

# LUTS: Keeping an Even Flow



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In the past, when an older man came to the office complaining of urinary symptoms most physicians felt that it was likely due to an enlarged prostate. However, as with most medical diseases, research changes our understanding of once accepted pathophysiology. What was formerly known as benign prostatic hypertrophy (BPH) has recently been renamed to lower urinary tract symptoms (LUTS). Obviously, it is not as simple as “all big prostates cause obstruction” and “no man with a small prostate can be obstructed.” Therefore, the goal of management is to correctly diagnose the cause of a patient's urinary symptoms and to guide treatment around the patient's desires.

## Q & A *What is the pathophysiology of LUTS?*

Over time, we have discovered that there are likely two components to LUTS. First, there is the age-old philosophy that enlargement of the prostate causes mechanical obstruction. Secondly, there is the thought that bladder neck muscular hypertrophy causes even more trouble by resulting in a functional obstruction. There is no doubt that in most situations, both mechanisms are involved. However, in other cases, one predominates more than the other.

### Sean's case

Sean, 62, is an accountant who has been having trouble with frequency. On further questioning, he also notes that:

- he gets up 3 times per night to void,
- his stream has slowed and
- it takes longer to get started.

All of these things have slowly gotten worse over the last 2 years.

#### Assessment

Sean's examination is unremarkable and he has about a 30 g benign-feeling prostate. On investigation, he is found to have a:

- normal urinalysis,
- creatinine of 88  $\mu\text{mol/L}$  and
- PSA of 2.1.

#### Treatment

Sean has decided to decrease his coffee intake and evening fluids. He has also elected to start 0.4 mg of tamsulosin q.d.

### *Prostate enlargement/hypertrophy*

Basic prostate enlargement or hypertrophy is mediated by testosterone. Without available testosterone the prostate will not grow. It is the conversion of testosterone by 5 $\alpha$ -reductase (5AR) to its active metabolite dihydrotestosterone that enhances growth. It is by inhibiting this enzyme that we are able to “shrink” the prostate. Yet, some theorists feel that it is not so

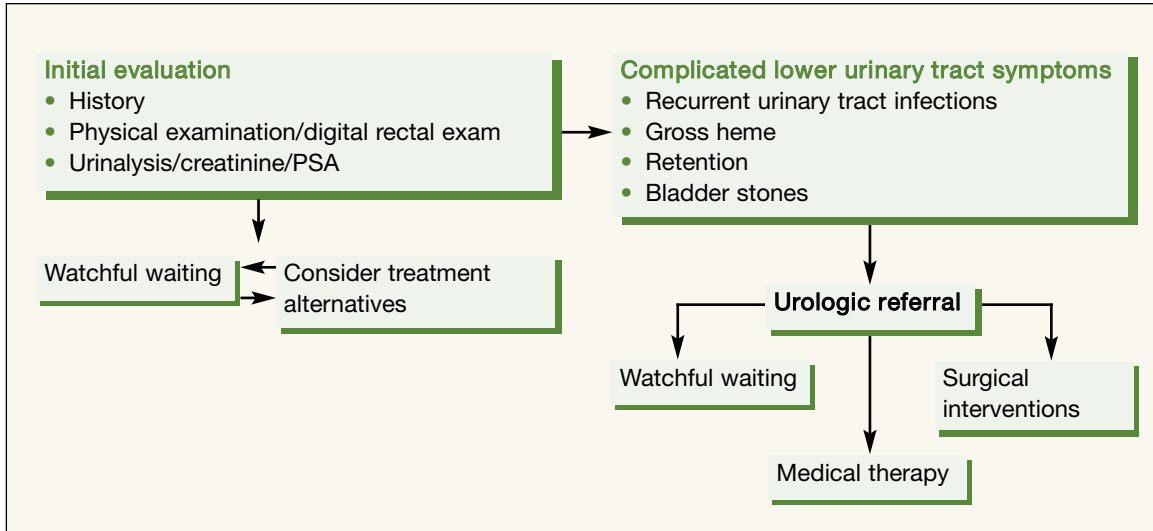


Figure 1. Management of benign prostatic hypertrophy (BPH) in family medicine. Adapted from Agency for Health Care Policy and Research Guidelines, 1994(8).

much the increased growth of the prostate, but rather its lack of breakdown or apoptosis that causes its overgrowth.

