

Managing lower urinary tract symptoms in men

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Mr Kenneth R MacKenzie
MBChB MRCS (Ed)
Core Trainee in Urology

Mr Jonathan J Aning
BMBS BMedSci DM FRCS(Urol)
Consultant Urological Surgeon

Department of Urology,
Freeman Hospital, Newcastle Upon Tyne Hospitals NHS Foundation Trust,
Newcastle Upon Tyne, UK



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AUTHORS

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Department of Urology,
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Newcastle Upon Tyne
Hospitals NHS
Foundation Trust,
Newcastle Upon Tyne, UK

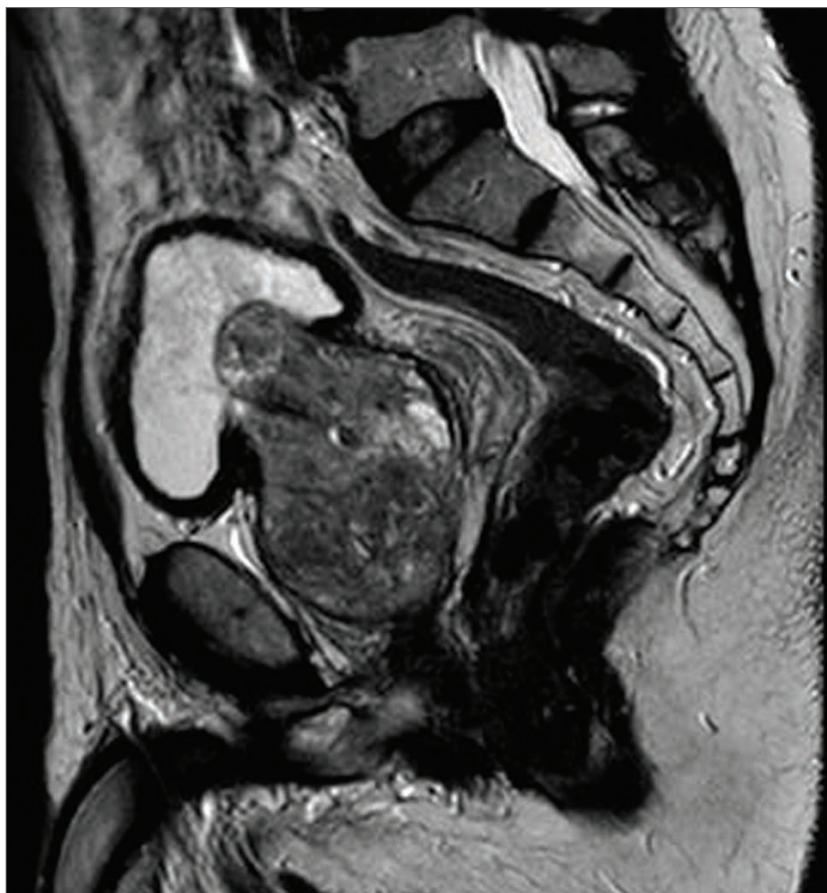


FIGURE 1

Sagittal MRI image demonstrating significant BPH



MALE LOWER URINARY TRACT SYMPTOMS (LUTS) ARE COMMON AND INCREASE IN PREVALENCE

with age. Up to 90% of men aged 50 to 80 may suffer from troublesome LUTS.¹

The terms benign prostatic hyperplasia (BPH) or prostatism were traditionally used to describe men's difficulties with micturition. However, it is now widely accepted that the term LUTS is more appropriate to describe symptoms resulting from lower urinary tract dysfunction. This is because BPH refers specifically to histopathologically confirmed hyperplastic changes. Although BPH may cause prostatic enlargement (see figure 1, above) only 25-50% of men with BPH have clinically apparent LUTS.¹ Bladder dysfunction or less commonly urethral pathology also play a role in LUTS and awareness of this

interplay is important in the assessment and management of men presenting with urinary symptoms.

PRESENTATION

Men may attend expressing direct concern about micturition, describing one or more LUTS (see table 1, p12) and the related impact on their quality of life.

