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General Surgery

P R E S E N T S

Dr. Mufa T. Ghadiali is skilled in all aspects of General Surgery.
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- General Surgery
- Advanced Laparoscopic Surgery
- Surgical Oncology
- Gastrointestinal Surgery
- Hernia Surgery
- Endoscopy

Benign Prostatic Hypertrophy

Multimedia Health Education

Disclaimer

This movie is an educational resource only and should not be used to manage prostate health. All decisions about the management of prostate health must be made in conjunction with your Physician or a licensed healthcare provider.

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GHADIALI

MULTIMEDIA HEALTH EDUCATION MANUAL

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INTRODUCTION

Benign Prostatic Hypertrophy or BPH is non-cancerous enlargement of the prostate gland. It is also referred to as Benign Prostatic Hyperplasia. It is not uncommon for the prostate gland to become enlarged as men age. When the prostate gland becomes enlarged, it can cause problems with urination.

In order to learn more about BPH, it is important to understand normal anatomy of the prostate gland and surrounding structures.

Unit 1:

Normal Anatomy

Normal Anatomy

The Prostate Gland:

The prostate is a walnut-sized gland that forms part of the male reproductive system. The gland is made of two lobes, or regions, enclosed by an outer layer of tissue. The prostate is located in front of the rectum and just below the bladder, where urine is stored.



(Fig.1)

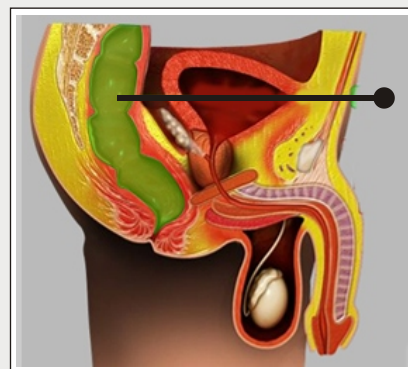
The prostate also surrounds the urethra, the canal through which urine passes out of the body. The main role of the prostate is to produce semen, the milky fluid that transports sperm during ejaculation.

(Refer fig.1)

- Rectum
- Bladder
- Pubic Bone
- Enlarged Prostate
- Urethra

Rectum

(Refer fig.2)

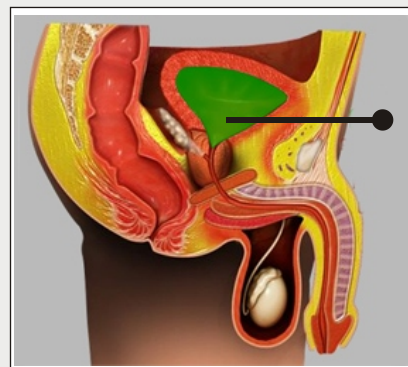


Rectum

(Fig.2)

Bladder

(Refer fig.3)



Bladder

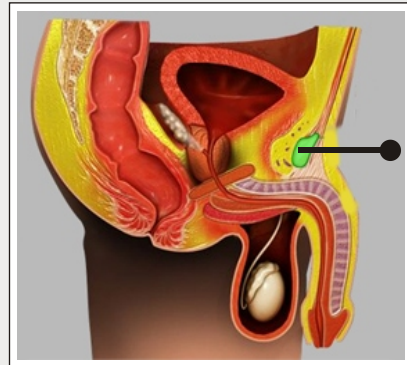
(Fig.3)

Unit 1:

Normal Anatomy

Pubic Bone

(Refer fig. 4)

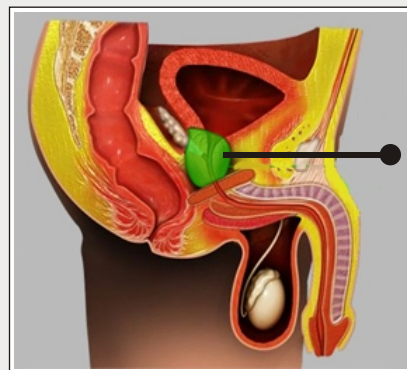


Pubic Bone

(Fig. 4)

Enlarged Prostate

(Refer fig. 5)