### Bladder neck hypertrophy

Bladder neck hypertrophy is mediated by smooth muscle contraction via  $\alpha$ -receptors. The bladder neck contains predominantly smooth muscle. As a man ages, this muscle frequently grows and causes a greater degree of contraction around the bladder neck. In essence, this tightening of the bladder neck results in a functional obstruction.

True LUTS are caused more by the bladder itself than by either the prostate or bladder neck. Long-term obstruction causes the bladder wall to hypertrophy to overcome the blockage. This adaptation works well initially, but eventually leads to collagen deposition within the bladder wall. The hypertrophy and collagen changes lead to the classic obstructive and irritative symptoms. It is very important not to diagnose

a man with symptoms of frequency and urgency as simply having an overactive bladder. For, if he is treated with an anticholinergic and is actually obstructed, he will likely develop worsening symptoms and ultimately urinary retention.



### How to diagnose LUTS?

Ninety-five per cent of all LUTS diagnoses can be made based on history and a physical alone. Most men are middle-aged or older and have symptoms of:

- hesitancy and
- intermittency of:
  - stream,
  - frequency,
  - urgency,
  - nocturia,
  - decreased stream and
  - post-void dribbling.

A focused neurological exam, as well as abdominal and genital exam should be performed.

A digital rectal exam will help guide the diagnosis, especially if the prostate is large and allows for prostate cancer screening.

The laboratory work-up is very minimal but should include a:

- urinalysis,
- creatinine and
- PSA.

The urinalysis and creatinine are self explanatory but the PSA offers two things. First, it is useful in guiding the decision to further investigate for prostate cancer and secondly, it may aid in the pharmacologic management choices that are offered to the patient. Essentially, the lab work is useful in determining the small percentage of LUTS patients who require medical or surgical treatment.



### How to manage LUTS?

LUTS treatment is generally determined by the patient (Figure 1). In most cases, a patient only needs treatment if he is bothered enough by his symptoms that he would want to take a daily pill. The exception to this is any man with complicated LUTS. This would include:

- recurrent urinary tract infections,
- bladder calculi,
- gross hematuria and
- renal insufficiency.

These cases should then be referred for urologic consultation.

#### First-line therapy

The simplest first-line of management is lifestyle change, including such things as limiting evening fluids and eliminating caffeinated and alcoholic beverages. However, if someone

Table 1

#### Indications for surgery<sup>1</sup>

- Botherome symptoms
- Developed complications from BPH
- Moderate-to-severe lower urinary tract symptoms
- Developed acute urinary retention and BPH-related complications
- Surgical approach depends on:
  - Patient's prostate size
  - Surgeon's judgement
  - Patient's comorbidities

wishes to try pharmacotherapy, then  $\alpha$ -receptor blockers and 5AR inhibitors are the drugs of choice.

A-blockers are generally tried first. Today, the selective receptor blockers are of the  $\alpha$ -1A subtype. The most commonly used medication is tamsulosin; however, alfuzosin is another. Though they are generally well tolerated, the side-effects most commonly seen are:

- asthenia,
- nasal congestion,
- light headedness and
- retrograde ejaculation.

A change in symptoms can generally be seen in about three to four days.

#### Second-line therapy

Second-line therapy is usually with 5AR inhibitors (dutasteride or finasteride) either alone or in combination with an  $\alpha$ -blocker. They are generally used when a patient has a bigger gland or a higher PSA not caused by

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malignancy. Improvement in symptoms tends to take six to nine months. In one large randomized study, combination therapy achieved up to a 50% reduction in episodes of retention (but the overall risk of retention prior to medication was only about 5% to 6%).

The indications for surgery are listed in Table 1.

*Ninety-five per cent of all LUTS diagnoses can be made based on history and a physical alone.*

### Q&A Summary

LUTS is a common medical condition in middle-aged to older men. In some instances, it can lead to more significant complications. For the most part, treatment is guided by how bothersome a patient's symptoms have become. **Dx**

#### Reference

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#### Resource

1. McConnell JD, Roehrborn CG, Bautista OM, et al: The long-term effect of doxazosin, finasteride, and combination therapy on the clinical progression of benign prostatic hyperplasia. *N Engl J Med* 2003; 349(25):2387-98.

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