Frequently men may present for other medical or urological reasons such as concern regarding their risk of having prostate cancer or erectile dysfunction but on taking a history bothersome LUTS are identified. Men may present late in the community with urinary retention: the inability to pass urine.

ASSESSMENT

A thorough urological history is essential to inform management. It is important to determine whether men have storage or

How do men present in primary care?

How should patients be assessed?

Which patients should be referred?

voiding LUTS or both. Do not forget though that LUTS may be the first presentation of other non-urological disease processes, such as diabetes.

Voiding symptoms are thought likely to be related to mechanical obstruction of flow but it is important to remember that this cannot be assumed. It is possible for voiding symptoms to be caused by detrusor dysfunction. Storage symptoms are likely to be related to bladder dysfunction, which may or may not have resulted from bladder outflow obstruction. Post-micturition dribble is the exception because it may also be caused by pooling of urine in the bulbar urethra. In addition to evaluation of the LUTS, key aspects of the history, which must be covered are:

- Lifestyle including details about diet and type of drinks consumed

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(e.g. caffeinated, alcohol, and soft drinks) and frequency or volume of fluid intake

- Past urological history including trauma, history of urinary tract infection (UTI), previous urological surgery
- Past medical history including heart failure, diabetes mellitus/insipidus, renal disease; neurological conditions including cerebrovascular disease, spinal cord injury; obstructive sleep apnoea
- Drug history including OTC products, diuretics, antidepressants and previous/current medication to treat LUTS

All patients must have a systematic comprehensive examination including genitalia and a digital rectal examination (DRE). During the abdominal examination a mass arising from the pelvis (characterised on examination by not being possible to get below the mass), in the midline, which is dull to percussion may be consistent with a palpable bladder. Examination of the genitalia should exclude phimosis, meatal stenosis or penile malignancy as causes of LUTS. DRE should assess the anal tone, prostatic volume and contour. It is also useful at the end of the examination to observe whether lower limb oedema or signs of a DVT are

present. Table 2, below, lists symptoms, which mandate an urgent urology referral for suspected malignancies under the NICE guidance for suspected cancer referrals.²

INVESTIGATIONS

Investigations performed in primary care should be guided by the history and examination findings, taking into account the impact of the LUTS on the individual's quality of life. Current NICE guidelines¹ recommend the following to be performed at initial assessment:

- Frequency volume chart (FVC): This records the time of micturition during the day and night and the volumes voided and should be completed over a minimum of three days – men should be encouraged to record the type, timing and volume of fluid consumed too. This is useful for identifying lifestyle factors such as high fluid intake and the influence of timing of intake on symptoms, in addition to giving an indication about bladder capacity. In nocturnal polyuria there is an increased proportion of 24-hour urine output occurring at night. This is considered to be present in men over 65 if > 33% of output is produced at night, and may be diagnosed by a FVC.

- Urine dipstick to detect blood, glucose, protein, leucocytes and nitrites to identify conditions such as UTIs, diabetes mellitus or urogenital malignancy

- Prostate specific antigen (PSA) testing should be discussed and men offered time to decide whether they wish to have a PSA test performed if:
 - LUTS are suggestive of bladder outflow obstruction secondary to benign prostatic enlargement (PSA is a predictor of disease progression³)
 - The prostate feels abnormal on DRE
 - They are concerned about prostate cancer

Patients may find the British Association of Urological Surgeons (BAUS) patient information leaflet on PSA⁴ useful to aid their decision making, this is available online (see Useful information box, p16).

Serum creatinine and estimated glomerular filtration rate should be measured if renal failure is suspected (nocturnal enuresis, recurrent UTIs or a history of renal calculi)

- In men considering any treatment for LUTS, an assessment of their baseline symptoms should be carried out with a validated questionnaire where the symptom score allows for assessment of subsequent symptom change. The International Prostate Symptom Score (IPSS) is commonly used for this purpose and is shown in table 3, opposite.

The final question regarding quality of life is particularly useful in terms of guiding when to introduce treatment.

