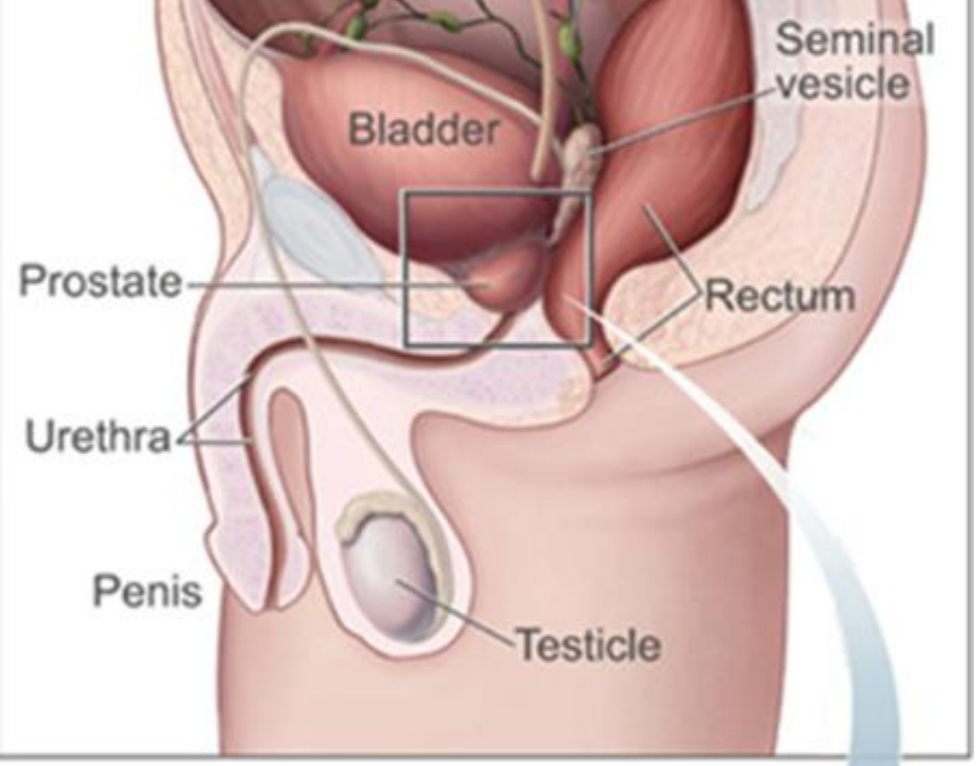
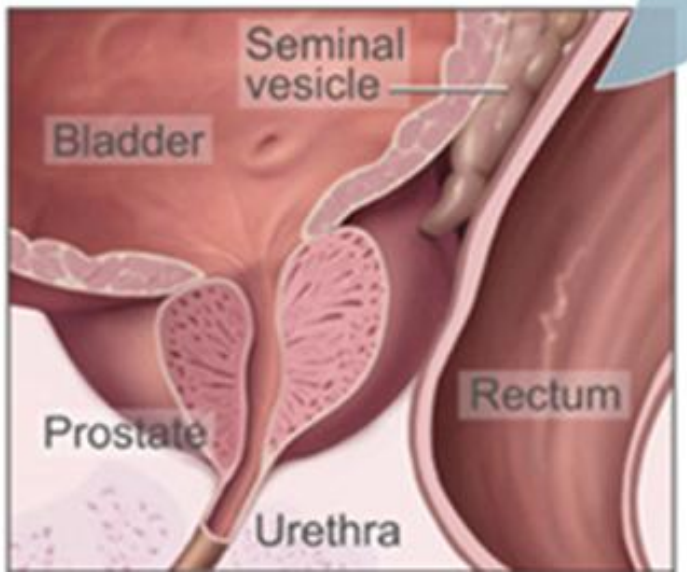


This shows the prostate and nearby organs.



