

BPH

Aetiology of BPH

Serum testosterone levels slowly but significantly decrease with advancing age; however, levels of oestrogenic steroids are not decreased equally. According to this theory, the prostate enlarges because of increased oestrogenic effects. It is likely that the secretion of intermediate peptide growth factors plays a part

Aetiology of BPH

Interactions between growth factors and steroid hormones may alter the balance of cell proliferation versus cell death to produce BPH

Aetiology of BPH

Androgens not only are required for normal cell proliferation and differentiation in the prostate but also actively inhibit cell death.

The aging process induces a block in this maturation process so that the progression to terminally differentiated cells is reduced, reducing the overall rate of cell death.

Pathology of BPH

BPH first develops in the periurethral *transition zone* of the prostate

BPH is a hyperplastic and not a hypertrophic process, that is, there is a net increase in the number of cells and not in the size of the cells.

The bladder's response to obstruction is the development of smooth muscle hypertrophy with significant changes in the smooth muscle cell that lead to detrusor instability and in some cases impaired contractility.

Pathology of BPH

BPH causes adenosis, epitheliosis and stromal proliferation in differing proportions.

BPH typically affects the submucous group of glands in the transitional zone, forming a nodular enlargement. This compresses the peripheral zone glands into a false capsule and causes the appearance of the typical 'lateral' lobes.

When BPH affects the subcervical central zone glands, a 'middle' lobe is seen projecting in the bladder

Symptoms of BPH

Not all symptoms of disturbed voiding in ageing men should be attributed to BPH.

Bladder outflow obstruction (BOO) may be caused in part by increased smooth muscle tone, which is under the control of α -adrenergic agonists

Symptoms of bladder dysfunction become more common with age, probably owing to impairment of smooth muscle function and can be responsible for some Lower Urinary Tract Symptoms (LUTS)

Symptoms of BPH

LUTS can present as:

Voiding or obstructive symptoms

- hesitancy
- poor flow
- intermittent stream
- dribbling
- sensation of poor bladder emptying
- episodes of near retention

Symptoms of BPH

LUTS can present as:

Storage or irritative symptoms

- frequency
- nocturia
- urgency
- urge incontinence
- nocturnal incontinence (enuresis)

Symptoms of BPH

LUTS can be quantified by the International Prostate Symptom Score (IPSS)

Patients quantify the severity of their obstructive or irritative complaints on a scale of 0–5. Thus, the score can range from 0 to 35. An IPSS of

0–7 is considered mild

8–19 is considered moderate

20–35 is considered severe

Examination

General physical examination

May demonstrate signs of chronic renal impairment with anaemia

Abdominal extension

Usually normal. In patients with chronic retention, a distended bladder will be found on palpation.

The external urinary meatus should be examined to exclude meatal stenosis

Examination

Rectal examination

In benign enlargement, the posterior surface of the prostate is smooth, convex and typically elastic, but the fibrous element may give the prostate a firm consistency. The rectal mucosa can be made to move over the prostate. The median groove is felt.

Examination

Focused neurological examination

To eliminate a neurological lesion.

Diabetes mellitus, tabes dorsalis, disseminated sclerosis, cervical spondylosis, Parkinson's disease and other neurological states may mimic prostatic obstruction.

Investigation

Kidney function test

Serum PSA:

If this is in excess of 4 ng/ml, then estimation of Free/ Total PSA & transrectal ultrasound scanning (TRUS) plus transrectal biopsies should be considered.

Abdominal Ultrasound study of Kidneys, bladder, prostate & post void residual urine

Investigation

Urine Flow rate measurement

For this to be meaningful, the voided volume should be in excess of 150–200 mL.

A flow rate <10 mL/s indicates obstruction

A flow rate <15 mL/s is equivocal

A flow rate >15 mL/s is normal

Complications

Acute retention

Once the bladder has been drained by means of a catheter a short course of alpha blocker medication is given. If the patient is able to pass urine after catheter removal he continues on medication.

However there is a risk of recurrent retention which would be an indication for surgery

Complications

Chronic retention

This a painless retention of urine which can be associated with bilateral hydronephrosis and renal impairment.

For those who are uraemic, urgent catheterisation is mandatory to allow renal function to recover and stabilise. Haematuria often occurs following catheterisation owing to collapse of the distended bladder and upper tract, but settles within a couple of days

Complications

Recurrent haematuria

Recurrent Urinary infection

Bladder calculus

Medical treatment

Alpha blockers:

Reduce the tone of the muscular element in the prostate by blocking the alpha sympathetic innervation of the prostate thus improving urine flow. Selective blockage Alpha 1 a fibres reduces the complication of postural hypertension. Some of these drugs are:

Tamsulosin 0.4 mg OD

Alfuzocin 10 mg OD

Silodosin 8 mg OD

Medical treatment

5 alpha reductase inhibitors:

These act by preventing conversion of Testosterone to Dihydrotestosterone which is the active androgen in the prostate. When taken for > 6 months they shrink the prostate by 25 %

Dutasteride inhibits both isoenzymes of 5alpha reductase.

Dose 0.5 mg OD. On stopping the medicine the prostate again enlarges back. Given to patients with large glands to reduce incidence of retention

Side effect is reduced libido

Surgical treatment

Absolute indication:

Refractory urinary retention, chronic retention, bladder stone

Relative indication

Failure of medical treatment

Recurrent haematuria

Recurrent UTI

Surgical treatment

Minimally invasive therapy

Trans urethral resection of prostate (TURP) still the gold standard for patients with prostate upto 80 -90 gms

Done with monopolar electrode :

Irrigant used is normal saline. Operation times are longer and larger size glands can be resected with lesser complications

Done with bipolar electrode:

Irrigant used is 1.5% glycine

Operation time needs to be less than 90 mins

Surgical treatment

Complications of TURP

Intra operative: Bleeding, Perforation of capsule,

TUR syndrome caused by dilutional hyponatremia presenting with bradycardia, hypertension, confusion and seizures. Treated with slow infusion of 3 % saline based on amount of Na deficit along with diuretics

Delayed complications: Bladder neck contracture, incontinence, urethral stricture

Surgical treatment

Other minimally invasive techniques:

Transurethral Incision of prostate – for small size prostates

Holmium laser enucleation of prostate

Transurethral vaporisation of prostate

Surgical treatment

Open surgery

Indicated for large size prostate > 100 gms if laser enucleation or bipolar vaporisation is not available.

In open surgery the prostate adenoma is enucleated by these approaches:

Transvesical approach – Freyer's prostatectomy

Retropubic approach – Millin's prostatectomy

Perineal approach – Young's prostatectomy