The questionnaire is validated to assess treatment response with a three point decrease in total score equating to a mild improvement in symptoms and a clinically significant response.^{1,5,6} Although changes in the IPSS score may occur with treatment, clinically the most important question to guide ongoing management is whether the patient feels that the treatment has improved his bothersome symptoms.

REFERRAL

Men should be referred for urological review if they have:

- Bothersome LUTS which have not responded to conservative management or medical therapy
- LUTS in association with recurrent or persistent UTIs
- Urinary retention
- Renal impairment suspected to be secondary to lower urinary tract dysfunction
- Suspected urological malignancy

Table 1

Lower urinary tract symptoms

Storage symptoms	Voiding symptoms
Frequency	Hesitancy
Nocturia	Reduced flow of urine
Urgency	Terminal dribble
Urge incontinence	Incomplete emptying

Table 2

Symptoms mandating an urgent urology referral

Urgent referral for suspected urological cancer according to NICE guideline NG12² (2 week wait)

- Abnormal DRE (Prostate cancer)
- PSA greater than age specific range (Prostate cancer)
- Aged ≥ 45 years old with visible haematuria without UTI (Bladder cancer)
- Aged ≥ 60 years old with unexplained non visible haematuria and either dysuria or raised white cell count (Bladder cancer)
- Penile lesion where a sexually transmitted infection has been excluded (Penile cancer)

Urgent referral for other symptoms

- Nocturnal enuresis – suspect high pressure chronic urinary retention
- Storage LUTS associated with bladder pain – important to exclude bladder malignancy or bladder stones
- New back pain ± abnormal neurological examination with LUTS – exclude cauda equina compression

Table 3**The International Prostate Symptom Score⁶**

	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 finished 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 past month, how often have you found it difficult to postpone urination?	0	1	2	3	4	5	
Weak stream Over the past month, how often have you had a weak urinary stream?	0	1	2	3	4	5	
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	Your score
Nocturia Over the past month, how many times did you most typically get up to urinate from the time you went to bed at night until the time you got up in the morning?	0	1	2	3	4	5	
TOTAL SCORE							
Score: 0-7 mildly symptomatic 8-19 moderately symptomatic 20-35 severely symptomatic							
Quality of life due to urinary symptoms	Delighted	Pleased	Mostly satisfied	Mixed: equally satisfied/dissatisfied	Mostly dissatisfied	Unhappy	Terrible
If you were to spend the rest of your life with your urinary condition the way it is now, how would you feel about that?	0	1	2	3	4	5	6

POTENTIAL COMPLICATIONS FROM UNTREATED LUTS

Acute urinary retention

Acute urinary retention is a common urological emergency, where men present with an abrupt inability to pass urine that is often associated with severe lower abdominal pain, the incidence in men in the UK is 3 per 1,000 each year.⁷ Acute urinary retention results in surgery to relieve bladder outflow obstruction in 24-42% of male patients presenting in the UK and North America. This subgroup of patients may suffer more perioperative morbidity than elective patients with no prior history of acute urinary retention.⁸

Urgent urethral or suprapubic catheterisation is required. BPH is the most common cause of acute urinary retention. Other causes such as constipation, prostate cancer or cauda equina must be excluded. Renal function should be checked, PSA is not indicated unless there is significant clinical concern about the possibility of prostate cancer as acute retention can significantly raise the PSA.

The ongoing management of acute urinary retention after catheterisation is dependent on the clinical presentation. It is important to reflect on whether the cause of the urinary retention is spontaneous or precipitated.

The majority of episodes of acute urinary retention are spontaneous i.e. there is no obvious trigger. The management of spontaneous retention includes starting an alpha-blocker if there are no contraindications and arranging a trial without catheter (TWOC) within two weeks. TWOC should not be performed less than 48 hours after commencing an alpha-blocker.⁹

Precipitated retention is less common but refers to acute urinary retention that has an underlying trigger. Examples of triggers include: surgical procedures performed under a general or local anaesthetic, excessive fluid intake (including alcohol), bladder overdistension, UTI, constipation and drugs. If precipitated retention is suspected, the management should be as for spontaneous retention but must also address and correct any precipitating causes.

