Urinary Retention

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Introduction
Urinary retention is a common clinical problem afflicting patients both in hospital and as an outpatient. It may be described as acute, often a painful condition associated with bladder outlet obstruction; or chronic, an often painless condition incidentally diagnosed and secondary to obstruction or progressive detrusor failure. Junior doctors are often called upon to manage patients in urinary retention and a good basic understanding is required in order to treat these patients safely and effectively.

Case 1 - You are a junior doctor working after hours covering the orthopaedic ward. You are called to see a patient who is Day 2 post hip replacement and a bladder scan performed after the patient complains of lower abdominal pain reveals a 600mL bladder. He has failed his trial of void after his catheter was removed this morning.

1. Initial assessment of the patient?
   - Is the patient septic or stable?
   - Do they have kidney impairment secondary to their retention?
   - Are they in extreme pain?

2. Outline your assessment approach by the bedside
   - History
     - Is the problem acute or chronic?
       ▪ Pain – tends to indicate that the problem is acute when associated with urinary retention
       ▪ Lack of pain may suggest chronic bladder outflow obstruction with relatively high post void residuals, requiring outpatient workup
     - Baseline urinary tract function?
       ▪ Difficult starting or stopping stream
       ▪ Difficulty maintaining stream
       ▪ How many times do you void during the day / wake up at night to void?
     - Previous history of bladder related issues / prostate issues
     - General patient factors?
       ▪ Is the patient mobile or confined to bed?
       ▪ Have they required opioids frequently?
       ▪ Are they elderly?
       ▪ Are they on any other drugs with anticholinergic properties?
       ▪ What type of surgery? For example, ultra-low anterior rectal resections or spinal surgery can cause a neuropraxia affecting bladder function
   - Examination
     - Broad approach required
       ▪ Abdominal examination – bladder palpation and abdominal examination
       ▪ Genitourinary examination – including prostate examination
       ▪ PR exam – size and shape of prostate, presence of constipation, perineal sensation
3. **Investigations for urinary retention**
   - Unrecognised urinary retention, bladder over distension which over the long term may result in irreversible detrusor damage
   - **Bladder scan**
     - Simple, often effective. Requires minimal equipment and is safe
     - Not always perfect (e.g. in ascites, abdominal collections, pelvic haematoma, morbid obesity) and is operator dependent
     - Owing to wide variations in PVR in any one client, at least three consecutive readings are recommended to ensure a correct reading
   - **Abdominal USS**
     - Simple and safe. Less convenient than a bladder scan however more reliable
   - **Measurements required**
     - **Post Void Residual (estimate / calculation of residual volume of urine after voiding)**
       - It is generally considered that a PVR less than 50mL is adequate bladder emptying, while over 200mL is thought to be inadequate
       - Healthy, young person – less than 30mL residual is normal
       - Older person – dependent upon the clinical situation
   - Urine MCS, kidney function, FBC, other tests as required

4. **Which diagnoses are worth considering in this patient?**
   - **Common**
     - Benign Prostatic Hypertrophy
     - Drug related – Anticholinergic medications, antidepressants, opiate pain relief etc particularly recent changes
     - Urethral stricture
     - UTI
     - Post op status with baseline mild bladder outlet obstruction
   - **Causes of acute urinary retention (in general, male and female)**
     - **Male**
       - Obstructive - BPH, Meatal Stenosis, Paraphimosis, Prostate cancer
       - Infective – Balanitis, prostatitis, prostatic abscess
     - **Female**
       - Obstructive – organ prolapse (cystocele, rectocele, uterine prolapse) and pelvic mass (gynaecologic malignancy, uterine fibroid, ovarian cyst and even pregnancy!)
       - Infective - acute vulvovaginitis; vaginal lichen planus; vaginal lichen sclerosis; vaginal pemphigus
     - **Neurological**
       - Disorders of the brain, spinal cord or peripheral nerves can all produce lower urinary tract dysfunction
       - Brain – CVA, concussion, MS, neoplasm, Parkinsons Disease, normal pressure hydrocephalus
       - Spinal Cord – disc disease, dysraphic lesions

5. **Management for this patient**
   - Insert of Foley catheter initially
   - Rationalise medications that might be contributing (pain relief, anti-cholinergics etc)
   - Strict adherence to aperients to minimize risk of constipation contributing to symptoms
   - **Alpha Blockers**
     - Can help in BPH, increased bladder neck tone, or prostatitis
     - Risk of postural hypotension - care & counselling in elderly frail patients
     - Risk to patients with upcoming cataract surgery – Floppy Iris Syndrome
   - Aim to never remove a catheter after 12pm – TOV should ideally commence in the morning to allow for recognition of failure by day staff
• Failing a TOV
  o Catheter reinsertion
  o Education about management of the leg bag and easing their concerns regarding how to use a
    tap, how to not get tangled up, how to put on the night bag and empty in the morning
  o Liaison with outpatient services that can help patients at home

Case 2 - You are a junior doctor working in ED. You are called to see a patient who has been referred by his
GP with a history of TURP, a recent abnormality in blood tests and an outpatient USS showing 1.2L painless
bladder retention.

1. Initial assessment of the patient
   • Is the patient septic or stable?
   • Do they have kidney impairment secondary to their retention?

2. Outline your assessment approach by the bedside
   • Similar, however in this case the patient has presented with chronic retention?
   • Recent PSA testing?
   • How long has the poor urinary function been occurring/getting worse (urinary frequency, strained
     voiding, nocturia, post-terminal dribbling etc)?
   • When was the last normal blood test?
   • Recent UTI symptoms?

3. Investigations (similar to previous case)
   • In this case passage of the IDC yourself may be useful
     o Passage of an IDC through a urethral stricture will quickly prove difficult
     o Passage of an IDC smoothly may represent detrusor failure or bladder outlet obstruction due to
       benign prostatic hypertrophy, and excludes significant stricture

4. Diagnostic considerations
   • Recent history of TURP or urethral surgery demands careful consideration prior to catheterisation - seek
     urology opinion prior to attempting a catheter
   • Prostatic regrowth, urethral/bladder neck scarring and detrusor failure are all important diagnostic
     possibilities
   • Should the patient have a life expectancy of greater than 7 years careful diagnostic workup of prostate
     cancer is required

Causes of chronic urinary retention
• Low pressure failure to empty (detrusor muscle failure -> painless detrusor stretch -> atony ->
  incomplete emptying)
• High pressure failure to empty due to outlet obstruction (long term BOO -> detrusor hypertrophy ->
  coarse, thick fibrous band formation -> bladder wall thickening and trabeculation -> high void pressures
  -> saccule formation -> diverticula formation)

5. Management for this patient
   • Insertion of an IDC
   • Monitoring of complications
     o Post Void Diuresis (passage of large volumes of urine +++ requiring strict input = output
       monitoring)
     o Decompression Haematuria – can occur, sometimes requiring washout if recurrent clot blockage
       of catheter occurs

6. Take home messages
   • Very important to get a history
   • If chronic high volume residuals, but stable volumes (<600mL) and nil red flags or signs of infection,
     renal impairment – outpatient workup without placement of an IDC may suffice
   • Always monitor urine output closely following IDC insertion to ensure early detection of post
     obstruction diuresis
References
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