

12. Urological Diseases in Males

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The number of patients presenting to their primary care physicians with urologic problems is significantly increasing as the population ages. Urologic issues are the third most common type of complaint in patients 65 years of age or older and account for at least a part of 47% of office visits. There are several common andrological problems including Lower Urinary Tract Symptoms (LUTS), Benign Prostatic Hyperplasia (BPH), acute urinary retention, genitourinary malignancies, urinary tract infection, stone disease and sexual dysfunction. They can have a significant impact on a person's quality of life, leading to decreased mobility, sleep disturbance, and social isolation.

LOWER URINARY TRACT SYMPTOMS

The most predominant urological problem in older people is LUTS as there are several pathologies including benign prostatic hypertrophy/benign prostatic obstruction, urethral stricture, urethral / bladder stone, urinary tract infection, neurogenic bladder dysfunction, detrusor over/under activity, foreign body and prostatitis that can lead to LUTS. The LUTS occurs in up to 30% of men older than 65 years and symptoms are categorized into storage LUTS, voiding LUTS and post-micturition LUTS. The LUTS is defined as a progressive, age-related, non-sex-specific, non-organ-specific group of symptoms with both men and women experiencing a combination of storage, voiding and post-micturition symptoms. LUTS is a highly prevalent condition affecting a significant portion of the population, especially as people age. According to various studies, An estimated 45.2% of the 2008 worldwide population aged ≥ 20 years are affected by at least one LUTS. In Sri Lanka majority with LUTS had mild symptoms and LUTS are more common in males over the age of 44 years old and are likely to increase with an aging population.

The symptoms of LUTS can be divided into three; Voiding symptoms, storage symptoms and post-micturition.

Voiding	Storage	Post-micturition
Reduced stream	Urgency	Incomplete emptying
Straining	Frequency	Post-micturition Dribbling
Hesitancy	Urge incontinence	
	Nocturia	

Table 12.1 Lower Urinary Tract Symptoms

Aetiology of Lower Urinary Tract Symptoms (LUTS) is often multifactorial and can be caused by a variety of factors. Some of the common causes of LUTS.

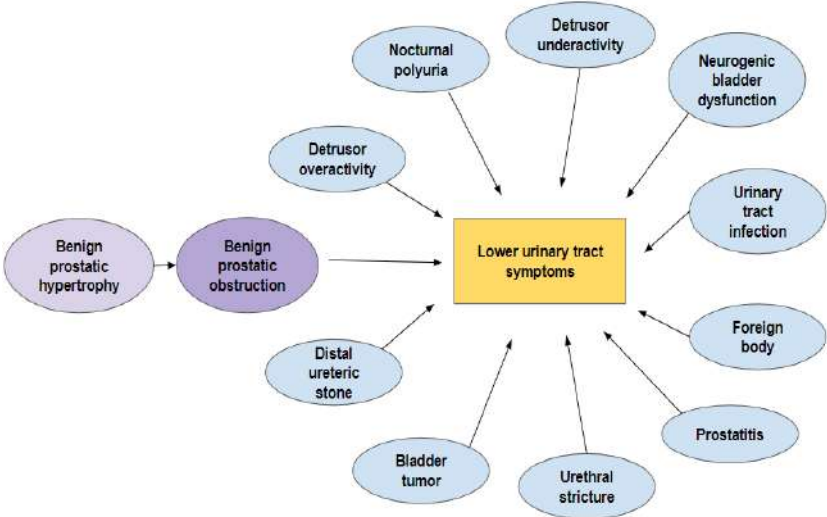


Figure 12.1 Flow diagram of LUTS: causative factors

Benign Prostatic Hyperplasia (BPH) is a condition in which the prostate gland enlarges, exerting pressure on the urethra and bladder, leading to LUTS. Bladder muscle overactivity is a condition in which the bladder contracts too frequently, leading to urinary urgency and frequency. Certain medical conditions such as diabetes, spinal cord injury, and Parkinson's disease can damage the nerves that control the bladder, leading to LUTS. Urinary tract infections (UTIs) can cause inflammation and irritation in the bladder, leading to LUTS such as urinary frequency, urgency, and pain. Lifestyle factors, such as diet, fluid intake, and physical activity, can affect bladder function and contribute to the development of LUTS.