Chronic urinary retention

This may be classified as either high-pressure chronic retention (HPCR) or low-pressure chronic retention (LPCR). HPCR is a urological emergency when recognised. If suspected, chronic retention can be excluded by performing or arranging an urgent post-micturition

bladder scan. Men with HPCR may exhibit LUTS, a combination of bladder outflow obstruction and high bladder pressures creating backward pressure on upper urinary tract drainage results in renal impairment. LPCR in contrast may present with large volume, non-painful urinary retention with patients describing no LUTS. Nocturnal enuresis may be the first presenting symptom. LPCR is not associated with renal impairment.

HPCR requires urgent intervention with a urethral catheter and commonly requires hospital admission to monitor post-catheter insertion diuresis leading to large biochemical changes and decompression haematuria. Patients must not be without a catheter unless bladder outflow surgery is performed.

In LPCR urethral catheterisation, renal function and renal tract ultrasound should be performed. Patients should not have their catheter removed unless they learn to perform intermittent self-catheterisation. Bladder outflow surgery may be performed, however, urodynamic assessment may be carried out prior to this.

TREATMENT

All patients not meeting criteria for immediate referral to urology can be managed initially in primary care. Based on history, examination and investigation findings an individualised management plan should be formulated.

Conservative management

Conservative management advice is fundamental to the care of all patients. Basic lifestyle advice should be given regarding reduction or avoidance of caffeinated products and alcohol. The FVC should guide advice regarding fluid intake management and all medications should be reviewed.

Men with post-micturition dribble and storage LUTS, particularly urgency associated with incontinence may benefit from a referral to the community continence team. After assessment patients may be given advice on containment aids and how to perform urethral milking and bladder retraining under supervision to improve quality of life.

For men with mild LUTS (IPSS < 8) with a low impact on quality of life conservative management and a period of surveillance alone is appropriate.

Medical management

Men with moderate or severe LUTS may benefit from medical management to improve their symptoms. The two mainstays of medical treatment are

alpha₁-blockers and 5 alpha-reductase inhibitors (5ARIs) and these should be initiated in primary care when appropriate. If men describe symptoms consistent with overactive bladder an anticholinergic may be offered.

It is recommended that patients commenced on medical therapy be reviewed 4-6 weeks after initiating treatment then on a 6-12 monthly basis to assess treatment response and to monitor side effects.

Alpha-blockers: Selective alpha₁-blockers (alfuzosin, doxazosin, tamsulosin or terazosin) inhibit alpha₁-adrenoceptors in the prostatic smooth muscle and bladder neck. This inhibition reduces bladder outflow obstruction leading to improved urinary flow. Alpha₁-blockers can significantly improve symptoms in 30-50% of patients and have a rapid onset of action and are fully effective within a few weeks.¹⁰

Alpha₁-blockers have a relatively low side effect profile and are generally well tolerated. Welk and colleagues recently identified that in the first 90 days of initiating alpha-blockers, there is a small but statistically significant risk of falls, fractures and head injuries in men over 66 years of age.¹¹

Headache, dizziness, hypotension and dry ejaculation are acknowledged risks, which may be minimised by counselling patients appropriately before prescribing the medication and advising men to take their medication at night before going to bed. Alpha-blockers are associated with intraoperative floppy iris syndrome. Patients undergoing cataract surgery should inform their ophthalmic surgeon in advance if they are on an alpha-blocker.¹²

5ARIs: 5ARIs (finasteride, dutasteride) block the conversion of testosterone to dihydrotestosterone (DHT) in prostatic cells by inhibiting the enzyme 5 alpha reductase. DHT plays an important role in prostate growth. By inhibiting DHT production, 5ARIs prevent further prostatic growth and can cause shrinkage of the gland. This results in an improvement in urinary flow. Patients should be counselled however that 5ARIs may take up to six months to demonstrate a clinical improvement in urinary symptoms. 5ARIs have been shown to be more effective in men with larger prostates. If patients have LUTS, an estimated prostate volume > 30 g and/or a PSA > 1.4 ng/L they are at high risk of disease progression and a 5ARI should be considered.¹