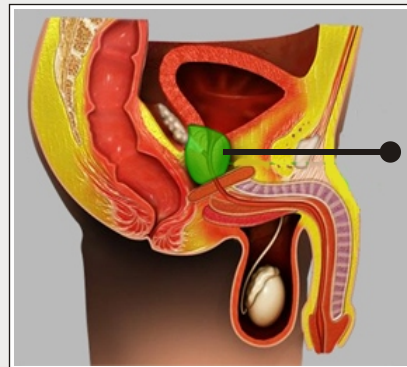


Enlarged Prostate

(Fig. 5)

Urethra

(Refer fig. 6)



Urethra

(Fig. 6)

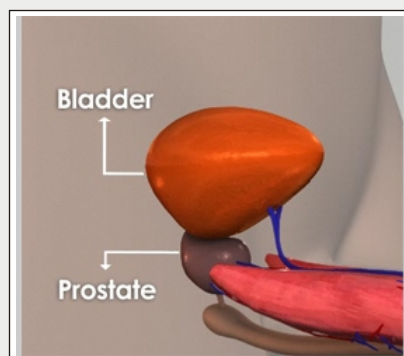
What is Benign Prostatic Hypertrophy?

It is common for the prostate gland to become enlarged as a man ages. Doctors call this condition benign prostatic hyperplasia (BPH), or benign prostatic hypertrophy.

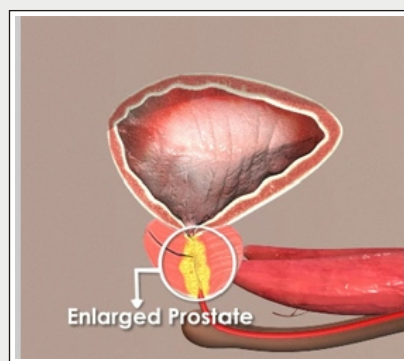
As the prostate enlarges, the layer of tissue surrounding it stops it from expanding, causing the gland to press against the urethra like a clamp on a garden hose. The bladder wall becomes thicker and irritable.

The bladder begins to contract even when it contains small amounts of urine, causing more frequent urination. Eventually, the bladder weakens and loses the ability to empty itself, so some of the urine remains in the bladder. The narrowing of the urethra and partial emptying of the bladder cause many of the problems associated with BPH.

(Refer fig. 7 & 8)



(Fig. 7)



(Fig. 8)

Symptoms of BPH

BPH rarely causes symptoms before age 40, but more than half of men in their sixties and as many as 90 percent in their seventies and eighties have some symptoms of BPH.

Many symptoms of BPH stem from obstruction of the urethra and gradual loss of bladder function, which results in incomplete emptying of the bladder. The symptoms of BPH vary, but the most common ones involve changes or problems with urination, such as:

- a hesitant, interrupted, weak stream
- urgency and leaking or dribbling
- more frequent urination, especially at night

Sometimes a man may not know he has any obstruction until he suddenly finds himself unable to urinate at all. This condition, called acute urinary retention, may be triggered by taking over-the-counter cold or allergy medicines. Such medicines contain a decongestant drug, known as a sympathomimetic. A potential side effect of this drug may prevent the bladder opening from relaxing and allowing urine to empty. When partial obstruction is present, urinary retention also can be brought on by alcohol, cold temperatures, or a long period of immobility.

Symptoms of BPH

It is important to tell your doctor about urinary problems such as those described above. In eight out of 10 cases, these symptoms suggest BPH, but they also can signal other, more serious conditions that require prompt treatment. These conditions, including prostate cancer, can be ruled out only by a doctor's examination.

Severe BPH can cause serious problems over time if left untreated. Urine retention and strain on the bladder can lead to urinary tract infections, bladder or kidney damage, bladder stones, and incontinence—the inability to control urination. If the bladder is permanently damaged, treatment for BPH may be ineffective. When BPH is found in its earlier stages, there is a lower risk of developing such complications.

Causes of BPH

What Causes BPH?

The cause of BPH is not well understood. No definite information on risk factors exists. For centuries, it has been known that BPH occurs mainly in older men and that it doesn't develop in men whose testes were removed before puberty. For this reason, some researchers believe that factors related to aging and the testes may spur the development of BPH.