Bladder Outlet Obstruction (BOO) is an uro-dynamically diagnosed condition characterized by increased detrusor pressure and reduced urine flow rate. It results due to the following conditions:

- ❖ Prostate: BPH, prostate carcinoma, prostatitis
- ❖ Urethral strictures
 - Post-traumatic (Trauma/Instrumentation/post TURP)
 - Post-inflammatory (Chlamydia, Gonococcal)
 - Ix: Ascending urethrogram
 - Rx: Urethral dilatation, Urethroplasty
- ❖ Bladder calculi
- ❖ Phimosis (Balanitis Xerotica Obliterans BXO), urethral mental stenosis
- ❖ Bladder neck stenosis
- ❖ Detrusor Sphincter dyssynergia (DSD): Spinal injury

Benign Prostatic Hyperplasia (BPH) is the histological process of hyperplasia of the prostate. It is a common problem that affects 1/3 of men older than 50 years. With a pathological process starting in the thirties. The severity of the symptoms is not correlated with the size of the prostate. It occurs due to the ageing process & testosterone stimulation. There is proliferation of both fibrous & glandular elements. Benign Prostatic Enlargement (BPE) is the increase in size of the prostate gland due to histologic BPH.

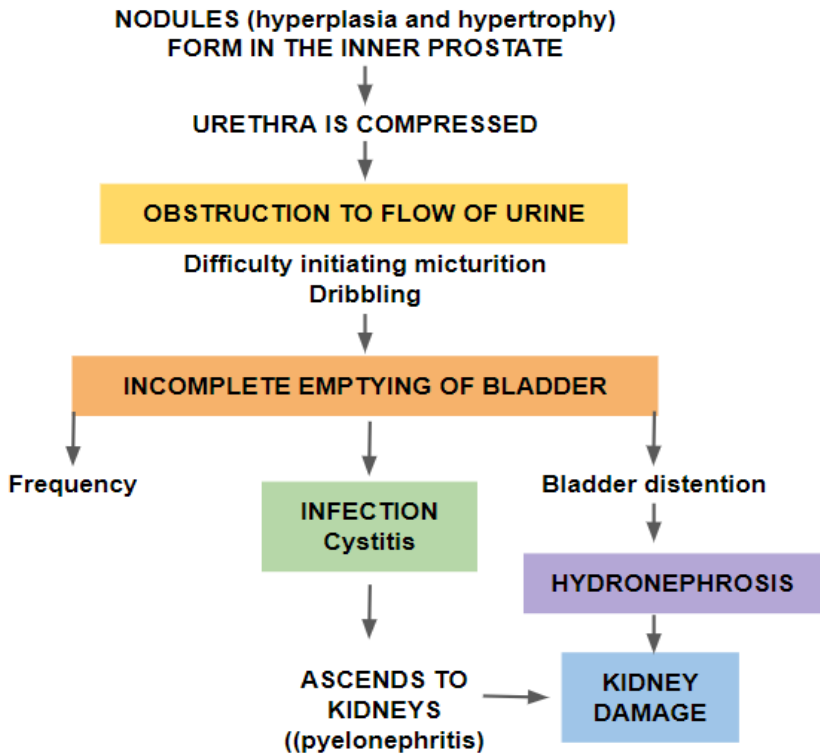


Figure 12.2 Pathophysiology of Benign Prostatic Hyperplasia associated complications.

BENIGN PROSTATE ENLARGEMENT (BPE)

Benign prostate enlargement is the medical term to describe an enlarged prostate, a condition that can affect how you urinate. It is common in men aged over the 50s, not cancer and not usually serious. The risk of prostate cancer is no greater for men with an enlarged prostate than it is for men without an enlarged prostate.