Importantly, unlike alpha-blockers,

key points

SELECTED BY

Dr Jonathan Rees
GPwSI Urology, Bristol

Male lower urinary tract symptoms (LUTS) are common

and increase in prevalence with age. Up to 90% of men aged 50 to 80 may suffer from troublesome LUTS. Men may attend expressing direct concern about micturition, describing one or more LUTS and the related impact on their quality of life. Frequently men may present for other medical or urological reasons such as concern regarding their risk of having prostate cancer or erectile dysfunction but on taking a history bothersome LUTS are identified. Men may present late in the community with urinary retention: the inability to pass urine.

A thorough urological history is essential to inform

management. It is important to determine whether men have storage or voiding LUTS or both. In addition to evaluation of the LUTS, key aspects of the history, which must be covered are: lifestyle including details about diet, type of drinks consumed (e.g. caffeinated, alcohol or soft drinks) and frequency or volume of fluid intake; past urological history including trauma, history of UTI, previous urological surgery; past medical history including heart failure, diabetes mellitus/insipidus, renal disease; neurological conditions including cerebrovascular disease, spinal cord injury; obstructive sleep apnoea; drug history including OTC products, diuretics, antidepressants and previous/current medication to treat LUTS. All patients must have a systematic comprehensive examination including genitalia and a digital rectal examination.

Investigations performed in primary care should be

guided by the history and examination findings, taking into account the impact of the LUTS on the individual's quality of life. Current NICE guidelines recommend the following to be performed at initial assessment: frequency volume chart (FVC); urine dipstick to detect blood, glucose, protein, leucocytes and nitrites; and prostate specific antigen.

Men should be referred for urological review

if they have: bothersome LUTS which have not responded to conservative management or medical therapy; LUTS in association with recurrent or persistent UTIs; urinary retention; renal impairment suspected to be secondary to lower urinary tract dysfunction; or suspected urological malignancy. All patients not meeting criteria for immediate referral to urology can be managed initially in primary care. Based on history, examination and investigation findings an individualised management plan should be formulated. Basic lifestyle advice should be given regarding reduction or avoidance of caffeinated products and alcohol. The FVC should guide advice regarding fluid intake management and all medications should be reviewed.

Men with moderate or severe LUTS may benefit from medical management to improve their symptoms. Although TURP is the gold standard, well conducted clinical trials have demonstrated that other treatments may achieve similar results with less morbidity. HoLEP has achieved excellent results in centres that specialise in the procedure.

5ARIs impact on disease progression: they reduce risk of acute urinary retention and progression to invasive therapy.^{13,14}

5ARIs are generally well tolerated, reported side effects relate to sexual dysfunction with a risk of reduced libido and erectile dysfunction. Occasionally, men may experience a reduction in ejaculate or develop gynaecomastia or nipple tenderness.

5ARIs should reduce PSA by up to 50% by six months, therefore all PSA tests should be appropriately interpreted. If a man is noted to have a rising PSA on a 5ARI in the absence of a prostate cancer diagnosis he should be referred for urgent urological review.

Anticholinergics: Anticholinergics are competitive muscarinic antagonists, which have a high binding affinity for muscarinic receptors in the bladder. They reduce spontaneous bladder muscle contractile activity during the bladder filling phase (storage), increasing the residual bladder capacity and treating urgency.

Anticholinergics have a role in men with storage symptoms who describe urgency with or without urge incontinence when lifestyle changes and bladder retraining have been unsuccessful.¹

Common side effects include a dry mouth, dyspepsia, constipation, blurred vision and drowsiness. Cognitive impairment can occur particularly in the elderly.

Important contraindications include myasthenia gravis, urinary retention, uncontrolled narrow angle glaucoma, active ulcerative colitis and bowel obstruction.

