Urinary catheterisation

Complications & Troubleshooting

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WHY???????

Catheters have been used since 3000 BC by the greeks – straw, rolled palm leaves + gold, silver

Benjamin Franklin invented catheter in 1752 – silver

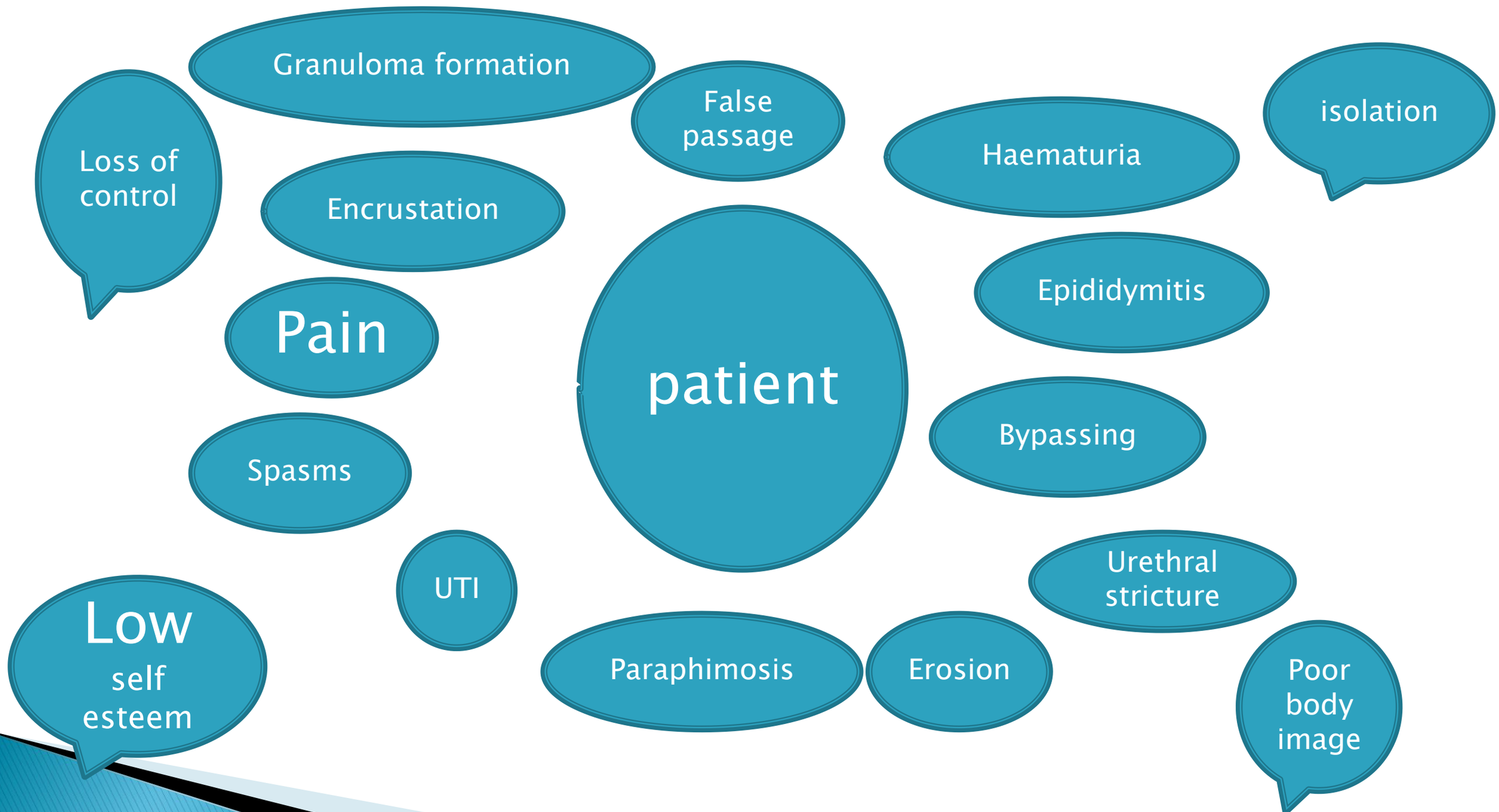
Aims of the talk

Discuss what can go wrong

Discuss reducing risks

Discuss managing troublesome problems and when to refer

What can go wrong



What does this mean?

