged micturition
- Feeling of incomplete emptying*

Irritative symptoms
- Urgency
- Frequency
- Nocturia
- Urge incontinence
International Prostate Symptom Score – 7 ?’s - scored from 1-5

1. Incomplete emptying
2. Frequency
3. Intermittency
   1-7 Mild
4. Urgency
   8-18 Moderate
5. Weak stream
   19+ Severe
6. Straining
7. Nocturia
   B.S. 1-6
Flow rate tracing in normal patient and patient
Distribution of alpha receptors
Alpha 1 adrenoceptor blockers

- Prazosin (Hypovase)
- Indoramin (Doralese)
- Terazosin (Hytrin BPH)
- Doxazosin (Cardura)
- Alfuzosin (Xatral XL)
- Tamsulosin (Flomax)
5 alpha reductase inhibitors

- Finasteride (Proscar)
- Dutasteride (Avodart)
- Big prostates
- Bleeding prostates
- Elderly unfit patients
- Combination tamsulosin/dutasteride (Combodart)
Medical Management Considerations

Nature and severity of symptoms
Bothersome score and impact on quality of life
Reduced urinary flow and increased residual volume post-void
Watchful waiting, alpha-blockers, 5 alpha-reductase inhibitors
Aetiology of Bladder Outflow Obstruction

- Benign prostatic hyperplasia
- Carcinoma of prostate
- Bladder neck stenosis
- Urethral Stricture
- Meatal stenosis
- Phimosis
- Haematuria and clot retention
- Foreign body
Classification of Retention

• Acute urinary retention
• Chronic urinary retention
• Acute on chronic urinary retention
Bladder Outflow Obstruction

Bladder scan
U’s & E’s, FBC ??PSA

Catheterise and record
  – Size and type of catheter
  – Amount of fluid in balloon
  – Residual urine
  – Urine quality (blood, clots, debris, smell, etc.)

CSU (dip and send)

Treat constipation, TWOC or not, alpha-blocker or not, surgery
Short-term Catheters

- Latex Foley
- PVC (urological use only)
- Up to 7 days
- 2-way catheters
- 3-way catheters
Intermediate-use Catheter

- PTFE-coated (latex core)
- Up to 28 days
Long-term Catheters

- Hydrogel-coated latex
- Silicone
- Up to 12 weeks
Complications of Catheterisation

- Urethral trauma and false passages
- Infection
- Haematuria and urethral bleeding
- Bladder irritation and spasm
- Paraphimosis
- Latex allergy
- Stone formation
- Traumatic ‘hypospdiias’ (dysrhraphism)
Acute Urinary Retention

• Very painful
• 300 mls+
• Pain relieved by catheterisation
• Beware the ‘ticket of admission’
  – Oliguria or aneuria
  – Pelvic masses or ovarian cysts
  – GI masses
  – AAA  (fluid filled masses can fool US RV scanner)
Acute Urinary Retention

- Catheterisation
- Treat underlying cause where possible (constipation, UTI, etc.)
- Role of alpha-blocker
- Trial without catheter
- Acute on chronic retention of urine
Chronic Urinary Retention
Chronic retention

- Painless retention of >300ml
- Broadly subdivided into 2 groups
  - HPCR – residual volume remains at a pressure higher than the intra-abdominal pressure after micturition
  - LPCR
- HPCR associated with bilateral hydronephrosis
Pathophysiology of upper tract dilatation in chronic retention

Combination of diuresis and bladder filling causes upper tract pressures to rise.

Once ureters become dilated, co-aptive peristalsis is lost and ureteric drainage becomes dependent on gravity.

If end void pressure >25cm/H$_2$O, deterioration in renal function ensues.

HPCR associated with hypertension (50%), Peripheral oedema CCF (20%).
Pressure cycle in high pressure chronic retention

Detrusor pressure vs. Volume

- Change caused by catheterisation
- End-void pressure
- End-fill pressure
- void
Post-obstructive Diuresis

Refers to the marked polyuria that occurs after relief of BUO or obstructed single kidney

Normally physiological - to excrete retained water and solutes

*Can be* pathological caused by impaired sodium reabsorption or concentrating ability
Why does Diuresis occur?

- Three distinct types of postobstructive diuresis exist
- Urea diuresis is the most common
- Sodium diuresis is the second most common postobstructive diuresis
- Water diuresis is rare
Post obstructive diuresis

- Increase in salt and water excretion is universal after relief of BUO
Clinical management of post obstructive diuresis

20% urine output > 4 litres/day
10% develop thirst requiring oral fluids
5% require i.v replacement therapy because of postural hypotension
1% prolonged POD/ chronic salt losers
Recovery

• Tubular 0-14 days
  Reversal of tubular changes in obstruction - increased fractional excretion sodium leads to diuresis - Maximal at 24 hours
  No change in GFR

• Glomerular 14 days -3 months
• Change in GFR
  Gradual and more subtle

Jones DA, George NJ, O’Reilly PH, Barnard RJ. BJUI 61:192-197, 1988
Management

Strict hourly UO
Daily weights, U+E’S
BP - look for orthostatic hypotension

Majority do not need volume replacement i.e. diuresis is physiological

A minority of patients will show a UO of > 200ml/hr for 6 hours
Management

These patients need close observation and fluid replacement

Aim to replace 1/2 hourly urine output with N. saline

Also watch for postural hypotension and hyponatraemia
Management

- Input/output
- Urea, creatinine, electrolytes
- Daily weights
- BP supine & standing
- Assess JVP, oedema, signs of CCF
Management

• Bladder recovery
• Role of urodynamic assessment
• Timing of Surgery if appropriate
Management of Bladder Outflow Obstruction

Indications

Failed medical management
Chronic & acute on chronic retention
Acute urinary retention (failed TWOC)
Recurrent UTI’s (big RV’s or prostatitis)
Secondary instability
Recurrent haematuria
Surgical management of BOO

- Cold punch
- TURP in glycine / 5% dextrose (monopolar)
- TURP in saline (bipolar)
- TUIP
- TUNA
- Intraurethral stents
Surgical Management of BOO

• Balloon dilatation of the prostate
• Hyperthermia
• Vaporisation (Vaportrode)
• Nd-YAG LASER
• Ho-YAG LASER
• Green light LASER
Cold Punch Prostatectomy
TURP
Intraurethral Stent and TUNA
Thermotherapy
Balloon Dilatation and Vaporisation (Vaportrode)
Nd-YAG and Ho-YAG LASER
Greenlight LASER
Greenlight LASER

The green light laser vaporizing the enlarged prostate.