Combination therapy: Several randomised controlled trials have demonstrated that combination therapy comprising 5ARIs and alpha-blockers is better at improving symptoms and preventing disease progression when compared with 5ARIs and alpha-blockers individually and this should be considered in appropriate patients.^{13,14}

Current NICE guidance also supports offering an anticholinergic as well as an alpha-blocker to men who still have storage symptoms after treatment with an alpha-blocker alone.¹ If there is any clinical concern regarding introducing combination therapy, advice may be sought from secondary care.

Surgical intervention

When medical therapy fails to improve LUTS significantly the patient should be consulted regarding their wishes. In men

unsuitable for surgical intervention who cannot perform intermittent self-catheterisation, a long-term indwelling catheter should be considered. The practicalities, benefits and risks of catheterisation should be discussed with the man and, if appropriate, his carers.

Men referred for specialist management in secondary care may undergo further investigations. Surgery to relieve bladder outflow obstruction will be offered to men with significant voiding symptoms. The surgical technique employed may vary depending on the estimated prostate volume and the clinical practice and experience of the unit.

Transurethral resection of prostate (TURP), transurethral vaporisation of prostate (TUVP) or holmium laser enucleation of prostate (HoLEP) is recommended for men with prostates between 30 and 80 g. HoLEP or open prostatectomy is recommended for men with very large prostates classified as > 80 g.

For men with small prostates, < 30 g, a transurethral incision of prostate (TUIP) may be more appropriate than a TURP.¹

Before undergoing surgery to improve bladder outflow obstruction all patients should be made aware of the specific risks associated with the procedure including: retrograde ejaculation, erectile dysfunction, urinary incontinence, postoperative catheterisation, failure to void following the procedure and a recurrence of symptoms.

EMERGING TREATMENTS

Although TURP is currently considered the gold standard, well conducted clinical trials have demonstrated that other treatments may achieve similar results with less morbidity. HoLEP is an example of a technique, which has achieved excellent results in centres that specialise in the procedure.

The landscape of options for men with male voiding symptoms is rapidly evolving. The primary objective of all newer treatments is to achieve less morbidity for the patient.

The UroLift® system is a device that inserts multiple prostatic urethral lift implants into enlarged prostatic lobes to treat voiding LUTS. The implants aim to widen the lumen of the prostatic urethra by retracting the enlarged lobes. The procedure may be performed under local or general anaesthetic. The UroLift® system relieves LUTS while avoiding the risk to sexual function associated with surgical options.¹⁵

In September 2015 NICE



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recommended that the UroLift® system should be considered as an alternative to current surgical procedures for men aged > 50 with LUTS and a prostate volume < 100 ml without an obstructing middle lobe.¹⁶ The UroLift® system has yet to be widely adopted in NHS practice at the time of writing but may be accessed in the UK privately or via clinical trials.

GreenLight XPS 180W (laser prostate vaporisation) is a surgical alternative to TURP, which has demonstrated comparable results.¹⁷ The technique is currently under review by NICE and formal guidance is anticipated soon.

There are a number of other novel therapies currently under investigation, such as prostate embolisation and other surgical laser modalities which may in the future transition into clinical practice.

CONCLUSION

Complete clinical assessment along with understanding the impact of the patient's LUTS on his quality of life is imperative to ensure that men's holistic needs have been accounted for when advising on treatment. Management should comprise lifestyle modification at all stages, appropriate medical and surgical treatment, and clearly defined monitoring, to ensure patients are adequately treated.

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Useful information

Guidelines

NICE CG97. The management of lower urinary tract symptoms in men
www.nice.org.uk/guidance/cg97/evidence/full-guideline-245363870

EAU Guidelines on the management of non-neurogenic male lower urinary tract symptoms (LUTS), including benign prostatic obstruction (BPO)
<http://uroweb.org/wp-content/uploads/EAU-Guidelines-Non-Neurogenic-Male-LUTS-Guidelines-2015-v2.pdf>

Patient information from BAUS

'I think I might have prostate symptoms'
www.baus.org.uk/patients/conditions/9/prostate_symptoms

PSA information leaflet to aid patients in decision making
www.baus.org.uk/_userfiles/pages/files/Patients/Leaflets/PSA_advice.pdf

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editor@thepractitioner.co.uk