Poor patient experience, -ve impact to quality of life

Increased pressure on service

Increased cost

Prevalance in UK 0.5% >75yrs

4% requiring care in the community

Whether short term or long term, catheterisation must be based on a balanced decision with more benefits than risks. The patient must be central to the decision making

Catheter complications

Usually of more concern in long term catheterisation:

- Trauma/erosion
- Urethral stricture
- Frank haematuria – 30% of LTC users
- Pain – 70% report discomfort
- catheter bypassing
- Encrustation – 40–50% of LTC users
- Bladder stones – 50% of those with encrustation
- Catheter associated urinary tract infection – universal

Macrohaematuria

Occurs in 30% of long term catheter users

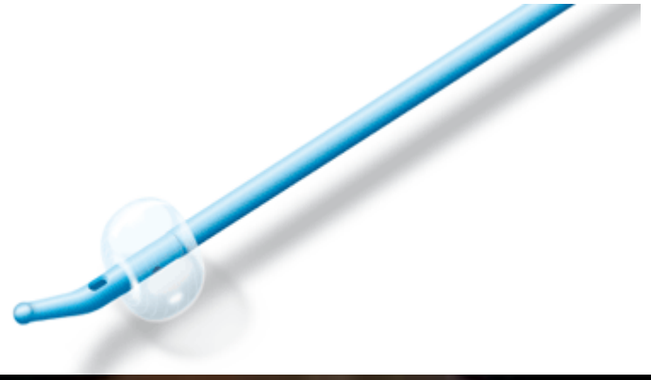
In men most likely caused by enlarged prostate obstructing urethra