The risk factors for LUTS are as follows:

- **Age:** The prevalence of LUTS increases with age, especially in men over the age of 50 who are at increased risk for benign prostatic hyperplasia (BPH).
- **Gender:** Men are more likely to develop LUTS due to the anatomy of their urinary tract, which includes the prostate gland.
- **Family history:** A family history of LUTS or BPH can increase the likelihood of developing the condition.
- **Lifestyle factors:** Certain lifestyle factors, such as a diet high in caffeine or alcohol, can contribute to the development of LUTS.
- **Chronic conditions:** Certain chronic conditions, such as diabetes, Parkinson's disease, and spinal cord injury, can increase the risk of developing LUTS.
- **Medications:** Certain medications, such as diuretics and antihistamines, can increase the risk of developing LUTS.

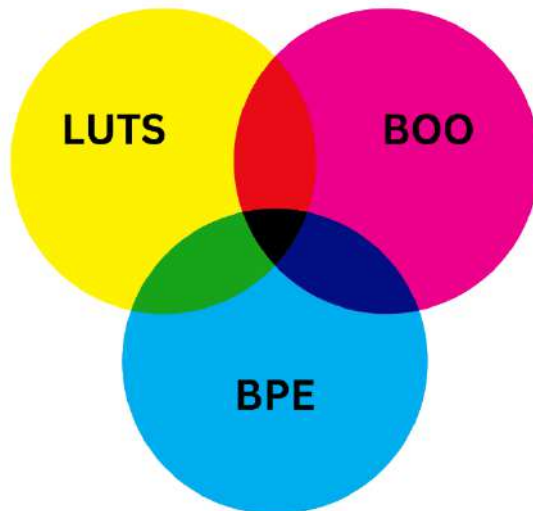


Figure 12.3 Clinical Aspects of LUTS: Hald's diagram

The complications of LUTS include chronic renal failure (obstructive uropathy), recurrent UTI, bladder calculi, haematuria, acute (painful) retention and chronic (painless) retention.

Assessment of LUTS requires a thorough history and physical examination. A general medical history to identify possible causes and co-morbidities, including a review of all current medications (including herbal and over-the-counter medication) is required. The examination of the abdomen, including external genitalia and a digital rectal examination is crucial. It should also be complemented by examination of blood pressure, signs of uraemia, enlargement of the bladder, kidneys and the prostate gland and palpable nodes.

Other than regular blood tests of full blood count and glycaemic control, renal functions need to be assessed. Prostate-specific antigen (PSA) level supports differential diagnosis to exclude advanced prostate cancer among older men with bladder overflow obstruction. Furthermore, treatment decisions of surgery and monitoring response to therapy i.e. watchful waiting can be done. Urinalysis and urine microscopy help in looking out for superadded urinary tract infections and haematuria

Voiding charts are useful to assess the behaviour of micturition. It involves the recording of date, time of day and night, volume voided and fluid intake over at least 3 days

Ultrasound Kidney Ureter Bladder (KUB) is done to assess the size of the prostate (>20cm³: abnormal) and to look out for the presence of hydroureter, hydronephrosis and evidence of chronic renal disease. Post void residual (PVR) ultrasound is an important measurement. PVR volume of more than 50 mL has been associated with a higher risk of disease progression in controlled clinical trials. However, PVR may be influenced by voided volume and test conditions. For all practical purposes, urology referrals should be considered for patients with PVR > 250 ml.

The above is complemented by uroflowmetry. A flow rate (Q max) of more than 15ml/sec is considered normal. Other parameters that are looked into include voiding time, volume of voided urine, and voiding

pattern. Flexible cystoscopy is performed if there is evidence of haematuria.

Treatment options include lifestyle modification with medical management and surgical options. Watchful waiting is the monitoring of a patient without medical or surgical intervention generally entailing education, reassurance, periodic review and lifestyle advice. Lifestyle changes such as changes in diet and fluid intake can help reduce LUTS. This may include reducing the amount of caffeine and alcohol consumption and avoiding foods that irritate the bladder. Physical therapy such as pelvic floor muscle exercises (Kegel exercises) can help strengthen the muscles that control urine flow and improve symptoms of LUTS. Bladder training involves gradually increasing the amount of time between bathroom trips to help the bladder hold more urine.

Medications such as alpha-blockers and anti-muscarinic are commonly used to relax the muscles in the bladder and improve urinary flow. Other medications that may be prescribed for LUTS include 5-alpha-reductase inhibitors and beta-3 agonists.

