Cystourethroscopy for the OBGYN

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FIGURE 7.1  Cystoscopy as described by Kelly used a supine position with the hips elevated. The instruments used by Kelly are arranged in the foreground. (From Kelly HA. The direct examination of the female bladder with elevated pelvis: the catheterization of the ureters under direct inspection, with and without elevation of the pelvis. Am J Obstet Dis Wien Child 1894,25:7, with permission.)
OBJECTIVES: Cystourethroscopy for the Gynecologist

- Indications for use
- Benefits and risks of use
- Instrumentation
- Systematic examination-How to do it
- Practical applications- Findings and what to do about it
Cystourethroscopy for the Gynecologist

Why and when do we want to look?
Cystoscopy for the ObGyn
Indications for use

- Suspected injury to the bladder/urethra/ureters
- During/after urethral sling or RPU
- Complex pelvic surgery
  - Prolapse repair
  - Dense endometriosis
  - Urethral diverticulum repair
  - Vesico-vaginal fistula repair (closure, ureter eval)
  - Radical hysterectomy (stent ureters)
  - Anterior vaginal wall procedures (AR, cysts)
- Pre-operative evaluation-Office evaluation
  - recurrent/failed incontinence surgery
  - suspected FB/erosions
  - Chronic pelvic pain/ Painful Bladder Syndrome-Interstitial Cystitis
- Routine hysterectomy?
- Treatments of pelvic floor disorders (Periurethral bulking, Botox)
Risk Factors for LUTI
Risk Factors for Lower Urinary Tract Injury (LUTI)

- Pregnancy - Multiple C/S
- Myomectomy
- Myomas (cervical)
- Endometriosis (severe)
- PID
- Malignancy
- Poor descent (Vag hyst)
- Prior RT
Risk Factors for Lower Urinary Tract Injury (LUTI)

- COMMON THEME
  - PROLONGED OPERATING TIME
  - HIGH BLOOD LOSS
  - POOR DISSECTION PLANES
NO UNIVERSALLY RECOGNIZED GUIDELINES FOR EVALUATION OF LOWER URINARY TRACT WITH CYSTOSCOPY
Most lower urinary tract injuries caused by gynecologists occur on “routine” or “uneventful” operations.

Should routine cystoscopy be performed at the time of routine hysterectomy?
Should all patients undergoing vaginal hysterectomy have cystoscopy?

- 839 pts. For benign hysterectomy (TAH, TVH, LAVH) universal cystoscopy
- Bladder injury 24/839 (2.9%)
- Ureteral injury 15/839 (1.8%)
- Higher risk of ureter and bladder injury with prolapse repair
- 25% of bladder injuries visually noted

* Ibeanu, et al *Obstet Gynecol* Jan 2009 *Urinary tract injury during hysterectomy based on universal cystoscopy*
Cystoscopy during incontinence surgery detects LUT abnormalities in 1 / 20

75% iatrogenic injury can occur with all types of procedures (RP-MUS, TO-MUS, RPU, PVS)

Cystoscopy for the Gynecologist
Benefits and Risks

- **Benefits**
  - Confirmation of normalcy vs. injury
  - Avoid harm to patient, potential litigation for failure to dx (early ID)
  - Sleep well

- **Risks**
  - Infection
  - Trauma
Instrumentation
Cystoscope - Components

- **Sheath**
  - Vary by diameter and bevel
    - 17 Fr - urethroscopy
    - >20 Fr - instruments, ureteral catheters, stents
  - Irrigation Channel

- **Bridge**
  - Operative channels

- **Telescope (Lens & Light)**
  - Xenon

*Figure 7.3* Components of a rigid cystoscope. (A) Telescopes. The 70-degree lateral angled-view telescope (above) and the 30-degree forward-oblique telescope (below). (B) Bridges. Single-port bridge (below) and dual-port bridge with an Albarrán deflecting mechanism (above). The position of the deflecting mechanism within the fenestra of the operating sheath is shown. (C) Sheath, 22 French operating. (D) Assembled cystoscope with a diagnostic 17 French sheath.
**RIGID**
- ANGLE LIMITED/ FIXED
  - (0°, 30°, 70°, 120° LENS)
- IMAGE CLEAR
- MORE UNCOMFORTABLE

**FLEXIBLE**
- FIBER OPTIC SINGLE UNIT (LIGHT/OPTICAL/IRRIGATION)
- 290° DEFLECTION IN SINGLE PLANE
- IMAGE NOT AS CLEAR
- MORE COMFORTABLE
CONDUCTING FLUID

- Normal Saline (NS)
- D50 W

NON-CONDUCTING FLUID
(Electrocautery)

- H2O
- Sorbitol
- Glycine

GAS (CO2)-Irritative carbonic acid/ useful if bleeding
Instrumentation
Cystoscopic distention media

- 80-100 cm above pubis
- Flushing of blood and debris
- Distends for improved visualization
- **Monitor volume infused (bladder rupture)**
Diagnostic Cystoscopy for the Gynecologist
Systematic examination-How to do it
In the operating room:

- Administer one ampule of indigo carmine 10 minutes prior to inspection
- Single dose antibiotic prophylaxis if not already given
Practical applications - Findings and what to do about it

What is normal?
Bladder trabeculations
Urethral polyps
Bladder Cancer
“Hands on task-specific training program can successfully improve the confidence and skill of community gynecologists to perform intra-operative diagnostic cystoscopy”

28 gyn trainees, 5hr workshop, task specific checklist performed on model and cadaver.

Tasks - scope choice and assembly, bladder fill, camera orientation, systematic exam to ID UVJ, dome bubble, LR ureteric orifice. Trigone interureteric ridge. LR sidewall

Identify ureteral and bladder injury.

A reasonable indication for performing (or consulting for) a diagnostic cystourethroscopy would be all of the following except .............

- A. After completing an uneventful vaginal hysterectomy for menorrhagia / dysmenorrhea
- B. After completing an exhausting 4 hour robotic hysterectomy for endometriosis with poor tissue planes and inability to assess the retroperitoneal spaces with a blood loss of 700ml
- C. During Cesarean delivery with low bilateral cervical laceration extension with suspicion of ureteral injury
- D. During surgical treatment of POPQ Stage IV pelvic organ prolapse.
- E. During excision of a “simple” mid-anterior vaginal wall mass
The most appropriate telescopes to use for inspection of the urethra and bladder walls after placement of a synthetic mid-urethral sling is:

- A. Urethra 30°, Bladder 30°
- B. Urethra 0°, Bladder 30°
- C. Urethra 30°, Bladder 120°
- D. Urethra- unnecessary, Bladder 70°
- E. Urethra 12°, Bladder 70°
- F. C and E are both appropriate
ACOG Committee Opinion  Number 372  July 2007; The role of Cystourethroscopy in the Generalist Obstetrician-Gynecologist Practice

Nihira, MA et al; Training community gynecologists to perform intraoperative cystoscopy: a competency-based training experience. Female Pelvic Med Reconstr Surg; Vol. 20 Number 2 March April 2014


Who was a classmate of these two residents pictured with Dr. Roberts? (more than one may be correct)

A. David Grainger
B. Debra Messamore
C. Margaret O’Hara
D. Victoria Kindel
E. Patricia Wyatt-Harris
F. Arthur De Hart