Benign Prostatic Hyperplasia

Evaluation and Medical Management

Surgery: Minimally invasive - TURP (Transurethral Resection of Prostate), HOLEP, open surgery

Overview

Benign prostatic hyperplasia (BPH) — also called prostate gland enlargement — is a common condition as men get older. An enlarged prostate gland can cause uncomfortable urinary symptoms, such as blocking the flow of urine out of the bladder. It can also cause bladder, urinary tract or kidney problems.

There are several effective treatments for prostate gland enlargement, including medications, minimally invasive therapies and surgery. To choose the best option, we will consider your symptoms, the size of your prostate, other health conditions you might have and your preferences.

Symptoms

The severity of symptoms in people who have prostate gland enlargement varies, but symptoms tend to gradually worsen over time. Common signs and symptoms of BPH include:

- Frequent or urgent need to urinate
- Increased frequency of urination at night (nocturia)
- Difficulty starting urination
- Weak urine stream or a stream that stops and starts
- Dribbling at the end of urination
- Inability to completely empty the bladder

Less common signs and symptoms include:

- Urinary tract infection
- Inability to urinate
- Blood in the urine

The size of your prostate doesn't necessarily determine the severity of your symptoms. Some men with only slightly enlarged prostates can have significant symptoms, while other men with very enlarged prostates can have only minor urinary symptoms.

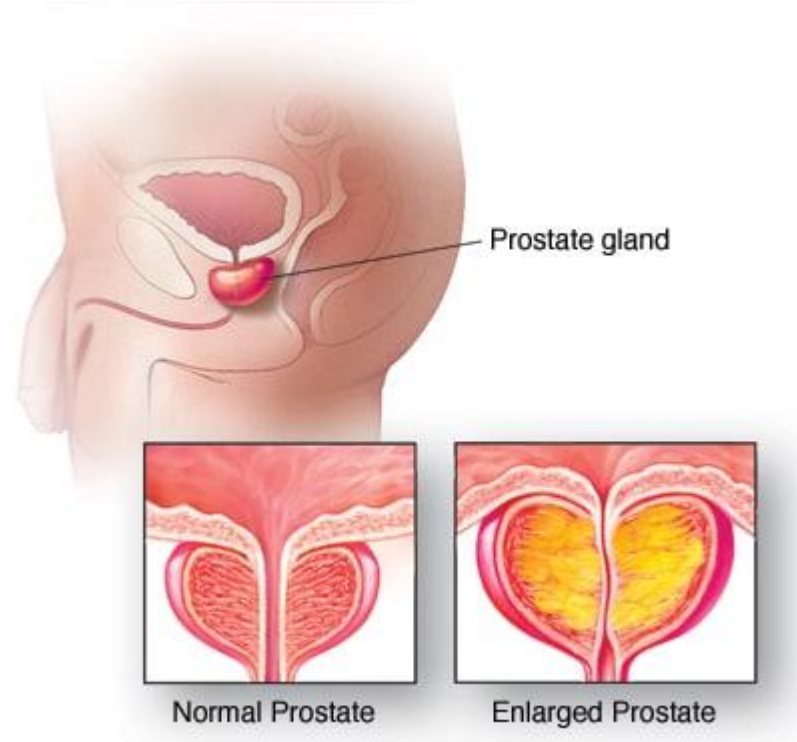
In some men, symptoms eventually stabilize and might even improve over time.

Other possible causes of urinary symptoms

Conditions that can lead to symptoms similar to those caused by enlarged prostate include:

- Urinary tract infection
- Inflammation of the prostate (prostatitis)
- Narrowing of the urethra (urethral stricture)
- Scarring in the bladder neck as a result of previous surgery
- Bladder or kidney stones
- Problems with nerves that control the bladder
- Cancer of the prostate or bladder

Causes



The prostate gland is located beneath your bladder. The tube that transports urine from the bladder out of your penis (urethra) passes through the center of the prostate. When the prostate enlarges, it begins to block urine flow.

Most men have continued prostate growth throughout life. In many men, this continued growth enlarges the prostate enough to cause urinary symptoms or to significantly block urine flow.