One theory focuses on DHT, a substance made from testosterone in the prostate that may help control prostate growth. The accumulation of DHT in older men may encourage the growth of cells leading to BPH.

Another theory suggests elevated estrogen levels that occur as men age may increase cellular growth activity leading to BPH.

How is BPH Diagnosed?

You may first notice symptoms of BPH yourself, or your doctor may find that your prostate is enlarged during a routine checkup. When BPH is suspected, you may be referred to a urologist, a doctor who specializes in problems of the urinary tract and the male reproductive system. Some tests your doctor may order can include the following:

Digital Rectal Examination (DRE)

This examination is usually the first test done. The doctor inserts a gloved finger into the rectum and feels the part of the prostate next to the rectum. This examination gives the doctor a general idea of the size and condition of the gland.

Prostate-Specific Antigen (PSA) Blood Test

To rule out cancer as a cause of urinary symptoms, your doctor may recommend a PSA blood test. PSA, a protein produced by prostate cells, is frequently present at elevated levels in the blood of men who have prostate cancer. The U.S. Food and Drug Administration (FDA) has approved a PSA test for use in conjunction with a digital rectal examination to help detect prostate cancer in men who are age 50 or older and for monitoring men with prostate cancer after treatment.

However, much remains unknown about the interpretation of PSA levels, the test's ability to discriminate cancer from benign prostate conditions, and the best course of action following a finding of elevated PSA.

Rectal Ultrasound and Prostate Biopsy

If there is a suspicion of prostate cancer, your doctor may recommend a test with rectal ultrasound. In this procedure, a probe inserted in the rectum directs sound waves at the prostate. The echo patterns of the sound waves form an image of the prostate gland on a display screen. To determine whether an abnormal-looking area is indeed a tumor, the doctor can use the probe and the ultrasound images to guide a biopsy needle to the suspected tumor. The needle collects a few pieces of prostate tissue for examination with a microscope.

Urine Flow Study

Your doctor may ask you to urinate into a special device that measures how quickly the urine is flowing. A reduced flow often suggests BPH.

Cystoscopy

In this examination, the doctor inserts a small tube through the opening of the urethra in the penis. This procedure is done after a solution numbs the inside of the penis so all sensation is lost. The tube, called a cystoscope, contains a lens and a light system that help the doctor see the inside of the urethra and the bladder. This test allows the doctor to determine the size of the gland and identify the location and degree of the obstruction.

How is BPH Treated?

Conservative treatment measures to treat BPH are always considered first before invasive measures such as surgery. Some conservative treatment measures include the following:

Medications: Medications are the most common treatment method for controlling symptoms of BPH. There are a number of medications approved for the treatment of BPH symptoms. Some prevent growth of the prostate while others actually shrink the prostate gland. Other drugs may be prescribed to improve urine flow and reduce bladder outlet obstruction. Your doctor will discuss the various drugs available to treat your particular situation.

Nonsurgical Treatment Measures are minimally invasive treatments to reduce the size of the prostate gland and enlarge the urethra to make voiding easier. These may include the following:

Transurethral Microwave Therapy (TUMT): Cooled ThermoTherapy is a non-surgical, office-based prostate therapy used to treat BPH in a 30-minute treatment. Cooled ThermoTherapy uses precisely targeted microwave energy to heat and destroy enlarged prostate tissue while a cooling mechanism protects healthy, surrounding tissue. This non-surgical BPH treatment is performed on an outpatient basis and requires local anesthesia and/or oral medications. Within weeks, the majority of men notice improvements in their symptoms and overall quality of life.

Transurethral needle ablation (TUNA): The TUNA system delivers low-level radiofrequency energy through twin needles to burn away a well-defined region of the enlarged prostate. Shields protect the urethra from heat damage. The TUNA system improves urine flow and relieves symptoms with fewer side effects when compared with transurethral resection of the prostate (TURP) surgery. No incontinence or impotence has been observed.

