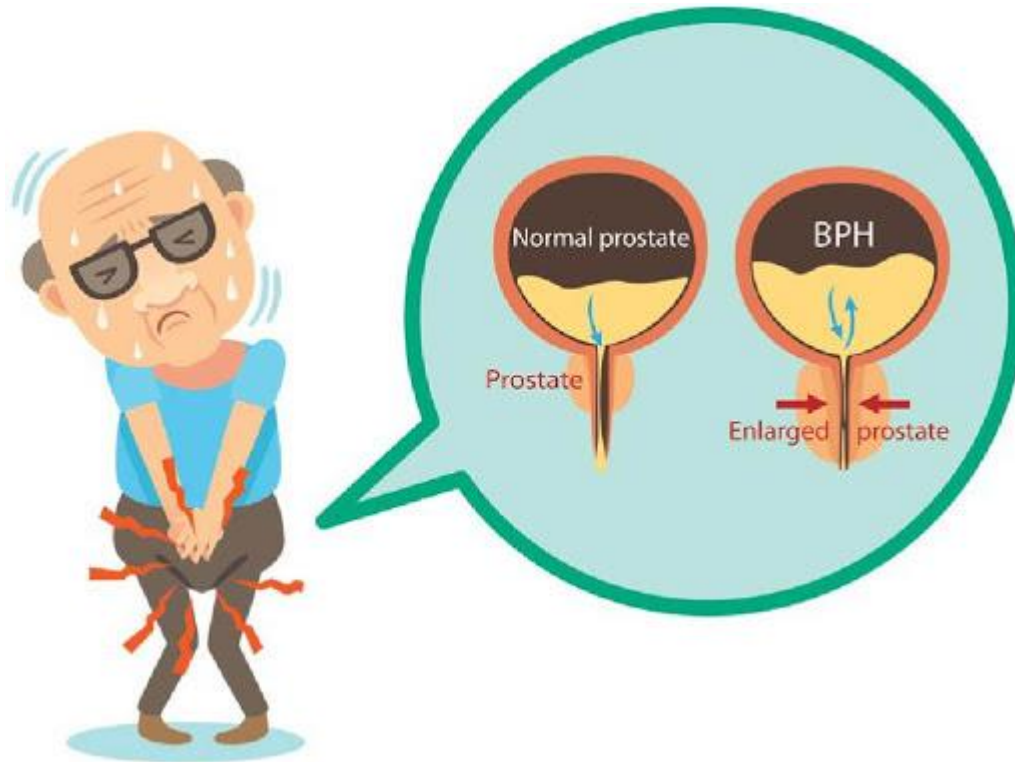


# Benign Prostatic Hyperplasia



# Anatomy of the prostate

## Three glandular zones:

- Peripheral (70%) - most prone to carcinoma formation.
- Central (25%) - most prone to BPH
- Transitional (5%) - most prone to BPH

## Blood supply:

- Arterial supply is triple- mainly inferior vesical, some from inferiorrectal and internal pudendal
- Venous drainage- extensive plexus beneath capsule

## Innervation:

- Autonomic- extensive from inferior hypogastric plexus as a capsular plexus supplying prostate, seminal vesicles, and urethra,
- Somatic- from pudendal nerve (S2, 3, 4) to supply external urethral sphincter



# Benign Prostatic Hyperplasia (BPH)

- Non-malignant enlargement of the prostate gland
- Increase in both stromal and glandular components
- Typically affect transitional zone
- Occurs in men over 50 years of age
- By the age of 60 years, 50% of men have histological evidence of BPH
- Is a common cause of significant lower urinary tract symptoms in men
- The most common cause of bladder outflow obstruction in men >70 years of age



# Aetiology

- Serum testosterone levels slowly but significantly decrease with advancing age
- Levels of oestrogenic steroids are not decreased equally
- Prostate enlarges because of increased oestrogenic effects
- Secretion of intermediate peptide growth factors plays a part in the development of BPH



# Clinical features

## Symptoms

- Storage symptoms- frequency, urgency, nocturia, and incontinence
- Voiding symptoms - hesitancy, poor stream, intermittency, terminal dribble, and abdominal straining
- Superimposed infection may cause dysuria and haematuria
- Incomplete emptying
- Chronic or acute retention of urine



