

Lower Urinary Tract Symptoms (LUTS)

College of Surgeons of Sri Lanka
2007

Authors

Dr. Srinath Chandrasekera MBBS MS FRCS FEBU

Dr. Suren De Zylva MBBS MS FRCS FEBU

Dr. Ajith Malalasekera MBBS MS MRCS

Dr. Serosha Gunawardena MBBS MS FRCS D Urol.

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Introduction:

The purpose of this guideline is to help medical practitioners recognize this clinical problem, enabling them to make an initial assessment, request basic investigations and be advised of indications for specialist referral.

Lower Urinary Tract Symptoms (LUTS) is one of the commonest urological complaints. These symptoms are not organ or disease specific and may well occur in the female. Therefore, the previously used term “prostatism” is no longer considered appropriate. LUTS is a grouping of 3 types of symptoms which can be classified as follows.

Table 1 Lower urinary tract symptoms

Filling / storage (irritative)	Voiding (obstructive)	Post micturition
Urgency Frequency Urge incontinence Nocturia Nocturnal enuresis* (in the adult)	<ul style="list-style-type: none"> • Hesitancy • Poor stream • Intermittency • Need to strain • Terminal dribbling of urine • Dysuria* • Thin stream* 	<ul style="list-style-type: none"> • Feeling of incomplete evacuation

* These symptoms are not listed in the document by the standardisation sub-committee of the international continence society [1,2]. However given the frequency of occurrence in clinical practice in Sri Lanka the authors find it appropriate to include them as above.

Type of LUTS

Filling type LUTS

These symptoms arise mainly during the filling phase of the bladder and therefore called “filling” or “irritative” symptoms. Some of the causes which give rise to these symptoms are listed below.

- Urinary tract infections
- Inappropriate hydration, dietary and or social habits.
(Excessive fluid intake leading to frequency and nocturia, excessive consumption of caffeine containing drink, smoking etc)
- Bladder stone(s)
- Bladder cancer (especially carcinoma in-situ)
- Bladder outflow obstruction (Due to secondary changes occurring in the bladder)
- Interstitial and non bacterial cystitis
- Neurogenic bladder disorders
(Parkinson’s disease, Cerebrovascular accidents, Spinal cord injuries and tumours Neurogenic bladder disorders etc.)
- Drugs (Diuretics, anti-cholinergics, anti-depressants, Nifedipine etc)

Voiding type LUTS

Voiding symptoms occur typically due to bladder outflow obstruction which may be due to

- Benign prostatic obstruction
- Prostate cancer
- Urethral stricture
- Meatal stenosis
- A poorly contracting detrusor muscle
(detrusor failure, detrusor sphincter dyssynergia etc) may also cause these symptoms.

The following points are worthy of note.

- The severity of LUTS can be measured by various validated questionnaires such as the International Prostate Symptom Score (IPSS), American Urological Association (AUA) (see appendix-1) symptom score. However the use of these tools is limited in Sri Lanka due to the unavailability of validated versions.

- The commonest cause of LUTS in the >50 year males is benign prostatic hyperplasia. **However even with prostate cancer, LUTS is perhaps the commonest mode of presentation in Sri Lanka.**

Definitions

- Increased daytime frequency - Self explanatory
- Nocturia- Waking at night one or more times to void urine
- Urgency- Sudden compelling desire to pass urine which is difficult to postpone.
- Urge incontinence- Involuntary leakage of urine accompanied or immediately preceded by urgency
- Nocturnal enuresis- the complaint of loss of urine occurring during sleep.
- Poor stream- A slow stream; reduced urine flow rate
- Hesitancy- Difficulty in initiating micturition after the individual is ready to pass urine

- Intermittency- Urine flow stops and starts on one or more occasions during voiding
- Terminal dribbling- Prolonged final part of micturition when the flow has slowed to a trickle or dribble
- Straining- Muscular effort to initiate , maintain or improve urinary stream
- Dysuria- Burning type discomfort during micturition
- Thin stream- self explanatory
- Feeling of Incomplete Emptying - self explanatory.

Patient evaluation

History

A complete urological history must be taken and all patients examined. Following are some of the salient points.