Water-induced thermotherapy: This therapy uses heated water to destroy excess tissue in the prostate. A catheter containing multiple shafts is positioned in the urethra so that a treatment balloon rests in the middle of the prostate. A computer controls the temperature of the water, which flows into the balloon and heats the surrounding prostate tissue. The system focuses the heat in a precise region of the prostate. Surrounding tissues in the urethra and bladder are protected. Destroyed tissue either escapes with urine through the urethra or is reabsorbed by the body.

Laser treatment for BPH: is also called laser prostatectomy. The permanent effects of laser treatment on prostate tissue are vaporization and coagulation, which occur when laser energy heats prostatic tissue to 100°C. At this temperature, tissue death occurs, resulting in shrinkage of the prostate over time. This process can initially cause edema, which may increase prostate volume and make short-term catheterization necessary for voiding.

Surgical Treatment Overview for BPH

Many doctors recommend removal of the enlarged part of the prostate as the best long-term solution for patients with severe BPH. With surgery for BPH, only the enlarged tissue that is pressing against the urethra is removed; the rest of the inside tissue and the outside capsule are left intact. Surgery usually relieves the obstruction and incomplete bladder emptying caused by BPH.

The most common surgery performed for BPH is Transurethral Resection of the Prostate or TURP surgery. With TURP, an instrument called a resectoscope is inserted through the penis so there are no incisions made in the skin. Transurethral procedures are less traumatic than "open" surgeries that require a long abdominal incision. The main side effect of TURP is retrograde, or backward, ejaculation. In this condition, semen flows backward into the bladder during climax instead of out the urethra causing infertility. If you plan on having children, you need to discuss alternative options with your surgeon.

Another surgical procedure is called transurethral incision of the prostate (TUIP). Instead of removing tissue, as with TURP, this procedure widens the urethra by making a few small cuts in the bladder neck, where the urethra joins the bladder, and in the prostate gland itself. Although some people believe that TUIP gives the same relief as TURP with less risk of side effects such as retrograde ejaculation, its advantages and long-term side effects have not been clearly established.

Open surgery is often done when the gland is greatly enlarged, when there are complicating factors, or when the bladder has been damaged and needs to be repaired. The location of the enlargement within the gland and the patient's general health help the surgeon decide which of the three open procedures to use. With all the open procedures, anesthesia is given and an incision is made. Once the surgeon reaches the prostate capsule, he or she scoops out the enlarged tissue from inside the gland.

Laser surgery. In March 1996, the FDA approved a surgical procedure that employs side-firing laser fibers and YAG lasers to vaporize obstructing prostate tissue. The doctor passes the laser fiber through the urethra into the prostate using a cystoscope and then delivers several bursts of energy lasting 30 to 60 seconds. The laser energy destroys prostate tissue and causes shrinkage. As with TURP, laser surgery requires anesthesia and a hospital stay. One advantage of laser surgery over TURP is that laser surgery causes little blood loss. Laser surgery also allows for a quicker recovery time. But laser surgery may not be effective on larger prostates. The long-term effectiveness of laser surgery is not known. Newer procedures that use laser technology can be performed on an outpatient basis.

Photoselective vaporization of the prostate (PVP). PVP uses a high-energy laser to destroy prostate tissue and seal the treated area.

Interstitial laser coagulation. Unlike other laser procedures, interstitial laser coagulation places the tip of the fiberoptic probe directly into the prostate tissue to destroy it.

Surgical Treatment

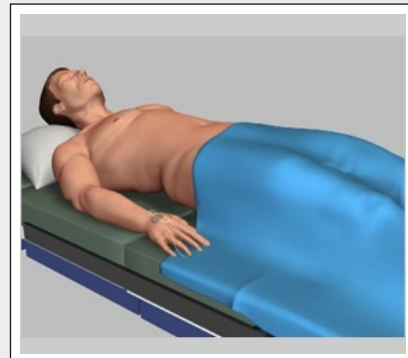
Transurethral Resection of the Prostate (TURP) is performed by a urologist under sterile conditions in the operating room with the patient under general or spinal anaesthesia. Patients usually stay at least a day in the hospital after this surgery.

An instrument called a resectoscope is inserted through the penis. The resectoscope is a narrow, flexible tube that contains a camera, light, valves for controlling irrigating fluid, and an electrical loop that cuts tissue and seals blood vessels.