But can be

Decompression of high pressure chronic retention

macrohaematuria

TIPS

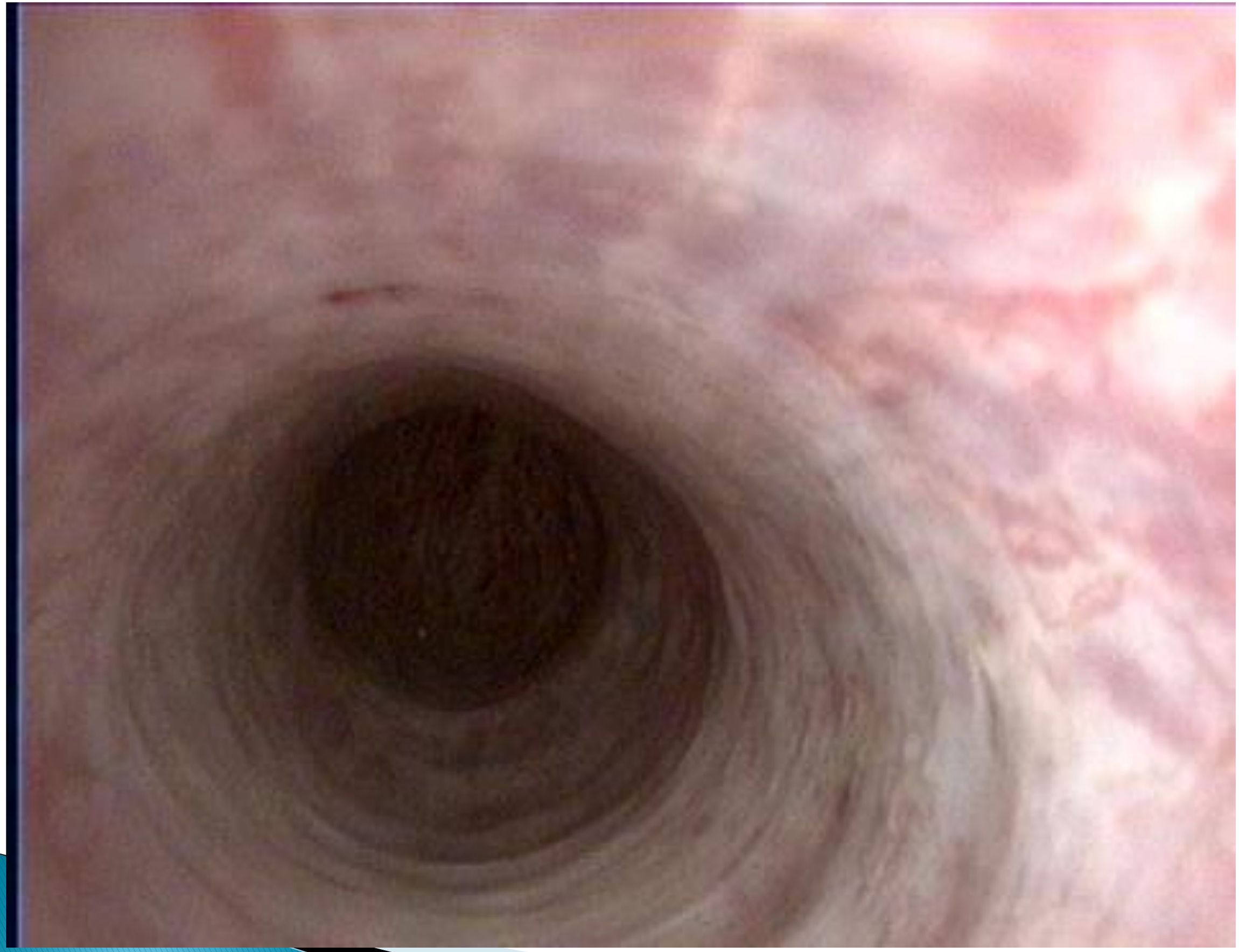


Can use a Tiemann catheter

Don’t treat as UTI without systemic signs

New, recurrent, visible haematuria is worth investigating once

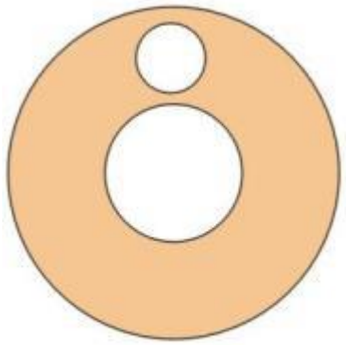
If no serious cause, 5ARIs or suprapubic catheterisation if catheterisation difficult



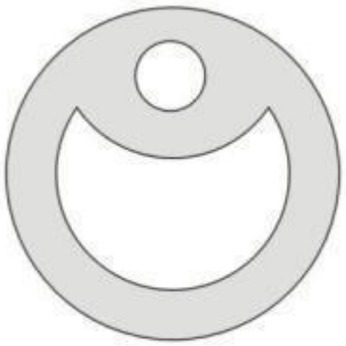
Catheter bypassing

Occurs in 40% of people with catheters – this is a symptom
Causes could be

- Bladder spasms
- Constipation – pressure on lumen
- Functional – pulling of catheter
- Neuropathic bladder
- Catheter material/size
  allergy/cath too big