- Presence or absence of all the symptoms listed in table 1 should be documented
(eg; Nocturia x3, Frequency x 8, no hesitancy)
- Duration of symptoms.
- Associated symptoms such as dysuria, fever, haematuria, pain, loss of appetite, loss of weight
- Degree of bother (note: in the absence of a questionnaire “mild, moderate and severe” may suffice)
- Dietary habits e.g.: fluid intake, caffeine intake, smoking.
- Occupation e.g.: Dye, rubber industry etc
- Past history of urological or nephrological disease. e.g. Urolithiasis, UTI, prostate cancer.
- Medications

Physical examination

- General examination - pallor, oedema, fever, vital signs etc
- Abdominal-Palpable bladder, tender and or enlarged kidneys
- Genital examination - meatal stenosis, and digital rectal examination is mandatory in male patients

Note: With benign enlargement the prostate gland is uniformly and symmetrically enlarged with preservation of normal anatomical features such as the median groove. The mucosa is mobile over the gland. Nodularity, obliteration of the median groove, hardness or distortion of symmetry is suggestive of malignant change requiring specialist urological evaluation. Digital examination of the prostate is known to be examiner dependant.

Investigations

- All patients should have a urine analysis. This is a mandatory test for any patient presenting with a urological complaint.
- Further investigations will be influenced by the clinical scenario. Following tests are recommended especially for those with bothersome or persistent

Urine culture and antibiotic sensitivity test. (before antibiotics are commenced)

Ultrasound scan of the genito-urinary tract with measurement of post void residual urine

KUB X ray

Serum creatinine

Fasting and postprandial blood glucose (for those with filling type LUTS only)

- Following tests are optional especially in particular clinical settings. (These may well be done at a specialist level)

Urine flowmetry

PSA (in males over 50 years of age).

Frequency volume chart

Further evaluation of patients with filling type LUTS

- The commonest cause of filling type LUTS is urinary tract infection. However it must be emphasized that more sinister causes may present similarly as indicated above. The presence of pus

cells in urine only indicates inflammation and is NOT confirmatory of urinary tract infection. A urine culture and ABST must be done for definitive diagnosis with the exception of premenopausal sexually active females presenting with the first episode of UTI (honeymoon cystitis). Here the doctor may prescribe a urinary antiseptic without ABST provided the patient is otherwise healthy and afebrile. In other instances where urine culture and ABST is requested, the doctor may commence antibiotic therapy on clinical grounds pending results of the culture and ABST.

- In the absence of a culture positive UTI, with an abnormal UFR or other investigations or if symptoms persist, such patients should be referred for specialist urological evaluation. All other forms of urinary tract infections are deemed complicated and needs specialist urological evaluation.(Table 2)

Table 2. Classification of UTI [3]

Uncomplicated UTI	Complicated UTI
<ul style="list-style-type: none"> • Acute cystitis in pre-menopausal, non-pregnant women who are otherwise normal. • Acute uncomplicated pyelonephritis in pre-menopausal, non-pregnant women who are otherwise normal. • Recurrent (uncomplicated) UTIs in post-menopausal women • UTIs in pregnancy* • Acute uncomplicated UTIs in young men • Asymptomatic bacteriuria 	<p>Infection associated with a condition, such as structural or functional abnormalities of the genitourinary tract or the presence of an underlying disease, which increases the risks of acquiring an infection or of failing therapy.</p> <p>E.g.</p> <ul style="list-style-type: none"> • The presence of an indwelling catheter, stent or splint (urethral, ureteral, renal) or the use of intermittent bladder catheterization • A post-void residual urine of > 100 mL • An obstructive uropathy of any aetiology, e.g. bladder outlet obstruction (including neurogenic urinary bladder), stones and tumour

	<ul style="list-style-type: none">• Vesicoureteric reflux or other functional abnormalities• Urinary tract modifications, such as an ileal loop or pouch• Chemical or radiation injuries of the uroepithelium• Peri- and post-operative UTI• Renal insufficiency and transplantation, diabetes mellitus and immunodeficiency
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* The European association of Urology Guidelines indicate pregnancy associated UTI as a risk factor for complication. This is possibly best treated as “complicated” in a Sri Lankan clinical setting.

- Patients with mild symptoms and normal investigations may be managed at community level by family physicians. However in the case of males over 50 years at least one specialist urological consultation is strongly recommended.
- If nocturia is the only symptom, the family/community physicians may try advising the patients to reduce fluid intake after 6pm or a few hours before bedtime. Such patients will benefit from excluding diabetes mellitus and congestive cardiac failure.