MALE GENITAL SYSTEM, LECTURE 1 PROSTATE

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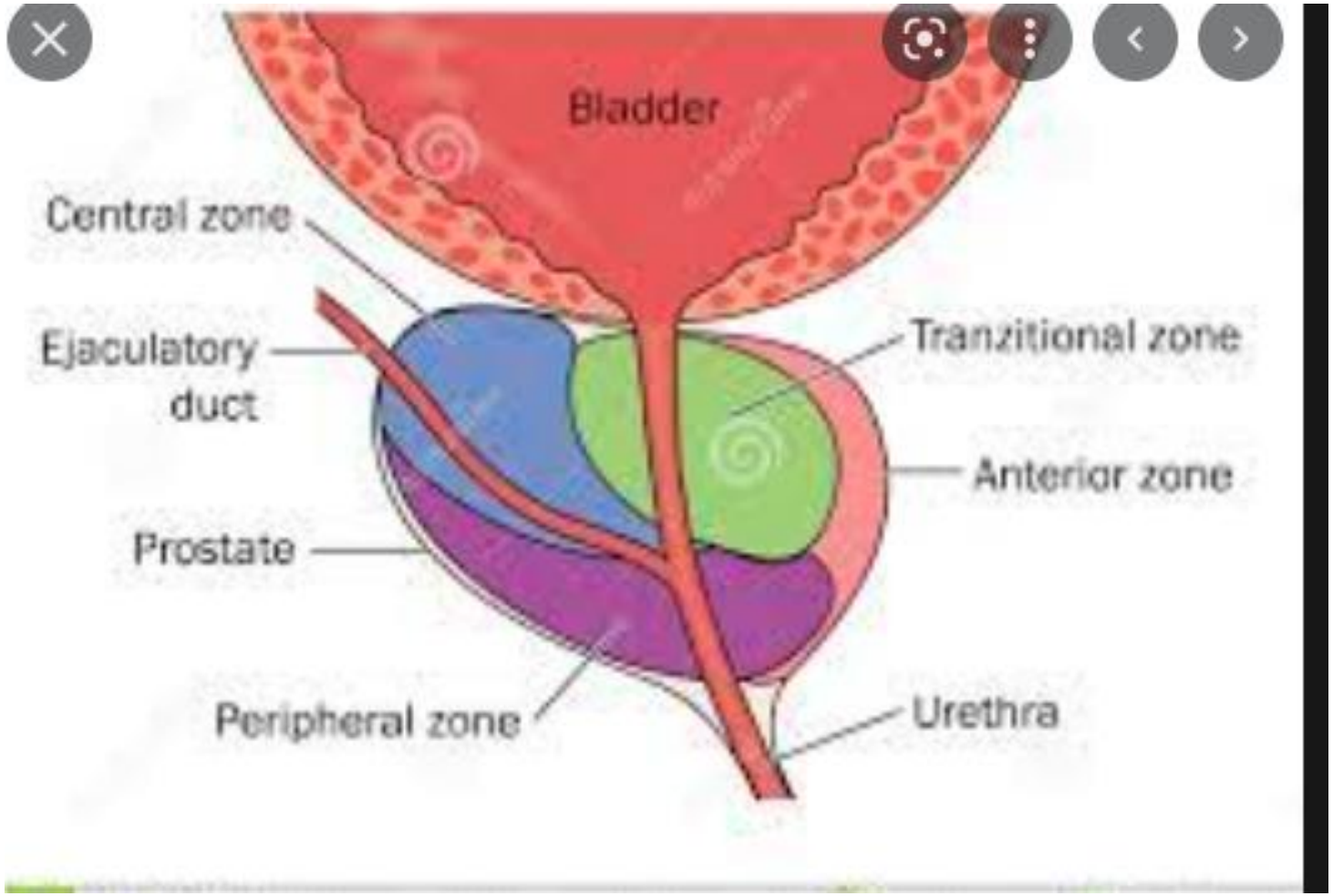
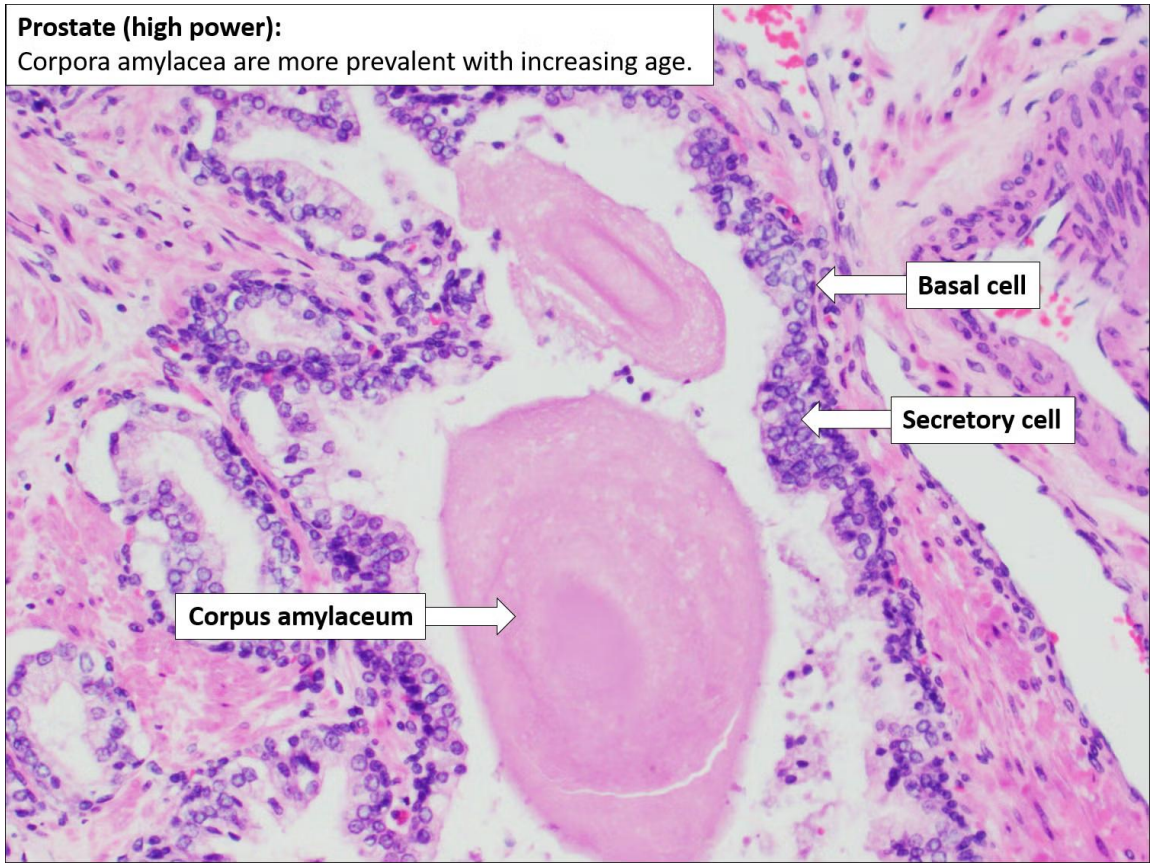
UGS LECTURES 2026



