UROLOGY

UROGYNECOLOGIC ISSUES

From the 23rd Annual Advances in Urogynecology and Reconstructive Pelvic Surgery, presented by the University of Chicago Pritzker School of Medicine and the NorthShore University HealthSystem

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Nonobstructive Urinary Retention

Types of nonobstructive urinary retention: detrusor underactivity (DU) — urodynamic diagnosis of detrusor contraction of reduced strength or duration resulting in prolonged or incomplete emptying of bladder; underactive bladder syndrome — encompasses several etiologies and symptoms

Contributing factors: primarily, detrusor weakness or inefficiency; others include issues with afferent bladder innervation, impaired integration of reflexes in central nervous system (CNS), and myogenic problems

Causes: decompensation of bladder after chronic obstruction; diabetes mellitus (DM); aging; neurogenic disorders; injury to spinal cord, cauda equina, or sacral plexus due to surgery, fracture, disease, spinal canal stenosis, or pudendal nerve lesion; infections affecting CNS

Diagnosis and evaluation: assess neurologic involvement by Diagnostics and evaluation: assess neurologic involvement by

Diagnosis of bladder outlet obstruction: urodynamic definition of bladder neck obstruction cut-points fail to diagnose women with “normal” pressure flow parameters; video urodynamic criteria — radiographic evidence of obstruction between bladder neck and distal urethra, with sustained detrusor contraction of any strength; bladder neck obstruction if closed or narrowed during voiding effort; urethral obstruction if proximal dilatation with distal narrowing

Study: no strict criteria for pressure flow established; findings — compared to normal controls, patients with obstruction had higher voiding pressures, lower maximum flow rates (Qmax), and higher PVR; Qmax in patients with prolapse, previous surgery, or urethral stricture lower than that in controls (those with stress urinary incontinence [SUI] tend to have high Qmax); equal sensitivity, specificity, and accuracy (68%) seen with cut-point for obstruction at Qmax >12 mL/sec; specificity ≥60% and greatest sensitivity with detrusor pressure at Qmax >25 cm H2O

Primary bladder neck obstruction (PBNO): rare; video UDS distinguish dysfunctional voiding from bladder neck dysfunction; if patient not fully relaxing pelvic floor, area of obstruction distal; with PBNO, bladder neck does not open or funnel; treatment — multidisciplinary, including physical

Educational Objectives

The goal of this program is to improve the diagnosis and management of urinary retention in women and urogynecologic fistulas. After hearing and assimilating this program, the clinician will be better able to:

1. Identify the causes of and risk factors for obstructive and nonobstructive urinary retention in women.
2. Diagnose obstructive and nonobstructive urinary retention in women.
4. Identify the causes of and risk factors for genitourinary fistulas.
5. Apply best practices for management of genitourinary fistulas with respect to timing and route of repair, use of interpositional grafts, and postoperative care.

Faculty Disclosure

In adherence to ACCME Standards for Commercial Support, Audio Digest requires all faculty and members of the planning committee to disclose relevant financial relationships within the past 12 months that might create any personal conflicts of interest. Any identified conflicts were resolved to ensure that this educational activity promotes quality in health care and not a proprietary business or commercial interest. For this program, the following has been disclosed: Dr. Siegel receives research support from and is on the medical advisory board and Speakers’ Bureau of Allergan; receives research support from and is on the Speakers’ Bureau of American Medical Systems (AMS); is a proctor for, receives research support from, and is on the Speakers’ Bureau of Medtronic; and receives research support from Uroplasty, Inc. The planning committee reported nothing to disclose. In this lecture, Dr. Siegel presents information that is related to the off-label or investigational use of a therapy, product, or device.
therapy for pelvic floor muscles, biofeedback, smooth and skeletal muscle relaxants, neuromodulation, intermittent self-catheterization, and self-dilation; surgical incision of bladder neck last resort (may cause ISD)

Transurethral incision of bladder neck for DU: study by Jhang et al—among 31 women, achieved significant improvement in PVR, voiding efficiency, Qmax, and need for intermittent self-catheterization, regardless of etiology; responses rated excellent in 45%, moderate in about one-third, and poor in ≥20%

