



IDC (Indwelling Urinary Catheter) Tips & Tricks

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Introduction

Insertion of urethral catheters is a common task for junior doctors, particularly after-hours. When asked to catheterise a patient, junior doctors should always take a moment to consider the situation and the indication for the catheter. Ask for help in special cases in order to avoid iatrogenic injury.

1. What are the main indications for a catheter?

- Urinary retention (most common indication)
- Urinary incontinence – can be urethral or suprapubic (SPC) or
- Following major surgery for urine output / fluid balance measurement and titration
- Post-urological procedures – particularly reconstructive surgery, cancer surgery, irrigation for haematuria and clot evacuation

2. What different types of catheters exist?

- 2 main types: suprapubic catheter (SPC – from skin to bladder) and urethral catheter (through urethra)
 - Catheters can be 2-way or 3-way catheter (3-way has 3 lumens, used for irrigation, e.g. of clots)
 - A Foley catheter is the most common type and has a balloon and draining system
 - If the tip is angled, this is a coude catheter
- The higher the number, the larger the size of the catheter
 - The standard size for most patients is 14-16F
 - The calibre of the urethra for most patients is ~26-28F
 - Smaller catheters (eg 10F) used in paediatrics

3. Why might a patient be difficult to catheterise and what can junior doctors do?

- The patient might be anxious and in pain – this could make positioning difficult
- If a patient has recently had urological surgery, a junior doctor should not be inserting the catheter as there is significant risk of iatrogenic injury
- Female catheters
 - Female catheters are usually easier to insert because the urethra is short
 - The main problem that arises is identifying urethral meatus due to inadequate exposure so getting a nurse to help can assist this
- Male catheters
 - Strictures – if the catheter encounters resistance early on, this is usually due to a urethral stricture (bands of fibrous tissue causing narrowing of the urethra)
 - Forcing the catheter through can create a false passage and subsequent attempts to catheterise will be more difficult
 - Start with a 14F or 16F, straighten the penis upward and insert 2x lubricant before inserting the catheter gently and if there is resistance early on, downsize the catheter to, e.g. 12Fr
 - If this doesn't work, call the urology registrar – they may have to be dilated under cystoscopy
 - When the urethra turns – the urethra does an acute turn before the junction of urethra to prostate
 - Once again, applying too much pressure can create a posterior false lumen because urethral tissue is supple and fragile and the catheter tips could be stiff
 - While keeping the penis on a mild stretch, bring down the penis (parallel to the ground) as you reach the prostate, and then gently advance the catheter

- Sphincter – when a patient is in pain (secondary to urinary retention), they will be holding tightly and the sphincter will not relax
 - Advise the patient to relax by relaxing the pelvic floor and then gently advance the catheter
- Prostate – a large, occlusive prostate can stop a catheter passing
 - Larger catheters are stiffer and could help overcome this problem

Case 1 – You are the junior doctor on call overnight. You have been asked by nursing staff to see a geriatric patient who is confused and has pulled out his catheter.

4. How do you approach this clinical scenario?

- First, consider what the indication for the catheter was (usually the catheter does not need to be immediately reinserted)
 - For example, If the indication is incontinence and it is 3am and the patient is confused and combative, it is not necessary for it to be reinserted at that time, however if the indication is retention, it needs to be reinserted
- The patient will have caused trauma to the urethra and prostate by pulling the catheter with an inflated balloon, so expect some degree of haematuria and bleeding
- Try to settle the patient so that following reinsertion, it will not be pulled out again
- When attempting to reinsert, be gentle because the urethra has been traumatised and get nursing staff to help settle the patient
- After insertion, ensure it is secure by putting pants and/or a nappy on the patient to cover the catheter or the patient may need to be restrained