can be divided into biologically distinct regions, the most important of which are the peripheral and transition zones.



Prostate– Histology

Normal prostate contains glands with two cell layers, a flat basal cell layer & an overlying columnar secretory cell layer.

Surrounding prostatic stroma contains a mixture of smooth muscle and fibrous tissue.

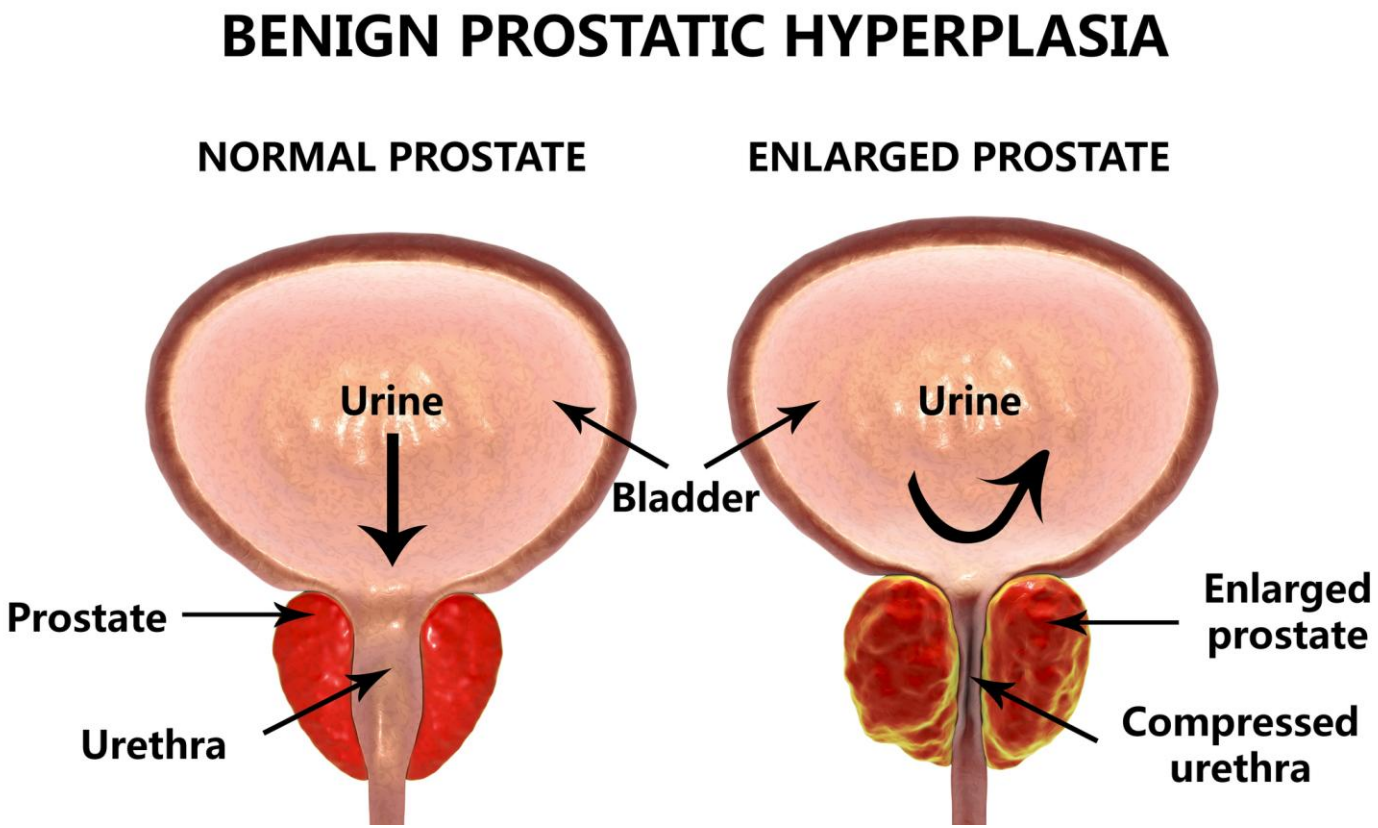
Prostate can be affected mainly by:

❖Hyperplastic lesions

- Most arise in inner transition zone.
- Causes urinary obstruction.

❖Carcinomas

- 70%–80% arise in peripheral zones.
- Often detected by rectal examination



1. Benign Prostatic Hyperplasia

An extremely common cause of prostatic enlargement by the age of 40 years.

An important cause of urinary obstruction.

Although the cause of BPH is incompletely understood, excessive androgen-dependent growth of stromal & glandular elements has a central role.

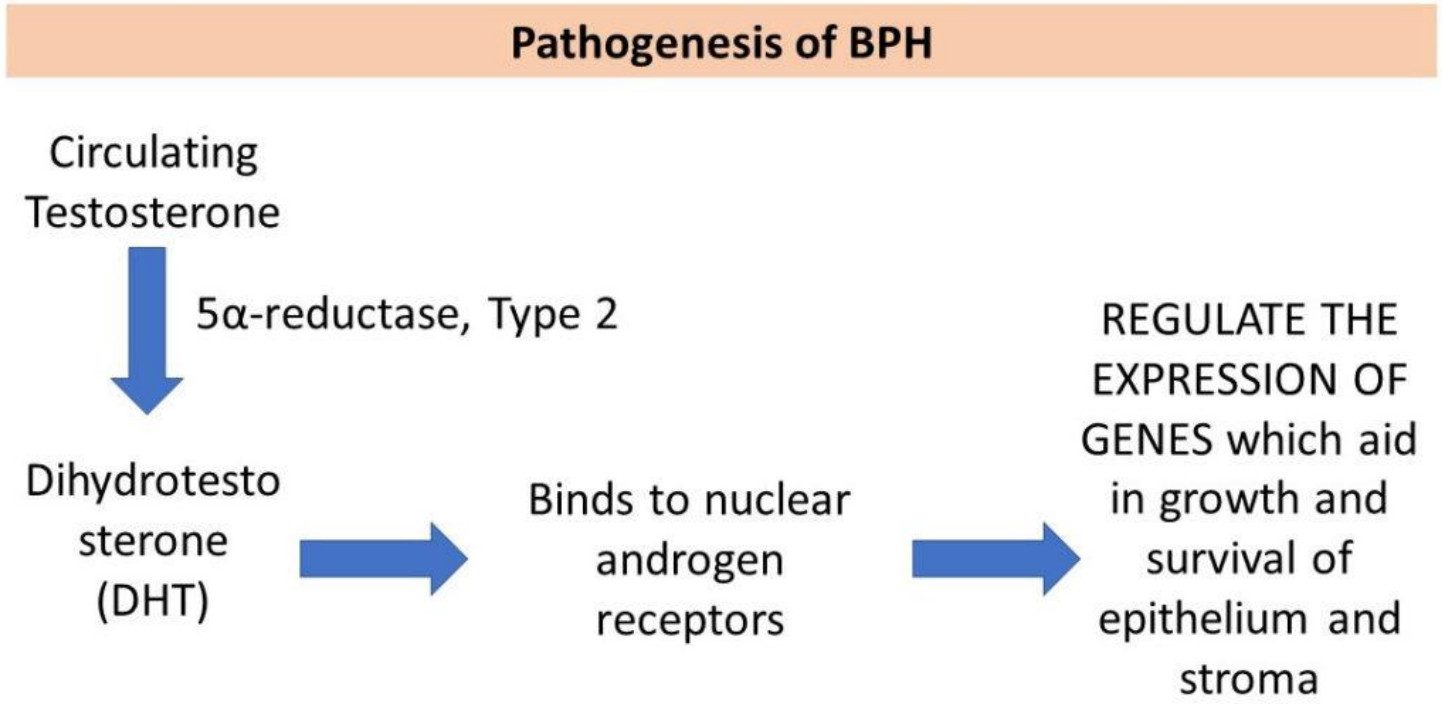
Does not occur in males castrated before the onset of puberty.