Surgical intervention is appropriate for patients who decline or whose conditions do not respond to pharmacotherapy and for those with BPH-related complications. Transurethral resection of the prostate (TURP) is the most common prostatic ablative intervention and has proven efficacy and durability. Other prostatic ablative options include:

- a. Transurethral incision of the prostate (TUIP)
- b. Transurethral vaporization of the prostate
- c. Photo-selective vaporization
- d. Laser enucleation
- e. Robotic waterjet treatment
- f. Transurethral microwave therapy
- g. Simple prostatectomy.

Minimally invasive surgical treatments (MIST) such as Water vapour thermal therapy and prostatic urethral lift are also available.

URINARY RETENTION

Urinary retention is the inability to empty the bladder to completion. It can be classified as acute retention of urine (ARU) and chronic retention

ARU is the sudden painful inability to pass urine that leads to a painful distention of the bladder. ARU however can also occur without pain in the case of spinal cord injury. Ten per cent of men in their 70s have experienced ARU and it is 10 times more common in men. In women neurological causes and infections such as urethritis, Bartholin's abscess etc. need to be excluded. ARU in older men can occur as spontaneous or precipitated. The latter although less common can be due to general or spinal anaesthesia, alcohol, perineal conditions, sympathomimetic/anticholinergic drugs and BPH.

Chronic retention can be due to high-pressure or low-pressure chronic retention (HPCR/ LPCR). HPCR is caused by upper tract dilatation leading to renal impairment or nocturnal enuresis (due to a drop in urethral resistance during sleep). LPCR is raised detrusor pressure at the filling phase

The aetiology of UR can be divided into obstructive, neurological and myogenic causes. Obstructive causes are categorized as follows:

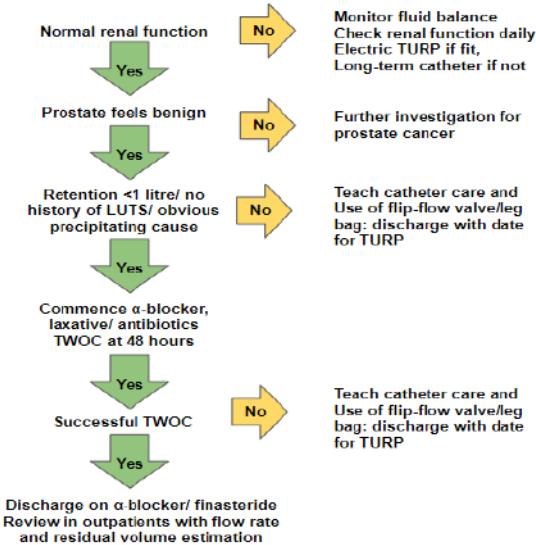
- Mechanical obstruction (eg: BPH and urethral strictures)
 - Prostatic infarction
 - Increased adrenergic activity
 - Stress, cold, drugs eg: Tamsulosin
 - Decrease in the stromal-epithelial ratio
 - Finasteride acts mainly on the epithelial component and reduces ARU
 - Neurotransmitter modulation
 - Reduction of adrenergic, non-cholinergic transmitters.
 - Prostatic inflammation
- Dynamic obstruction (eg: increase in smooth muscle tone due to postoperative and drugs)

Interruption of sensory or motor innervation to the bladder (e.g.: pelvic surgery, multiple sclerosis, spinal cord injury and diabetes) gives rise to neurological aetiology while myogenic entities occur due to over-distention of the bladder (e.g.: post anaesthesia, high alcohol intake)

The risk factors for AUR in BPH include advanced age of the patient, large hyperplastic prostate, high PSA values, increased PVRU volumes, reduced Qmax (<10 ml/s), previous AUR, and severe LUTS.

Assessment includes the history of all aspects of LUTS with particular emphasis on previous ARU, precipitating factors and nocturnal enuresis. Examination including a palpable bladder, DRE, neurological assessment and record drained urine volume is crucial. Other than the investigations done for LUTS, a PSA should be repeated after 2 weeks

In the management of ARU catheterization by urethral route a Foley catheter (14 or 16 French) is adopted. In difficult cases, the use of a smaller catheter, an attempt by an experienced operator or insertion of a coude catheter needs to be done. Ultrasound-guided suprapubic approach (18 or 20 Fr) is done if still unsuccessful.



