Cystoscopy Indications and Preparation

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The primary indication for cystourethroscopy is the diagnosis of lower urinary tract disease.
Indications

• Gross & Microscopic hematuria
• Recurrent UTI’s
• Trauma
• Obstructive voiding symptoms
• Irritative voiding symptoms
• Dysuria
• Atypical cytologies
• Bladder abnormalities on imaging studies
• Obstruction after TURP

• Interstitial cystitis (or chronic pelvic pain syndrome)
• Known history of bladder cancer
• Incontinence
• Urethral stricture disease
• Hematospermia
• Pelvic mass
• Bladder stones
• Removal of foreign bodies
• Facilitate catheter insertion
Preparation

- Rule out active UTI
- Counsel patient regarding indications for procedure
- Sterilely prep and drape
- 5-10 mL of lubricant-anesthetic jelly should be instilled into the urethra before the procedure
- Antibiotic prophylaxis
Is Antibiotic Prophylaxis Required for Flexible Cystoscopy?  
A Truncated Randomized Double-Blind Controlled Trial

**Purpose:** Examine the incidence of UTI after flexible cystoscopy (FC) and determine whether prophylactic norfloxacin reduces this incidence compared with placebo.

**Patients and Methods:** A double-blind trial randomizing 234 patients to either 400 mg of norfloxacin or placebo prior to FC. All patients provided a midstream urine specimen (MSU) before the procedure, as well as at day 3 and day 7 after FC. In addition, a telephone questionnaire was performed to correlate the nature and severity of any symptoms associated with UTI.

**Results:** Interim analysis was performed because of the low recruitment rate, and a significantly lower infection rate than expected meant that the trial was discontinued. There was one symptomatic UTI in the placebo group (0.82%) and one in the norfloxacin group (0.89%). The UTI in the placebo group was de novo, while the infection in the norfloxacin group was secondary to pre-FC bacteriuria. There was no difference in the infection rates in the two groups. The overall infection rate (de novo and secondary to existing bacteriuria) after FC was 0.85%.

**Conclusion:** Infection after flexible cystoscopy is rare and not associated with significant morbidity. A much larger study would be required to determine whether antibiotic prophylaxis significantly reduces the rate of postprocedure UTI.
Equipment

- Rigid or Flexible Cystoscopes

- Advantages of rigid endoscope:
  - Better optics
  - Larger working channel allows greater versatility in passage of instruments
  - Larger lumen for water flow, thus improving visualization
  - Ease of manipulation and maintaining orientation during inspection within the bladder
  - Better for evacuating clots

- Advantages of flexible endoscope:
  - Greater comfort for the patient
  - Ability to perform the procedure with the patient in the supine position
  - Ease of passing the instrument over an elevated bladder neck
  - Ability to inspect at any angle with deflection of the tip of the instrument
Rigid cystoscope consists of metal sheath to which a water source is attached (A); obturator (B); bridge (C); deflector system (Albarran lever) (D); and lens to which a light source is attached (E).

(A to E, Courtesy of Circon Corp., Santa Barbara, CA.)
Lenses

- 0-degree lens usually used for urethroscopy
- 30-degree lens: visualization of the base and anterolateral aspect of the bladder
- 70- to 90-degree lens: used to view the bladder dome
- Retrograde lenses with an angle of view greater than 90 degrees can be used to visualize the anterior bladder neck
Flexible Cystoscopes

- Contain fiberoptic bundles for illumination and visualization
- Has an irrigating channel and a working channel for passage of instruments
- Can be deflected 180-220 degrees
- Digital Flexible cystoscopes eliminate the need for fiber bundles and the honeycomb pattern of the image
• Size of cystoscopes is usually given using the French scale and refers to the outside diameter of the instrument in millimeters.

• 1 Fr = 0.3mm

• 15Fr = 5mm
Getting Started…

• Any urologic irrigant can be used
  • Sterile water or saline most common
  • electrocoagulation = avoid solutions containing electrolytes

• Does size matter?
  • The smallest outer circumference to accomplish the task is ideal
  • Diagnostic cysto = a small instrument (16 to 17 Fr) is adequate
  • If a larger working channel is needed for accessory equipment a larger endoscope is necessary

• Inspect urethral meatus
Male Cysto

- Grasp and straighten the penis so it forms almost a right angle to the abdominal wall

- Insert scope into fossa navicularis while paying attn to mucosal abnormalities

- Identify the external sphincter, veru montanum, prostatic urethra, and bladder neck

- Comment on the length of the prostatic urethra and if it appears to be obstructing
Female Cysto

• Under direct vision insert cystoscopy into urethral meatus.

• Angle scope cephalad to account for normal urethral angle
Endoscopy of the Bladder

• Perform in a systematic manner to evaluate for mucosal abnormalities
  • Erythema, tumors
  • Trabeculations, cellules, diverticulum

• Identify both UOs
  • Can be difficult with median lobes and trabeculations
  • Document efflux of urine (clear/bloody)

• Perform retroflexed view to evaluate bladder outlet
Complications of cystoscopy

- Urinary tract infection
- Bladder perforation
- Bleeding
- Stricture
- Reaction to gel
- Acute urinary retention
Case Studies
Case Study # 2

- 37 yo male referred for microhematuria
- PMH: infertility

- UA: 5-7 RBCs/HPF; creatinine: 0.8
- CT abd/pelvis with/without contrast (neg)

- Cysto...
Urethral Stricture
Case Study #3

- 62 yo male with 5 year hx of moderate/severe LUTS. Mainly obstructive symptoms, but some irritative as well.

- Prior treatments: alpha blockers

- Non-invasive urodynamics:
  - Voided volume: 259; Qmax: 10 ml/s
  - PVR: 129
Intravesical lobe
Case Study #4

- 57 yo wf recurrent UTIs
- E-coli; multiple rounds of abx
- UA: +pyuria, trace hematuria
- Urine culture: E Coli
- Renal U/S: Normal
- Cysto:
Trigonitis
S/p TURP
• Questions????