BENIGN PROSTATIC HYPERPLASIA (BPH)

- CELLS AREN'T MALIGNANT
- PROSTATE GLAND

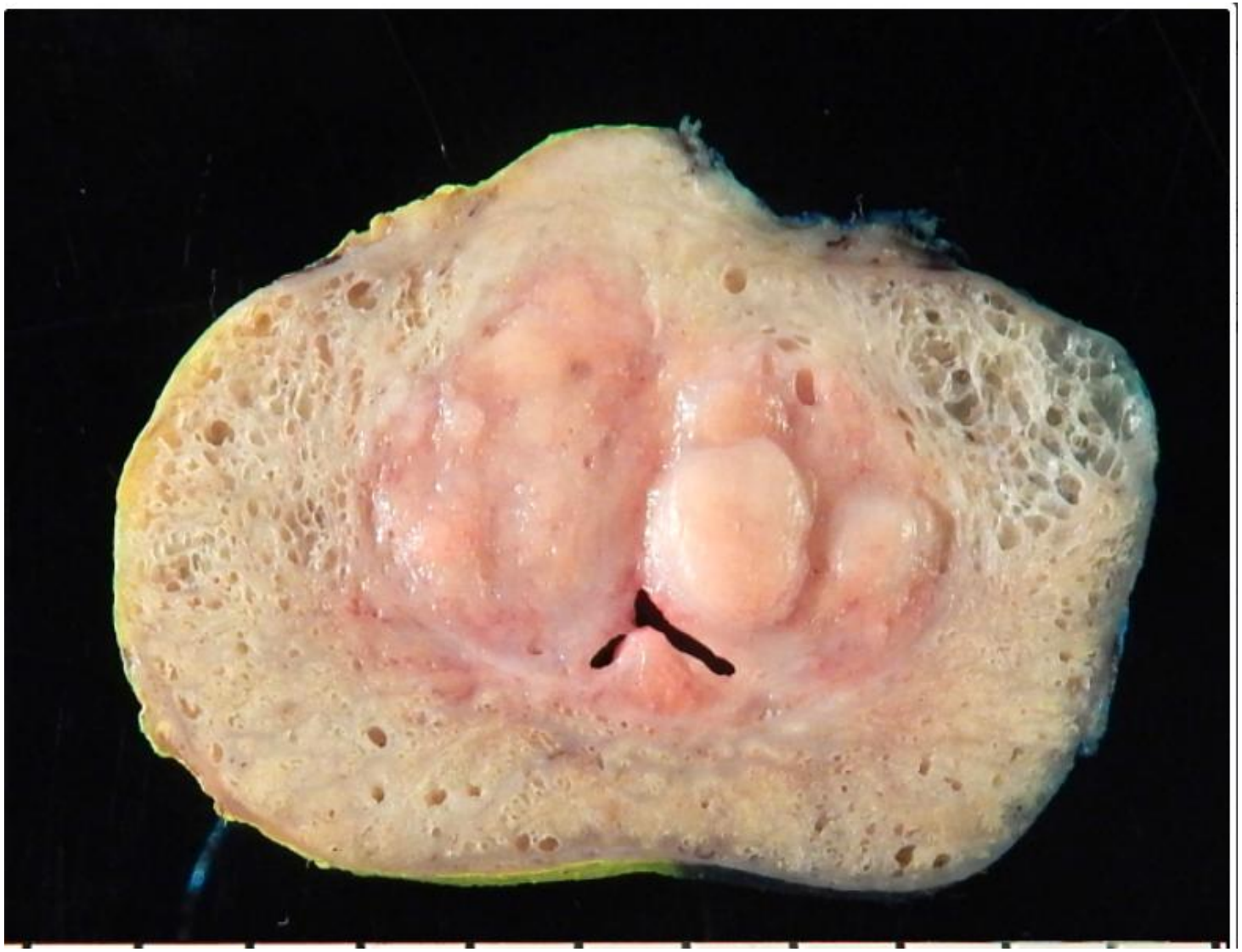
- ↑ # of CELLS

* COMMON in MEN OVER 50
* OFTEN CONSIDERED a NORMAL PART of AGING



Pathogenesis

DHT(Dihydrotestosterone)-induced growth factors act by increasing the proliferation of stromal cells & decreasing the death of epithelial cells.