*Figure 12.4
Management of AUR
after the
catheterization*

URINARY INCONTINENCE

Urinary incontinence (UI) is defined as the involuntary leakage of urine though these age-related changes do not cause incontinence but predispose to it. The prevalence increases with age to about 14% in women and 13% in men aged 65–74 years and about one-third of older patients UI is transient.

Incontinence depends on the integrity of lower urinary tract function and the presence of adequate mentation, mobility, motivation and manual dexterity. The bladder contractility, capacity and the ability to postpone micturition decrease with age are also determinants of UI. Aetiology of UI includes delirium (acute confusional state), infections, Atrophic urethritis, pharmaceuticals, psychological causes (e.g. severe depression), excess urine output, restricted mobility and stool impaction.

Stress urinary incontinence is the involuntary leakage of urine during increased intra-abdominal pressure (e.g.: coughing) in the absence of detrusor contractions. It is a good predictor of an incompetent urethral sphincter. In males intrinsic sphincter deficiency, damage of voluntary urethral sphincter (post-TURP), collagen disorders and advancing age are important reasons.

Detrusor overactivity is urgency with or without urge incontinence usually with frequency or nocturia. Neurogenic causes of detrusor overactivity include spina bifida, multiple sclerosis, spinal cord injury and pelvic surgery. The non-neurogenic entity is thought to be the result of intrinsic problems within the bladder wall.

Overflow incontinence occurs when the bladder doesn't empty properly, causing it to overflow. It's often due to an obstruction or a weak bladder muscle. Symptoms include frequent dribbling or a constant dribble of urine, feeling like the bladder does not empty, and sometimes a weak urine stream.

Mixed incontinence combines different types of incontinence, commonly a mix of stress and urge incontinence. Stress incontinence is when urine leaks due to pressure on the bladder from coughing, sneezing, or physical activity. Urge incontinence is a sudden, intense

urge to urinate followed by an involuntary loss of urine. Mixed incontinence exhibits symptoms of both.

Extraurethral incontinence (also known as ectopic ureter or urinary diversion) is less common and involves abnormal connections between the urinary tract and other structures. In this condition, the ureter (the tube that carries urine from the kidney to the bladder) may connect to the wrong place, such as the urethra, vagina, or other parts of the urinary or reproductive system. This leads to continuous leakage of urine, often from birth.

Each type of incontinence requires different approaches for management or treatment. Overflow incontinence might involve techniques to help empty the bladder fully, while mixed incontinence may need a combination of treatments targeting both stress and urge factors. Extraurethral incontinence often requires surgical intervention to correct the anatomical abnormalities causing the condition. Consulting a healthcare professional is crucial for the proper diagnosis and management of any form of incontinence.

RENAL STONES

Renal stone disease, also known as nephrolithiasis, can occur in individuals of all ages, including the older population. The incidence of kidney stones tends to increase with age, with a peak incidence in the sixth decade of life.

As people age, their thirst sensation may decrease, which can lead to dehydration. Dehydration can increase the concentration of minerals in urine, which can promote the formation of kidney stones. The decline of kidney function with age and morbidity such as diabetes and hypertension can lead to an accumulation of waste products and minerals in the urine, which can contribute to the development of kidney stones. Certain Medications such as thiazide diuretics or calcium-containing antacids can predispose to nephrolithiasis.

Chronic diseases: older individuals may have chronic diseases such as diabetes or hypertension, which can increase their risk of developing kidney stones.

The investigations for older population will depend on the size and location of the stone, as well as the overall health of the individual. Treatment helps to manage pain and discomfort, as well as procedures to remove the stone, such as shock wave lithotripsy, ureteroscopy, or percutaneous nephrolithotomy.

Prevention of kidney stones in the older population may include staying well hydrated, avoiding high-salt and high-protein diets, and limiting the consumption of foods that are high in oxalate, such as spinach and nuts additionally, it may be helpful to avoid certain medications that increase the risk of kidney stone formation. In some cases, surgery may be necessary to remove the stone.

Further Reading

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