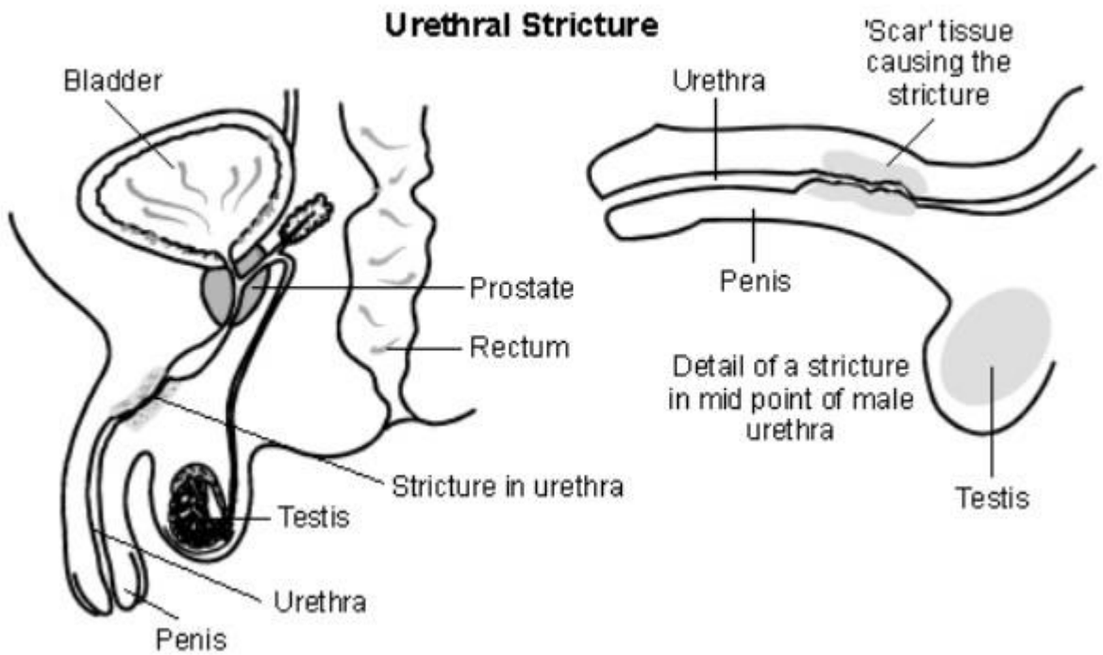
latex



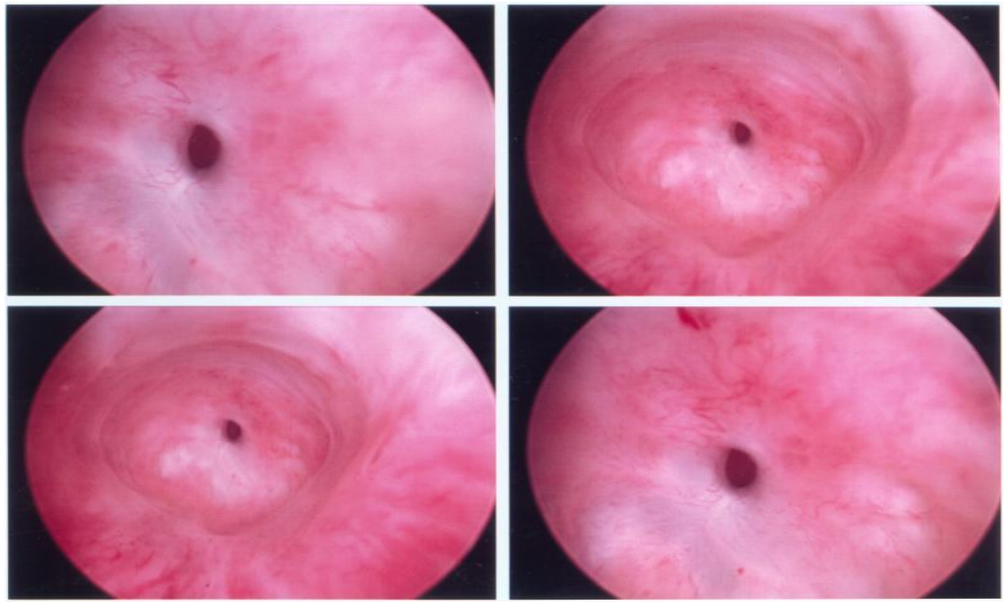
silicone

Iatrogenic trauma

Urethral stricture



Formation of false passage



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management

Assessment of patient

Education

Good technique

Surgery – circumcision/urethrotomy

Consideration of suprapubic

Catheter expulsion

Recurrent spontaneous expulsion of a fully inflated catheter balloon can be common in women who are bed bound, overweight. Water can diffuse from the balloon over time

management

- Secure catheter
- Consider increasing balloon size?
- remove catheter
- Prefilled syringes containing 10% aqueous glycerine
- assess for suitability suprapubic catheter

CAUTION

- over inflation of the balloon can cause occlusion of drainage eyes, irritate bladder and lead to bladder spasms

- Can also sit higher in bladder with risk of high residual urine below catheter eye

Bladder pain/spasms

Common in people with catheters

- Constipation – maintain regular bowel function
- Detrusor spasm
- Catheter position/change catheter type
- UTI
- Blocked catheter