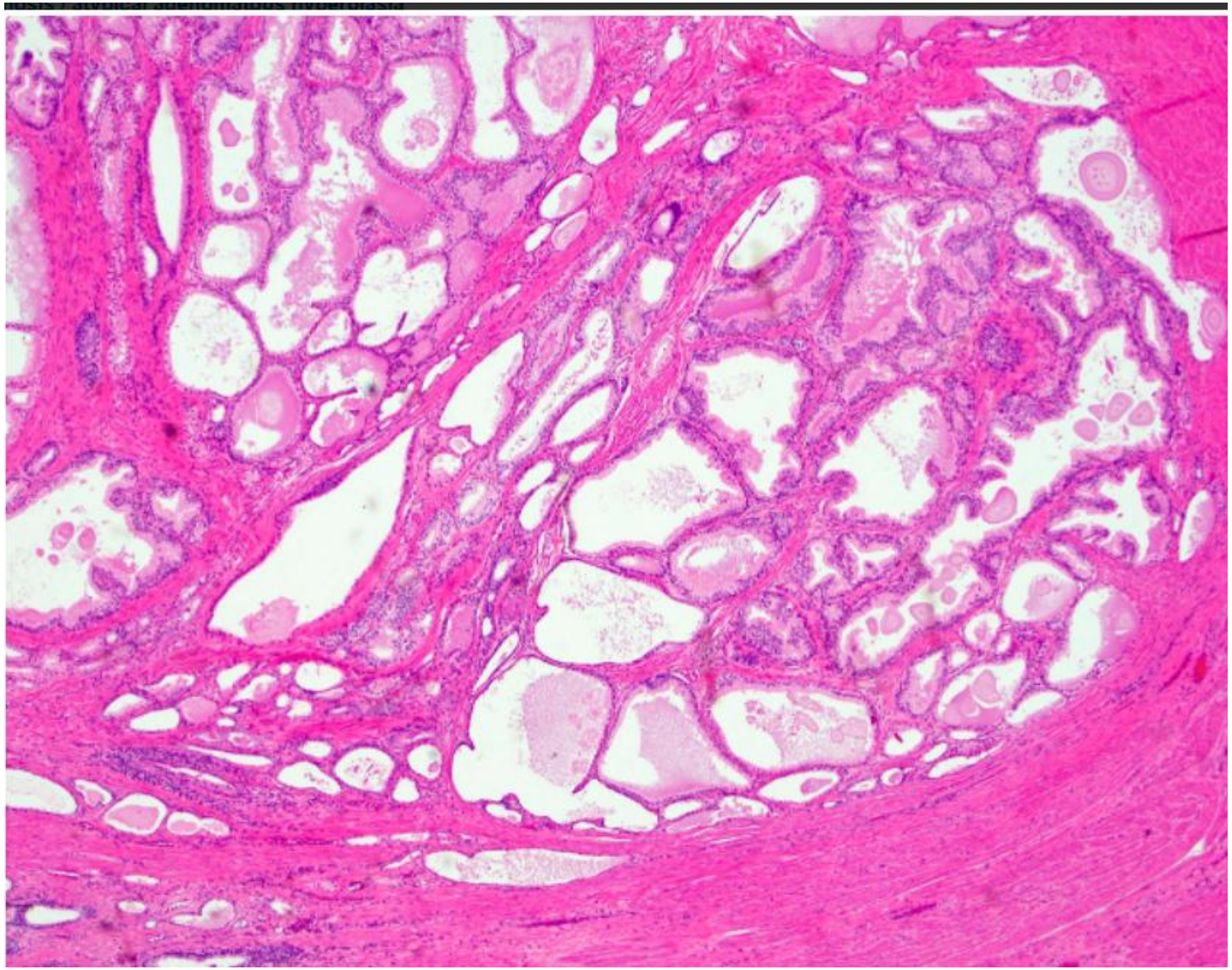


Macroscopic

Benign prostatic hyperplasia nodules

around the urethra bulge

above the cut surface in a cross section of the prostate gland.



Microscopic

Epithelial hyperplasia is characterized by nodular lesions composed of variably sized glandular structures lined by basal and secretory cells

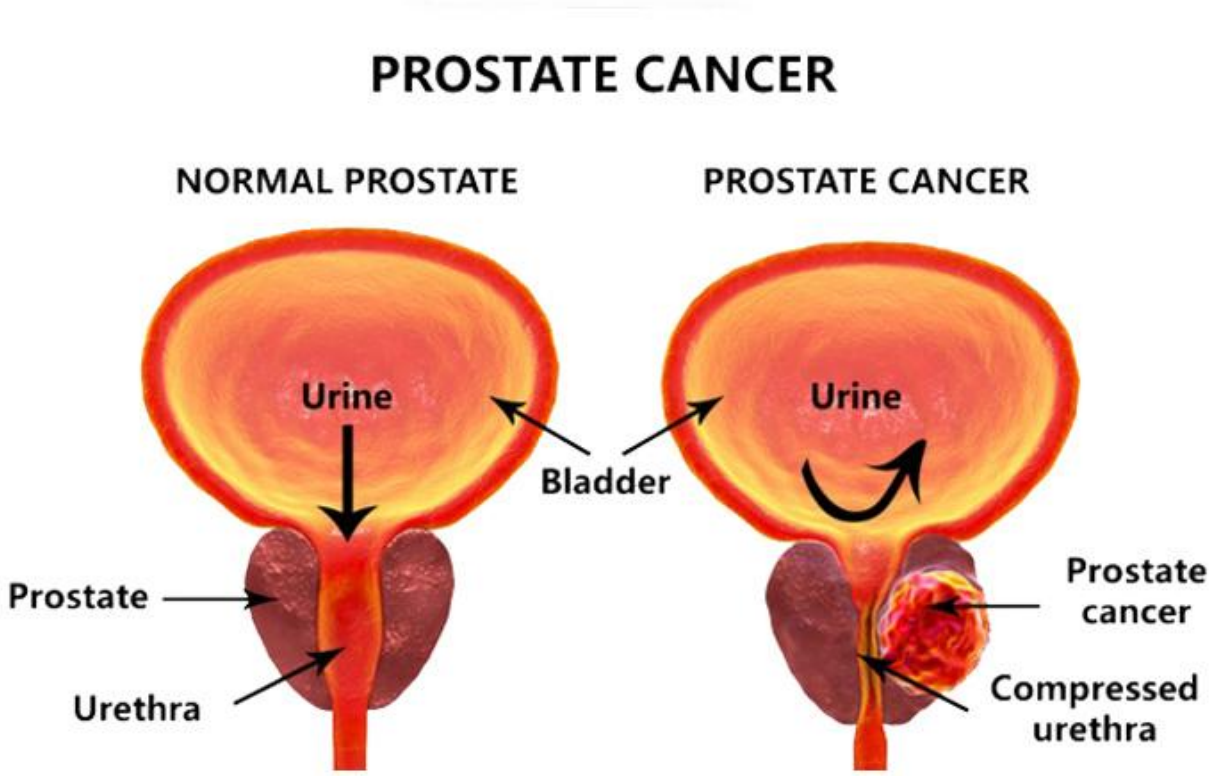
Clinical Features

❖Symptoms:
(occur in only 10% of cases) and include:

- urgency,
- frequency,
- nocturia.

+ ↑ risk of urinary tract infections.

Tx : + Initial pharmacologic; agents inhibit formation of DHT.
+ Surgical treatment for severely symptomatic cases &/or resistant to medical (Transurethral resection of the prostate (TURP)).



Carcinoma of the Prostate

Adenocarcinoma of prostate is the most common form of cancer in men.