It isn't entirely clear what causes the prostate to enlarge. However, it might be due to changes in the balance of sex hormones as men grow older.

Risk factors

Risk factors for prostate gland enlargement include:

- **Aging.** Prostate gland enlargement rarely causes signs and symptoms in men younger than age 40. About one-third of men experience moderate to severe symptoms by age 60, and about half do so by age 80.
- **Family history.** Having a blood relative, such as a father or a brother, with prostate problems means you're more likely to have problems.
- **Diabetes and heart disease.** Studies show that diabetes, as well as heart disease and use of beta blockers, might increase the risk of BPH.
- **Lifestyle.** Obesity increases the risk of BPH, while exercise can lower your risk.

Complications

Complications of an enlarged prostate can include:

- **Sudden inability to urinate (urinary retention).** You might need to have a tube (catheter) inserted into your bladder to drain the urine. Some men with an enlarged prostate need surgery to relieve urinary retention.
- **Urinary tract infections (UTIs).** Inability to fully empty the bladder can increase the risk of infection in your urinary tract. If UTIs occur frequently, you might need surgery to remove part of the prostate.
- **Bladder stones.** These are generally caused by an inability to completely empty the bladder. Bladder stones can cause infection, bladder irritation, blood in the urine and obstruction of urine flow.
- **Bladder damage.** A bladder that hasn't emptied completely can stretch and weaken over time. As a result, the muscular wall of the bladder no longer contracts properly, making it harder to fully empty your bladder.
- **Kidney damage.** Pressure in the bladder from urinary retention can directly damage the kidneys or allow bladder infections to reach the kidneys.

Most men with an enlarged prostate don't develop these complications. However, acute urinary retention and kidney damage can be serious health threats.

Having an enlarged prostate is not believed to increase your risk of developing prostate cancer.

Diagnosis

This initial exam is likely to include:

- **Digital rectal exam.** The doctor inserts a finger into the rectum to check your prostate for enlargement.
- **Urine test.** Analyzing a sample of your urine can help rule out an infection or other conditions that can cause similar symptoms.
- **Blood test.** The results can indicate kidney problems.
- **Prostate-specific antigen (PSA) blood test.** PSA is a substance produced in your prostate. PSA levels increase when you have an enlarged prostate. However, elevated PSA levels can also be due to recent procedures, infection, surgery or prostate cancer.

After that we might recommend additional tests to help confirm an enlarged prostate and to rule out other conditions. These tests include:

- **Urinary flow test.** You urinate into a receptacle attached to a machine that measures the strength and amount of your urine flow. Test results help determine over time if your condition is getting better or worse.
- **Postvoid residual volume test.** This test measures whether you can empty your bladder completely. The test can be done using ultrasound or by inserting a catheter into your bladder after you urinate to measure how much urine is left in your bladder.
- **24-hour voiding diary.** Recording the frequency and amount of urine might be especially helpful if more than one-third of your daily urinary output occurs at night.

If your condition is more complex, doctor may recommend:

- **Transrectal ultrasound.** An ultrasound probe is inserted into your rectum to measure and evaluate your prostate.
- **Prostate biopsy.** Transrectal ultrasound guides needles used to take tissue samples (biopsies) of the prostate. Examining the tissue can help your doctor diagnose or rule out prostate cancer.

- **Urodynamic and pressure flow studies.** A catheter is threaded through your urethra into your bladder. Water — or, less commonly, air — is slowly injected into your bladder. Your doctor can then measure bladder pressure and determine how well your bladder muscles are working. These studies are usually used only in men with suspected neurological problems and in men who have had a previous prostate procedure and still have symptoms.
- **Cystoscopy.** A lighted, flexible instrument (cystoscope) is inserted into your urethra, allowing your doctor to see inside your urethra and bladder. You will be given a local anesthetic before this test.

Treatment

A wide variety of treatments are available for enlarged prostate, including medication, minimally invasive therapies and surgery. The best treatment choice for you depends on several factors, including:

- The size of your prostate
- Your age
- Your overall health
- The amount of discomfort or bother you are experiencing

If your symptoms are tolerable, you might decide to postpone treatment and simply monitor your symptoms. For some men, symptoms can ease without treatment.