- All patients with abnormal laboratory tests (with the exception of honeymoon cystitis) or persistent symptoms should be referred for specialist urological opinion.

Further evaluation of patients with voiding type LUTS

- The commonest cause of these symptoms in males >50 years is benign prostatic hyperplasia. As mentioned before in Sri Lanka where screening for prostate cancer is not available LUTS may be the commonest mode of presentation for those with prostate cancer as well.
- Prostate Specific Antigen PSA may be used after consent of the patient to further evaluate the risks of prostate cancer. PSA is NOT a substitute for DRE as 10-15% patients with locally advanced or metastatic prostate cancer may present with a normal PSA [unpublished data].
- PSA is a surrogate marker for prostate cancer and may be elevated due to other causes (Table3). Inappropriate use of PSA may lead to erroneous diagnosis of prostate cancer leading to undue anxiety and investigations.

Table 3. Causes for elevated PSA

Causes for elevated PSA

- Large benign prostatic hyperplasia
- Prostate cancer

Causes for spurious elevation of PSA

- UTI, prostatitis
- Acute urinary retention
- Catheterization
- Urinary tract instrumentation (cystoscopy etc)
(in these instances estimation of PSA should be deferred for 4-6 weeks)

Normal PSA

The conventional normal range for PSA is regarded as 0-4 ng/mL. However this is a controversial topic and even 'normal' PSA values could be associated with prostate cancer.

Table 4. PSA values and predictive value for prostate cancer [4]

PSA ng/mL	Positive predictive value for cancer
0-1	2.8-5%
1-2.5	10.5-14%
2.5-4	22-30%
4-10	41%
> 10	69%

PSA = prostate-specific antigen.

- In uncomplicated BPH (symptomatic due to benign prostatic obstruction without further complications) urine analysis and culture should be normal. Such patients may be managed at community level [5,6]. However at least one specialist urological consultation in patients over 50 years is encouraged.
- Ultrasonography of the genitourinary system is useful in detecting post voidal residual urine as well as dilated upper urinary tracts which may occur due to high pressure chronic urinary retention (obstructive uropathy). Serum

creatinine is useful to evaluate renal function as obstructive uropathy can result in renal impairment.

- In younger males, urethral stricture disease or meatal stenosis needs to be considered. Younger patients (less than 50 years), those with neurological symptoms, those with previous urinary tract disease or surgery should be referred for specialist review. Sudden onset deterioration of stream or acute urinary retention may be precipitated in this group due to bladder neck stones.

Management

LUTS suitable for community based management

- LUTS caused by uncomplicated cystitis in sexually active pre-menopausal females.
- LUTS in postmenopausal females

Indications for specialist referral

- Men > 50 years
- Abnormal DRE
- Nocturnal enuresis in adults
- Persistent or progressive symptoms
- Abnormal PSA or other laboratory tests
- LUTS associated with fever, chills or rigors (this may be an emergency requiring immediate hospitalization and specialist attention)
- Associated haematuria or constitutional symptoms.

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This document is aimed to serve as a guide for Sri Lanka doctors. It is a consensus document and not a comprehensive guide for specialist management.

APPENDIX – 1 The American Urological Association symptom index for benign prostatic hyperplasia

	Not at all	Less than 1 time in 5	Less than half the time	About half the time	More than half the time	Almost always	Your score
Incomplete emptying Over the past month, how often have you had a sensation of not emptying your bladder completely after you finish urinating?	0	1	2	3	4	5	
Frequency Over the past month, how often have you had to urinate again less than two hours after you finished urinating?	0	1	2	3	4	5	
Intermittency Over the past month, how often have you found you stopped and started again several times when you urinated?	0	1	2	3	4	5	
Urgency Over the last month, how difficult have you found it to postpone urination?	0	1	2	3	4	5	
Weak stream Over the past month, how often have you	0	1	2	3	4	5	

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had a weak urinary stream?							
Straining Over the past month, how often have you had to push or strain to begin urination?	0	1	2	3	4	5	

	None	1 time	2 times	3 times	4 times	5 times or more	Your score
Nocturia Over the past month, many times did you most typically get up to urinate from the time you went to bed until the time you got up in the morning?	0	1	2	3	4	5	

Total IPSS score	
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Total score: 0-7 Mildly symptomatic; 8-19 moderately symptomatic; 20-35 severely symptomatic.

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