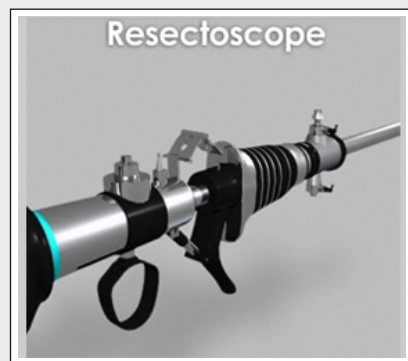
The surgeon uses the resectoscope's wire loop to remove the obstructing tissue one piece at a time.

Electricity is applied through the wire loop to stop bleeding after tissue is removed. The pieces of prostate tissue are removed and sent for biopsy to make sure cancer is not present.

(Refer fig. 9 to 13)



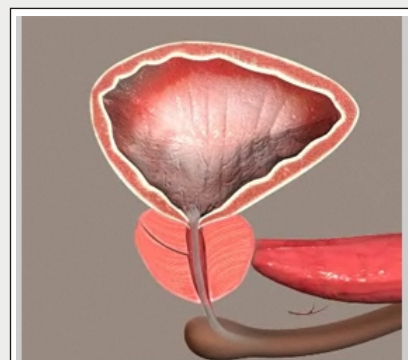
(Fig. 9)



(Fig. 10)



(Fig. 11)

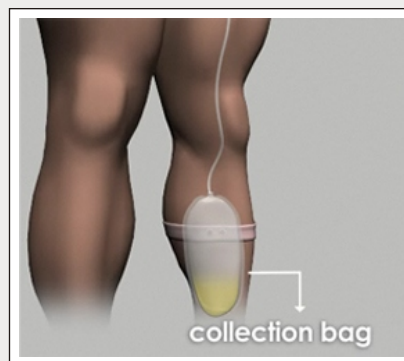


(Fig. 12)

Surgical Treatment

At the end of surgery, a special catheter is inserted through the opening of the penis to drain urine from the bladder into a collection bag. Transurethral procedures are less traumatic than open forms of surgery and require a shorter recovery period.

(Refer fig. 9 to 13)



(Fig. 13)

Post Operative Guidelines

- After surgery, you will probably notice some blood or clots in your urine as the wound starts to heal. Some bleeding is normal, and it should clear up by the time you leave the hospital.
- During your recovery, it is important to drink a lot of water (up to 8 cups a day) to help flush out the bladder and speed healing.
- You will be sent home with pain medications to keep you comfortable.
- You will have a urinary catheter in place that will be removed at your next surgeon's Appointment.
- Sometimes, the catheter causes recurring painful bladder spasms the day after surgery. These spasms may be difficult to control, but they will eventually disappear.
- You should apply an ice pack to the groin area to minimize pain and swelling. Apply ice over a towel, never directly on the skin, for 20 minutes every hour.
- You may be given oral antibiotics to decrease the risk of post operative infection.
- Avoid any straining or sudden movements that could tear the internal incision.
- Most patients can resume sexual activity in 2 weeks.

During the recovery period, the following are some common problems that can occur.

Problems Urinating: You may notice that your urinary stream is stronger right after surgery, but it may take awhile before you can urinate completely normally again. After the catheter is removed, urine will pass over the surgical wound on the prostate, and you may initially have some discomfort or feel a sense of urgency when you urinate. This problem will gradually lessen, and after a couple of months you should be able to urinate less frequently and more easily.

Incontinence: As the bladder returns to normal, you may have some temporary problems controlling urination, but long-term incontinence rarely occurs. Doctors find that the longer problems existed before surgery, the longer it takes for the bladder to regain its full function after the operation.

Bleeding: In the first few weeks after transurethral surgery, the scab inside the bladder may loosen, and blood may suddenly appear in the urine. Although this can be alarming, the bleeding usually stops with a short period of resting in bed and drinking fluids. However, if your urine is so red that it is difficult to see through or if it contains clots or if you feel any discomfort, be sure to contact your doctor.

