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EVALUATION OF LOWER URINARY TRACT SYMPTOMS



International Continence Society Classification

- **Lower urinary tract:**
 - Bladder and urethra

- **Function:** storage and emptying of urine
 - Filling/storage phase
 - Voiding phase



Lower Urinary Tract Symptoms (LUTS)

- **Storage symptoms**
- **Voiding symptoms**
- **Post micturition symptoms**

Neurourology and Urodynamics 21:167-178 (2002)



Bladder storage symptoms

- **Increased daytime urinary frequency:**
 - voids too often
- **Nocturia:**
 - complaint wake at night one or more time to void
- **Urgency:**
 - Complaint of a sudden, compelling desire to pass urine which is difficult to defer
- **Overactive bladder (OAB, Urgency) syndrome:**
 - Urinary urgency, usually accompanied by frequency and nocturia, with or without urgency urinary incontinence, in the absence of UTI or other obvious pathology.

Urinary Incontinence Symptoms

- **Stress (urinary) incontinence:**
 - Involuntary loss of urine on effort or physical exertion (e.g., sporting activities), or on sneezing or coughing.
- **Urgency (urinary) incontinence:**
 - Involuntary loss of urine associated with urgency.
- **Mixed (urinary) incontinence:**
 - Involuntary loss of urine associated with urgency and also with effort or physical exertion or on sneezing or coughing.

Sensory symptoms

- **Increased bladder sensation:**
 - The desire to void during bladder filling occurs earlier or is more persistent to that previous experienced.
- **Reduced bladder sensation:**
 - The definite desire to void occurs later to that previously experienced despite an awareness that the bladder is filling.
- **Absent bladder sensation:**
 - Both the absence of the sensation of bladder filling and a definite desire to void.

Voiding symptoms

- **Hesitancy:** a delay in initiating micturition.
- **Slow stream:** urinary stream perceived as slower compared to previous performance or in comparison with others.
- **Intermittency:** urine flow that stops and starts on one or more occasions during voiding.
- **Straining to void:** need to make an intensive effort (by abdominal straining, Valsalva or suprapubic pressure) to either initiate, maintain, or improve the urinary stream.
- **Spraying (splitting) of urinary stream:** urine passage is a spray or split rather than a single discrete stream.

Voiding symptoms

- **Position-dependent micturition:**
 - having to take specific positions to be able to micturate spontaneously or to improve bladder emptying.
- **Dysuria:**
 - burning or other discomfort during micturition.
- **Urinary retention:**
 - inability to pass urine despite persistent effort.

Post micturition symptoms

- **Feeling of incomplete (bladder) emptying:**
 - Complaint that the bladder does not feel empty after micturition.

- **Postmicturition leakage:**
 - Complaint of a further involuntary passage of urine following the completion of micturition.



Investigations of lower urinary tract symptoms

- **Detailed history**
- **Pad test**
- **Physical examination**
- **Urodynamic study**
- **Urinalysis**
- **Questionnaires**
- **Bladder diary**
- **Ultrasound**



History

- Focus on medical, surgical, Gyn/obs, neurologic, and urological history
- Voiding patterns and symptoms
 - bladder diary
- Review medications
- Evaluate functional and mental status

Bladder diary

- Frequency, severity of symptom
- Volume and frequency of fluid intake and voiding
- 1- to 7-day or 3 day
- Episodes of urinary incontinence, associated symptoms, bed wetting etc.



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Physical examination

- Anatomical and neurological abnormality.
- General, abdominal and neurologic exams
- Pelvic and rectal exams
- Observe for urine loss with stress (ex. cough, Valsalva)
- Pelvic organ prolapse



Laboratory tests

- Urinalysis
 - To rule out hematuria, pyuria, bacteriuria, glucosuria, proteinuria
- Blood work as appropriate
 - Glucose
 - Others

Pad test

- One hour pad test / modified 20-minute pad test
- Quantification of urinary leakage
- Useful for monitoring a therapeutic effect during a clinical trial

Urodynamic study

- It is appropriate to treat lower urinary tract symptoms based upon history and physical exam
- Reserve urodynamics for
 - Persistence despite appropriate therapy
 - Potential hazards of therapy
 - Incontinence
 - Outflow obstruction
 - neurogenic bladder

Why urodynamics

- To copy the function of lower urinary tract, storage and expulsion.
- An extension of history and PE .
- To obtain information of lower urinary tract function and dysfunction.
- To define the underlying pathophysiology.
- To confirm clinical diagnosis.



Uroflowmetry (UFM)

- **Simplest**
- **Non-invasive**
- **Inexpensive**
- **Screening test for voiding difficulty**

Urodynamic Study

- **Uroflowmetry of spontaneous voiding**
- **Cystometry — filling & voiding phases**
- **Pressure flow study**
- **Urethral pressure profile**
- **EMG**



Videourodynamics

- First described in late 1960s
- Combination of pressure-flow study and fluoroscopy
- Simultaneous evaluation of structure and function
- Providing information about lower urinary tract anatomy and function



Ultrasound in urogynecology

- Modalities in current routine clinical use:
 - Perineal
 - Introital
 - Transvaginal
 - Transabdominal



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Validated Questionnaires

Questionnaire	Symptoms evaluated	Goal of Questionnaire
UDI (Urogenital Distress Inventory)	Urinary incontinence	Symptom distress
IIQ (Incontinence Impact Questionnaire)	Urinary incontinence	Life impact
PFDI (Pelvic Floor Distress Inventory)	UI, POP, colorectal dysfunction	Symptom distress
PFIQ (Pelvic Floor Impact Questionnaire)	UI, POP, colorectal dysfunction	Life impact
PISQ (Pelvic Organ Prolapse/Urinary Incontinence Sexual Function Questionnaire)	Urinary incontinence, pelvic organ prolapse	Sexual function
OABSS	Overactive bladder	
OAB-q	Overactive bladder	

References

- The standardization of terminology of lower urinary tract function: Report from the standardization sub-committee of the International Continence Society. Paul A, Linda C, Magnus F et al. *Neurourology and Urodynamics* 2002, 21:167-178
- An International Urogynecological Association (IUGA)/International Continence Society (ICS) joint report on the terminology for pelvic floor dysfunction. Haylen BT, Ridder DD, Freeman RM et al. *Int Urogynecol J* 2010, 21:5-26