# Signs

- Digital rectal examination
  - Enlarged prostate
  - Smooth
  - Firm
  - Palpable median groove
- Possible palpable bladder if chronic retention
- Always examine for neurological signs in those with LUTS



# Complications of BPH

- Intractable LUTS
- Haematuria
- UTI
- Stone formation
- Acute retention of urine
- Chronic retention of urine
- Overflow incontinence
- Obstructive renal failure



# Investigations

## Basic investigations

- Serum creatinine, urinalysis in all patients
- Urine flowmetry and residual volume estimation in those considered for intervention
- Prostate specific antigen
- Acid phosphatase

## Advanced investigations

- Cystoscopy - To exclude bladder disease
- Transrectal ultrasound guided biopsy – To detect underlying malignancy
- Renal ultrasound, invasive urodynamic studies





# Treatment

- For those with LUTS that are impacting on quality of life or those with complications

## Medical treatment

- **Watchful waiting** - Patients with mild symptoms and no complications may be observed
- **Alpha-adrenergic antagonists** – Prazosin, Tamsulosin
  - ✓ Relax smooth muscle of prostatic urethra to decrease outlet resistance
  - ✓ Side effects - dizziness and postural hypotension



- 5A-reductase inhibitors – Finasteride
  - ✓ Block conversion of testosterone to dihydrotestosterone (DHT)
  - ✓ Cause involution of BPH
  - ✓ Side effects - loss of libido and erectile dysfunction
- Combination drug therapy with both the above agents – reduce the clinical progression and decrease the need for surgery



# Surgical treatment

## Indicated for

1. Patients with any of the complications
2. Symptoms not responding to medical therapy

## Surgical options include:

1. **Transurethral resection of the prostate (TURP)**, the most commonly performed procedure for BPH
2. Open retropubic prostatectomy
3. Transurethral incision in the prostate (TUIP)
4. Bladder neck incision
5. Laser 'prostatectomy'.
6. Microwave thermotherapy ablation of the prostate



# Transurethral resection of the prostate

- Prostate can be approached
  - (1) Transurethrally (TURP)
  - (2) retropubically (RPP)
  - (3) through the bladder (transvesical; TVP)
  - (4) from the perineum
- TURP remains the most commonly performed procedure
- Strips of tissue are cut from the bladder neck down to the level of the verumontanum by using high-frequency diathermy current with Resectoscope
- Coagulation of bleeding points
- 'Chips' of prostate are then removed from the bladder using an Ellik evacuator
- Following TURP, careful haemostasis is performed
- Three-way, self-retaining catheter irrigated with isotonic saline is introduced into the bladder to prevent any further bleeding from forming blood clots



# Complications of TURP

## Immediate

- Primary bleeding
- TURP syndrome

Confusion, hyponatremia, haemolysis

Prevention – use isotonic Glycine instead of sterile water

- Perforation of bladder or prostate capsule
- Intra operative priapism



- **Early**
- Secondary bleeding
- Clot retention
- Infection
- Epididymo-orchitis

## **Late**

- Incontinence
- Urethral stricture
- Retrograde ejaculation
- Impotence
- Recurrence
- Bladder neck contracture



# Management of Acute Urinary Retention

- Give analgesia (e.g. morphine 5–10mg IV)
- Catheterize if retention persists
- Suprapubic catheterization may be required for known or suspected urethral disease or failed urethral catheterization
- Document initial urine volume passed after catheter inserted
- Send urine for full report and culture
- Send blood for full blood count, renal function test



# Management of Chronic Retention

- For those who are uremic, urgent catheterisation is mandatory to allow renal function to recover and stabilize
- Haematuria often occurs following catheterisation owing to collapse of the distended bladder and upper tract
- It settles within a couple of days
- Often dehydrated at the time of admission
- Fluid chart, daily measurements of the patient's weight
- Serial estimations of creatinine and electrolytes are
- Intravenous fluid replacement is required if the patient is unable to keep up with this fluid loss