Risks and Complications

As with any surgery there are potential risks involved. The decision to proceed with the surgery is made because the advantages of surgery outweigh the potential disadvantages. It is important that you are informed of these risks before the surgery takes place.

Most patients do not have complications after TURP surgery; however complications can occur and depend on which type of surgery your doctor performs as well as the patient's health status. (Obese, diabetic, smoker, etc.) Complications can be medical (general) or specific to TURP surgery. Medical complications include those of the anesthesia and your general well being. Almost any medical condition can occur so this list is not complete.

Complications include:

- Allergic reaction to medications
- Blood loss requiring transfusion with its low risk of disease transmission
- Heart attack, strokes, kidney failure, pneumonia, bladder infections
- Complications from nerve blocks such as infection or nerve damage
- Serious medical problems can lead to ongoing health concerns, prolonged hospitalization, or rarely death.

Complications are rare after TURP surgery, but unexpected events can follow any operation. Your surgeon feels that you should be aware of complications that may take place so that your decision to proceed with this operation is taken with all relevant information available to you.

Infection

Infection can occur with any operation. Infection rates vary but are generally low for healthy men. Antibiotics may be given before or after surgery if you are determined to be at high risk.

TURP Syndrome

This is a condition where the fluid used to flush the bladder during the operation is absorbed by the body instead of being excreted. This can cause hypotension, low blood pressure, and vomiting.

Retrograde Ejaculation

This is when semen flows into the bladder instead of out of the penis during ejaculation and will affect the man's ability to father children.

Sexual Function after Surgery

Many men worry about whether surgery for BPH will affect their ability to enjoy sex. Some sources state that sexual function is rarely affected, while others claim that it can cause problems in up to 30 percent of cases. However, most doctors say that even though it takes awhile for sexual function to return fully, with time, most men are able to enjoy sex again.

Complete recovery of sexual function may take up to 1 year, lagging behind a person's general recovery. The exact length of time depends on how long after symptoms appeared that BPH surgery was done and on the type of surgery. Following is a summary of how surgery is likely to affect the following aspects of sexual function.

Erections:

Most doctors agree that if you were able to maintain an erection shortly before surgery, you will probably be able to have erections afterward. Surgery rarely causes a loss of erectile function. However, surgery cannot usually restore function that was lost before the operation.

Ejaculation:

Although most men are able to continue having erections after surgery, a prostate procedure frequently makes them sterile (unable to father children) by causing a condition called retrograde ejaculation or dry climax.

During sexual activity, sperm from the testes enters the urethra near the opening of the bladder. Normally, a muscle blocks off the entrance to the bladder, and the semen is expelled through the penis. However, the coring action of prostate surgery cuts this muscle as it widens the neck of the bladder. Following surgery, the semen takes the path of least resistance and enters the wider opening to the bladder rather than being expelled through the penis. Later it is harmlessly flushed out with urine. In some cases, this condition can be treated with a drug called pseudoephedrine, found in many cold medicines, or imipramine. These drugs improve muscle tone at the bladder neck and keep semen from entering the bladder.

Orgasm:

Most men find little or no difference in the sensation of orgasm, or sexual climax, before and after surgery. Although it may take some time to get used to retrograde ejaculation, you should eventually find sex as pleasurable after surgery as before. Many people have found that concerns about sexual function can interfere with sex as much as the operation itself. Understanding the surgical procedure and talking over any worries with the doctor before surgery often help men regain sexual function earlier. Many men also find it helpful to talk with a counselor during the adjustment period after surgery.

Disclaimer

Although every effort is made to educate you on BPH and take control, there will be specific information that will not be discussed. Talk to your doctor or health care provider about any concerns you have about BPH.

YOUR SURGERY DATE

READ YOUR BOOK AND MATERIAL

VIEW YOUR VIDEO /CD / DVD / WEBSITE

PRE - HABILITATION

ARRANGE FOR BLOOD

MEDICAL CHECK UP

ADVANCE MEDICAL DIRECTIVE

PRE - ADMISSION TESTING

FAMILY SUPPORT REVIEW

Physician's Name : _____

Patient's Name : _____

Physician's Signature: _____

Patient's Signature: _____

Date : _____

Date : _____