Antimuscarinic medication may be of benefit for some people.
intravesical BOTOX if this fails

Catheter Associated urinary tract infection – CAUTI

Asymptomatic bacteriuria increases in frequency with length of catheterisation :

Accounts for 40% of hospital acquired infection

Essentially 100% in long term users

Bacteriuria is a feature of urinalysis but does not require treatment if person asymptomatic

Suprapubic catheter are less prone to cause symptomatic infection

Infecting Organisms

Short term catheterisation organisms:

50% E coli Infecting Organisms

Remainder a mix of Staphylococcus, Enterococcus, Pseudomonas, Klebsiella and Proteus

All long-term catheterised individuals have positive urine cultures

95% with more than one organism

Up to 40% with Proteus species

Need to be sure of difference between:

1. Asymptomatic urinary tract colonisation

2. Symptomatic urinary tract infection

CAUTI

To reduce the risk:

- Use closed drainage system
- Use of silver coated catheter
- CAUTI bundle
- Replace catheters prior to commencement of antibiotics for symptomatic UTI

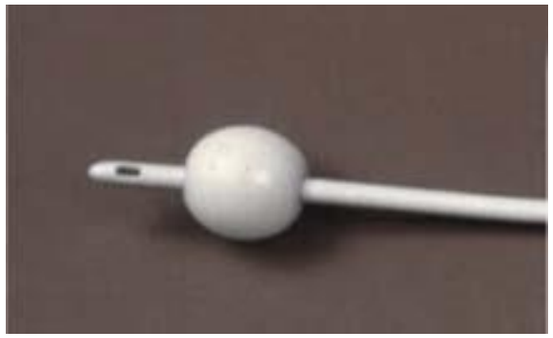
What does not reduce the risk

- Regular bladder washout
- Regular bag change
- Regular meatal cleansing beyond normal hygiene

Difficult Catheter removal

Balloon deflated, still stuck

- May be consequence of Encrustation or faulty catheter
- Refill and empty balloon slowly
- Leave 1-2 ml in balloon
- Instill small volume of citric acid and leave for 5mins
- If that doesn't work, refer to hospital



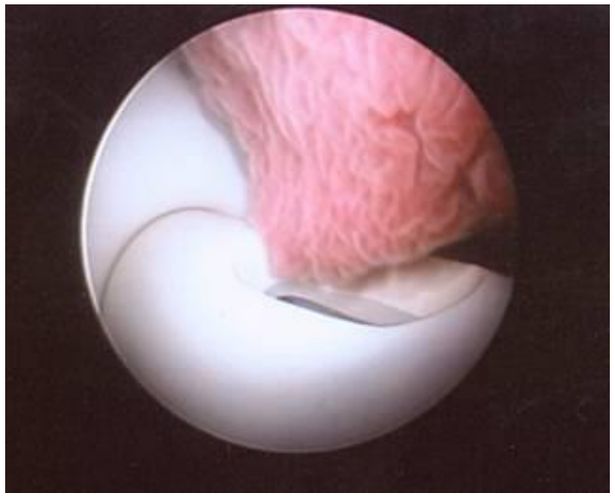
Prevention

Use of catheter with integrated balloon

The ‘Blocked’ Catheter

Causes of a non-draining catheter:

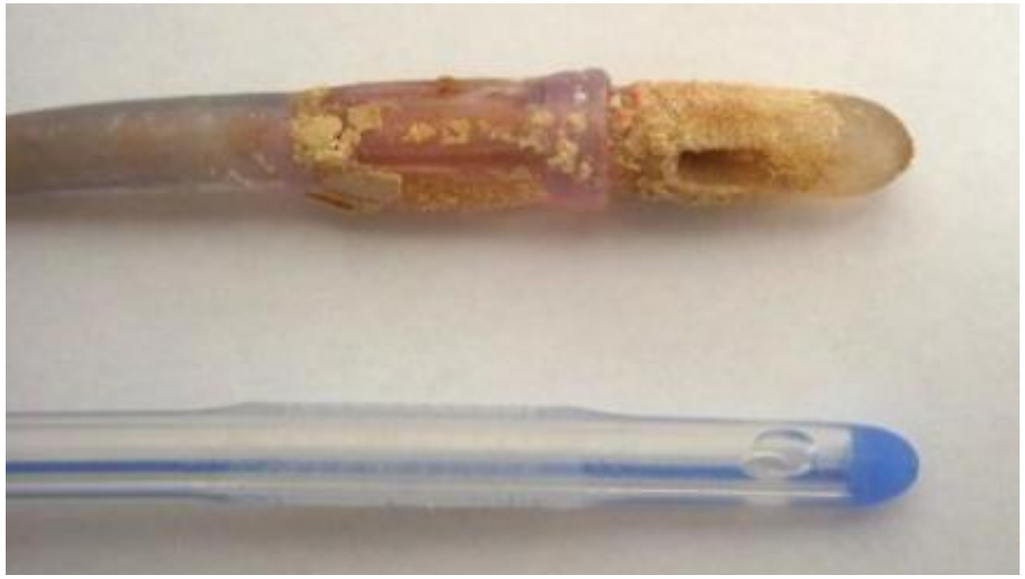
- Debris – mucous, blood from infection, urothelial cells from the bladder
- Encrustation – 70% and of these 60% are associated with bladder stones
- Kinking of the catheter
- Siphon effects– against bladder wall
- Bladder spasm



History is useful, pH isn’t, but gold standard is cut the catheter open.

Catheter Encrustation

- Result of bacteria in the urine most commonly Proteus
- This produces an enzyme called urease
- Urease splits urea into ammonia and carbon dioxide
- Increase of alkalinity – crystals develop



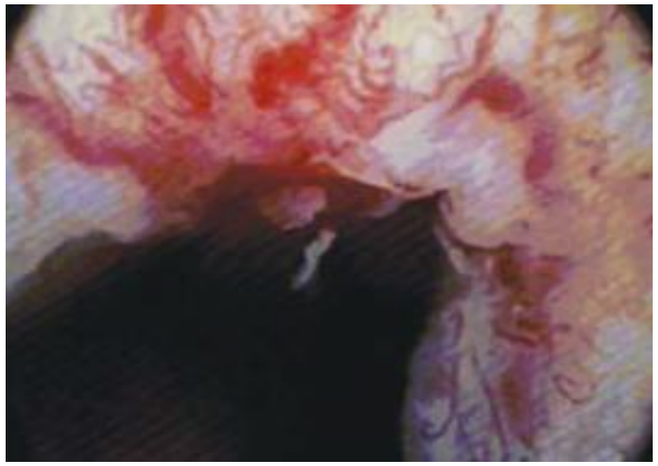
Management

- Increased fluid intake, lemon juice supplements and potassium citrate supplements – reduce the incidence and severity
- Use of valve– Intermittent drainage reduces the risk
- Reposition of catheter bag and secure– dependent free bag will cause siphoning pressure
- Larger catheter
- Bladder washouts – may be of some benefit but limited evidence
- Investigate for bladder stones if recurrent 'blocker'

Bladder washouts

Limited evidence that washouts are helpful- require more robust studies to understand frequency, duration, volume, method and concentration

For some patients washouts are recommended
Option to be discussed with patient and clinical team



Whatever else you do, recognise that the catheter will eventually block

Work out an expected catheter lifespan

Change the catheter more often than this

Plan strategies to cope with unexpected blockage

Finally

NMC – the Code for nurse and midwifes

- Prioritise people
- Practice effectively
- Preserve safety
- Promote professionalism and trust

Further reading

European Association of Urology nurses (2012) evidence based guidelines for best practice in urological health care: catheterisation indwelling catheters in adults, urethral and suprapubic

European Association of Urology nurses (2013) evidence based guidelines for best practice in urological health care: catheterisation urethral intermittent in adults.

Royal College of Nursing (2012) catheter care: RCN guidance for nurses

Further reading

NICE (2012) Infection: Prevention and control of healthcare-associated infections in primary and community care

SIGN (2012) Management of suspected bacterial urinary tract infection in adults

THANK YOU