Etiologies:

Diagnosing VVF:
bullous edema in anterior wall and pooled painless constant leakage that worsens

Vesicovaginal fistula (VVF):
oo consensus reached on

Effect of genital prolapse on voiding:

— chronic inflammation, foreign body, infection, malignancy, obstetric complications (third world), pelvic radiation therapy, noscopy with flexible scope also useful; urine in cuff typical findings on speculum examination; vagi—middle 9 mo after radiation therapy

with standing; typically occurs 1 to 3 wk after hysterectomy

retropubic bladder neck sus—administer oral pyridium — double balloon with catheter that allows isolation of urethral chamber to detect ureterovaginal fistula (UVF); urinalysis — cytology to detect recurrent malignancy; upper tract study — necessary because 12% of fistulas involve ureter; requires dye (eg, pyelography, computed tomography [CT] urography), as ultrasonography fails to detect ≥20% of ureteral injuries; MRI — may play role if patient has contrast sensitivity; UDS — consider if bladder compliance issue suspected (resulting high-pressure storage may necessitate additional procedures)

Conservative treatment of VVF: Foley catheterization — VVF unlikely to resolve if no improvement seen after 2 to 3 wk or if leakage continues after placement; has better results in cases with early diagnosis, small fistula, and no history of irradiation; O’Connor technique — transvesical catherization; used for fistulas <3 mm in size; small series reported success in 11 of 15 cases; not recommended for patients with thin septum or active inflammation; fibrin glue — also used for repair

Evidence on catheterization: bladder drainage may result in spontaneous closure of small fistulas (<1 cm) with no involvement of continence mechanism; catheter blockage may be cause of failure (24-Fr catheter with biweekly changes recommended); success rate diminishes as interval between causative insult and initiation of catheterization increases

Surgical management of VVF: key principles — adequate tissue mobilization; complete excision of scar; tension-free closure with viable tissue; tissue interposition, when necessary; adequate postoperative drainage; timing — primary repair immediately at time of diagnosis, or delayed with periodic observation if unfavorable factors present; secondary repair after wait period; timing based on cause, associated pathology, patient issues, and surgeon experience and philosophy; for radiation-induced fistulas, healing period required before repair; obligate wait period no longer recommended without reason (eg, edema, infection)

Route of repair for VVF: success rate same for abdominal vs vaginal; decision based on size, accessibility, number, need for flap, and familiarity of surgeon with approach; previous repair with vaginal approach does not necessarily dictate default to abdominal approach

Vaginal repair: flat technic with layered closure — use retractor to dilate fistula and insert catheter; perform hydrodissection to free tissue from vaginal wall (Jorgenson scissor helpful for tight corners); excise scar; contraindicated in presence of UVF; benefits — short surgery time, outpatient procedure, low morbidity, and high success rate, even for recurrent fistulas; risks — vaginal shortening; ureteral injury

Flaps: marsupial fat pad — blood supplied inferiorly by posterior labial vessels (derived from interior pudendal artery), superi—good for apical repair of post hysterectomy fistulas; omentum — used for abdominal approach; easily mobilized without tension; thick vascular tissue with lymphatic draining; may contribute to healing, even in presence of infection; typically mobilized along greater curvature of stomach in left-right direction, keeping right gastroepiploic artery intact; other flaps — gracilis muscle; labial myocutaneous; rectus abdominus

Abdominal repair: preferred for high or large fistulas, if augmentation or reimplantation required; benefits — easy identification of ureteral orifices and trigone; high success rate
(same as for vaginal); risks—increased morbidity, length of hospital stay, and blood loss, relative to vaginal repair; route— intra- or extraperitoneal; flap—omentum or peritoneum; “racquet-handle” approach—bivalve bladder; completely excise fistula; perform multilayer closure of bladder and interposition of omentum