5. What should a junior doctor do who has failed to insert a catheter?

- Firstly, consider the indication and avoid further iatrogenic injury. Catheters are usually the cause of strictures (~10-20% of strictures caused by catheters)
- The type of catheter should be chosen based on the indication
 - If someone is haematuric, choose a larger size of catheter
 - You may need a 3-way catheter to irrigate the bladder and prevent clot retention
 - If it is just for monitoring, a smaller size is sufficient (e.g. 14Fr)
- If you cannot get the catheter in, ask for help (surgical or urology registrar)
- Other times to ask for help – urethral reconstruction surgery / radical prostatectomy / radiation to prostate
- NB: Never inflate the balloon if you're not sure the catheter is in the bladder
 - The balloon is distal to the drainage holes so you could be inflating it inside the prostate
 - Push the catheter all the way to the end and ensure urine is draining

6. When do you consider a trial of void (TOV)?

- Always attempt to optimise chances of a successful trial of void
 - Ensure you have a patient who produces urine (in renal failure, this will take a long time)
 - Ensure the patient is mobile (hard to pass TOV if immobilized)
 - Ensure adequate analgesia – pelvic floor spasm if the patient is in pain
 - Remove catheter early in the morning so they have the duration of the day to pass
 - Consider inserting some fluid into the catheter to kickstart the process (50-100mL)

Case 2 – A 50 year old woman in a rural hospital has had a hip replacement and goes into urinary retention. The nurses have been unsuccessful at inserting a catheter and have asked you to do it. Exposure is suboptimal as the patient is unable to abduct the right hip and there is a cystocele on examination. You are unable to see the meatus.

7. What can we do to aid exposure?

- Exposure is vital for female catheterisation
- Anatomical abnormalities (e.g. urethral opening not where you would expect) may be present but are rare
- As women age, they develop prolapse and cystoceles and changes in the anatomy
- Prepare all necessary equipment including large drapes, get 1-2 nurses to help and abduct the non-surgical side for exposure and slightly abduct the surgical side
- Ask the nurse/s to help expose the labia
- Consider pushing the cystocele back in to visualise the urethral opening
- Insert some lubricant to urethral meatus to ensure it is the correct opening

8. You are unsuccessful. You get advice from a regional hospital who tells you to insert a suprapubic catheter.

- SPC insertion is an invasive procedure – there are a lot of risks associated with SPCs (bleeding, bowel and rectal injury)
- You must ask for help
- There are two sets of SPCs
 - One has a sheath (14-16Fr) which you stab directly into the bladder, then remove the trocar and pass the definitive catheter through the sheath
 - Bonanno catheter (Seldinger type): These are smaller in diameter and have a long needle with a sheath loaded on it and inserted like a cannula – once you get urine flashback, you advance the catheter and secure it with stitching
 - You may need a 3-way catheter to irrigate the bladder and prevent clot retention
 - If it is just for monitoring, a smaller size is sufficient (e.g. 14Fr)
- Ensure the patient has a full, distended bladder (a half-full bladder has a higher risk of complications)
 - Ultrasound or palpation can be used to confirm
- Find the pubic symphysis and go 1-2 fingerbreadths above
- Prepare all necessary equipment and insert some local anaesthetic
- Insert the catheter perpendicular to the ground
- Secure the catheter well and apply dressing
- Antibiotics is often recommended (single dose of continuous)

Case 3 - A 70 year old man presents to the Emergency Department with acute urinary retention and acute kidney failure (Cr 700, K⁺ 6.5). A catheter is inserted and drains 1L almost immediately.

9. What should we worry about in this case?

- Contact the renal and urology teams immediately
- This patient is at risk of having a post-obstructive diuresis
 - Patients who have had chronic obstruction secondary to bilateral nephrosis and a distended collecting system – when you insert a catheter and decompress the system, the patient can produce a lot of urine and lose a lot of electrolytes
 - It takes a while for the kidneys to recover and be able to concentrate urine
 - The patient is susceptible to electrolyte imbalances
- Ensure the patient is euvolaemic
- The patient needs electrolyte measurements twice daily, hourly urine output measurements and 2x IVCs (1 for fluid replacement, either Hartmann's or normal saline, matched to output)
- Replace electrolytes as necessary with particular attention given to K⁺, Ca²⁺ and Mg²⁺
- As time progresses, you will be able to withdraw fluids as the patient can re-concentrate urine and maintain electrolyte and fluid balances