Medication

Medication is the most common treatment for mild to moderate symptoms of prostate enlargement. The options include:

- **Alpha blockers.** These medications relax bladder neck muscles and muscle fibers in the prostate, making urination easier. Alpha blockers — which include alfuzosin, doxazosin (Cardura), tamsulosin (Flomax) and silodosin — usually work quickly in men with relatively small prostates. Side effects might include dizziness and a harmless condition in which

semen goes back into the bladder instead of out the tip of the penis (retrograde ejaculation).

- **5-alpha reductase inhibitors.** These medications shrink your prostate by preventing hormonal changes that cause prostate growth. These medications — which include finasteride and dutasteride — might take up to six months to be effective. Side effects include retrograde ejaculation.
- **Combination drug therapy.** Your doctor might recommend taking an alpha blocker and a 5-alpha reductase inhibitor at the same time if either medication alone isn't effective.
- **Tadalafil.** Studies suggest this medication, which is often used to treat erectile dysfunction, can also treat prostate enlargement.

Minimally invasive or surgical therapy

Minimally invasive or surgical therapy might be recommended if:

- Your symptoms are moderate to severe
- Medication hasn't relieved your symptoms
- You have a urinary tract obstruction, bladder stones, blood in your urine or kidney problems
- You prefer definitive treatment

Minimally invasive or surgical therapy might not be an option if you have:

- An untreated urinary tract infection
- Urethral stricture disease
- A history of prostate radiation therapy or urinary tract surgery
- A neurological disorder, such as Parkinson's disease or multiple sclerosis

Any type of prostate procedure can cause side effects. Depending on the procedure you choose, complications might include:

- Semen flowing backward into the bladder instead of out through the penis during ejaculation (retrograde ejaculation)

- Temporary difficulty with urination
- Urinary tract infection
- Bleeding
- Erectile dysfunction
- Very rarely, loss of bladder control (incontinence)

There are several types of minimally invasive or surgical therapies.

Transurethral resection of the prostate (TURP)

A lighted scope is inserted into your urethra, and the surgeon removes all but the outer part of the prostate. TURP generally relieves symptoms quickly, and most men have a stronger urine flow soon after the procedure. After TURP you might temporarily need a catheter to drain your bladder.

Transurethral incision of the prostate (TUIP)

A lighted scope is inserted into your urethra, and the surgeon makes one or two small cuts in the prostate gland — making it easier for urine to pass through the urethra. This surgery might be an option if you have a small or moderately enlarged prostate gland, especially if you have health problems that make other surgeries too risky.

Laser therapy

A high-energy laser destroys or removes overgrown prostate tissue. Laser therapy generally relieves symptoms right away and has a lower risk of side effects than does nonlaser surgery. Laser therapy might be used in men who shouldn't have other prostate procedures because they take blood-thinning medications.

The options for laser therapy include:

- **Ablative procedures.** These procedures vaporize obstructive prostate tissue to increase urine flow. Examples include photoselective vaporization of the prostate (PVP) and holmium laser ablation of the prostate (HoLAP). Ablative procedures can cause irritating urinary

symptoms after surgery, so in rare situations another resection procedure might be needed at some point.

- **Enucleative procedures.** Enucleative procedures, such as holmium laser enucleation of the prostate (HoLEP), generally remove all the prostate tissue blocking urine flow and prevent regrowth of tissue. The removed tissue can be examined for prostate cancer and other conditions. These procedures are similar to open prostatectomy.

Open or robot-assisted prostatectomy

The surgeon makes an incision in your lower abdomen to reach the prostate and remove tissue. Open prostatectomy is generally done if you have a very large prostate, bladder damage or other complicating factors. The surgery usually requires a short hospital stay and is associated with a higher risk of needing a blood transfusion.

Follow-up care

Your follow-up care will depend on the specific technique used to treat your enlarged prostate.

Your doctor might recommend limiting heavy lifting and excessive exercise for seven days if you have laser ablation, transurethral needle ablation or transurethral microwave therapy. If you have open or robot-assisted prostatectomy, you might need to restrict activity for six weeks.