Laparoscopic (robotic) repair: success rate in case series of 15 similar to that with abdominal or vaginal approaches, with minimal surgical trauma, less morbidity, and more rapid convalescence; laparoscopic surgical keys—patient may have adhesions, so consider insufflating from left upper quadrant; remove vaginal packing after closure to check for pneumoperitoneum; flatten patient for creation of omental flap and have assistant grasp omentum with laparoscopic instrument (if not accessible, use sigmoid epiploic appendices); perform Y-V plasty closure or take down one lateral bladder pedicle to ensure mobilization of bladder

Ureterovaginal fistulas: etiology—gynecologic procedures (eg, hysterectomy, especially laparoscopic); presentation—flank pain, fever, urinoma, and constant leakage with normal voiding; diagnosis—similar to VVF but requires contrast study (eg, CT urography, retrograde pyelography); treatment—drainage of system; some heal with nephrostomy tube alone; if continuity of ureter better, consider placing retrograde stent; if unsuccessful, reimplantation required (perform nephrectomy if kidney atrophic)

Unsupported beliefs and practices: superiority of suprapubic vs urethral drainage; benefit of anticholinergic agents to inhibit overactivity of bladder; use of cystography to document healing; removal of fistula tract; superiority of delayed absorbable sutures

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Suggested Reading
1. The primary contributing factor to nonobstructive urinary retention in women is:
   (A) Detrusor weakness or inefficiency
   (B) Overuse of cholinesterase inhibition
   (C) Impaired integration of central nervous system reflexes
   (D) Myogenic issues

2. Pharmacologic management of nonobstructive urinary retention in women:
   (A) Is a mainstay of therapy
   (B) Is of limited utility
   (C) Should never include benzodiazepines
   (D) Consists primarily of the use of cholinesterase inhibitors

3. Which of the following is the only treatment modality known to be effective for Fowler syndrome?
   (A) Pharmacotherapy
   (B) Surgery
   (C) Pelvic floor physiotherapy
   (D) Sacral neuromodulation

4. A study that evaluated the use of pressure flow criteria to diagnose bladder outlet obstruction (BOO) found that, compared to normal controls, patients with BOO have:
   (A) Higher voiding pressures
   (B) Lower maximum flow rates
   (C) Higher postvoid residuals
   (D) All the above

5. Which of the following diagnostic tools can differentiate bladder neck obstruction from primary bladder neck dysfunction?
   (A) Computed tomography urography
   (B) Pyelography
   (C) Video urodynamic studies
   (D) None of the above (these 2 conditions cannot be reliably distinguished from one another)

6. Which of the following is an incorrect statement about the presentation of vesicovaginal fistula (VVF)?
   (A) Typically occurs 1 to 3 wk after hysterectomy
   (B) May develop several months after radiation therapy
   (C) Presents as painful leakage
   (D) Leakage worsens with standing

7. Which of the following statements about the use of catheterization for the treatment of VVF is correct?
   (A) Usually requires >2 mo of treatment
   (B) Most effective if initiated after a period of waiting following the initial insult
   (C) Unlikely to result in resolution of VVF if no improvement seen after 2 to 3 wk of treatment
   (D) Continued leakage after initial insertion of the catheter is not correlated with treatment success

8. Primary surgical repair of VVF should be undertaken:
   (A) As soon as possible after diagnosis
   (B) After a standard waiting period
   (C) At the surgeon’s discretion
   (D) After a waiting period that varies according to the size of the fistula

9. Which of the following is a benefit of the abdominal approach for repair of VVF?
   (A) Better outcomes than with vaginal repair
   (B) Easy identification of ureteral orifices and trigone
   (C) Reduced morbidity
   (D) Less blood loss

10. Which of the following best describes the typical presentation of ureterovaginal fistula?
    (A) Intermittent leakage with flank pain
    (B) Intermittent leakage with no pain
    (C) Constant leakage with flank pain and normal voiding
    (D) Constant leakage with difficulty voiding but no pain

Answers to Audio Digest Urology Volume 37, Issue 19: 1-B, 2-A, 3-D, 4-C, 5-C, 6-A, 7-D, 8-B, 9-C, 10-D