Age: older than 50 years.

Significant drop in prostate cancer mortality → increase detection of disease through screening.

❑ Pathogenesis

Androgens: are of central importance; evident by

- Cancer of the prostate doesn't develop in males castrated before puberty.
- Cancers often regress for a time in response to surgical or chemical castration.

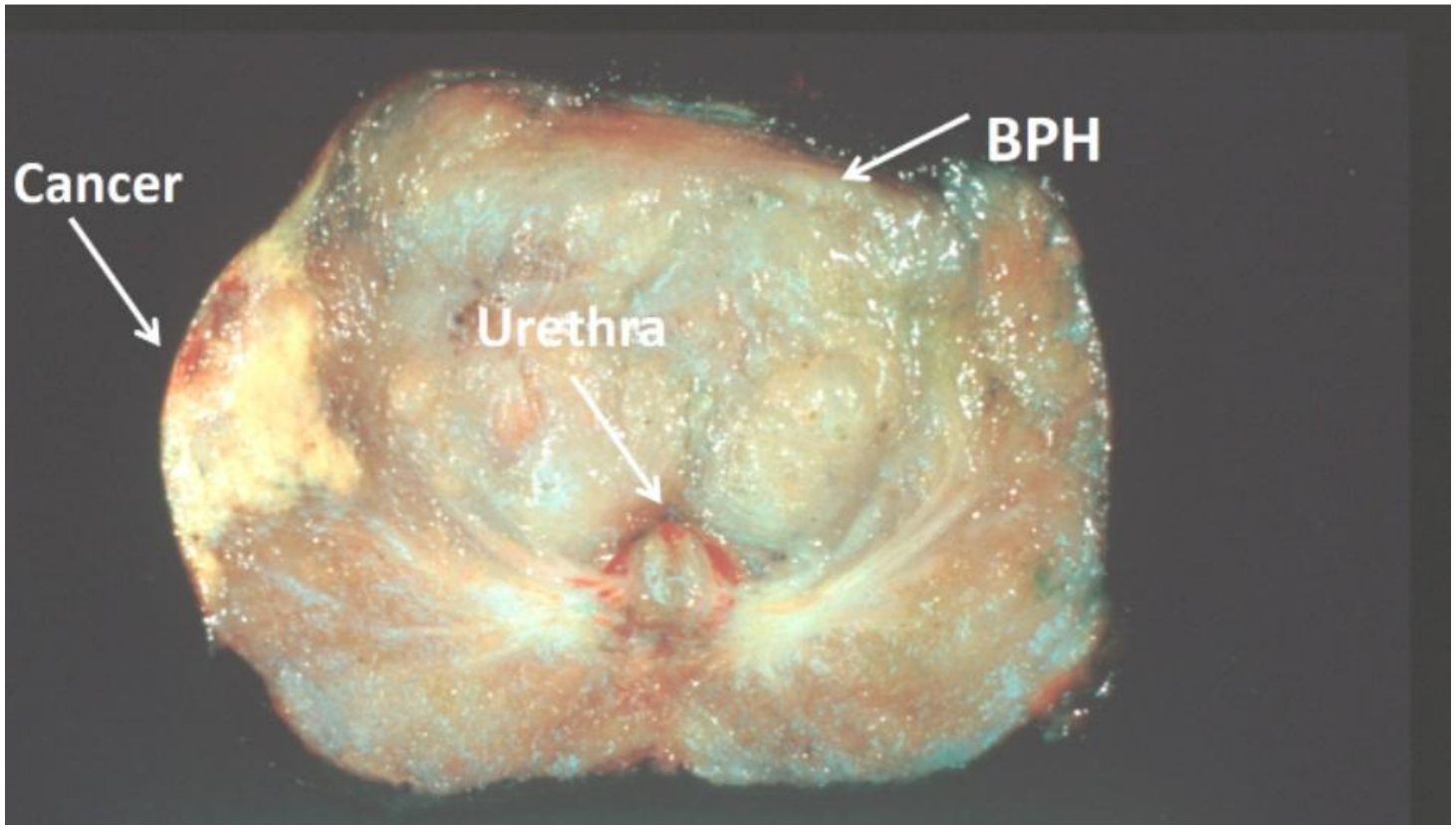
Heredity.

Environment:

- geographical variations that may be due to dietary variations.

Acquired somatic mutations:

- + TMPRSS2-ETS fusion genes are found in ~ 50% of cases.

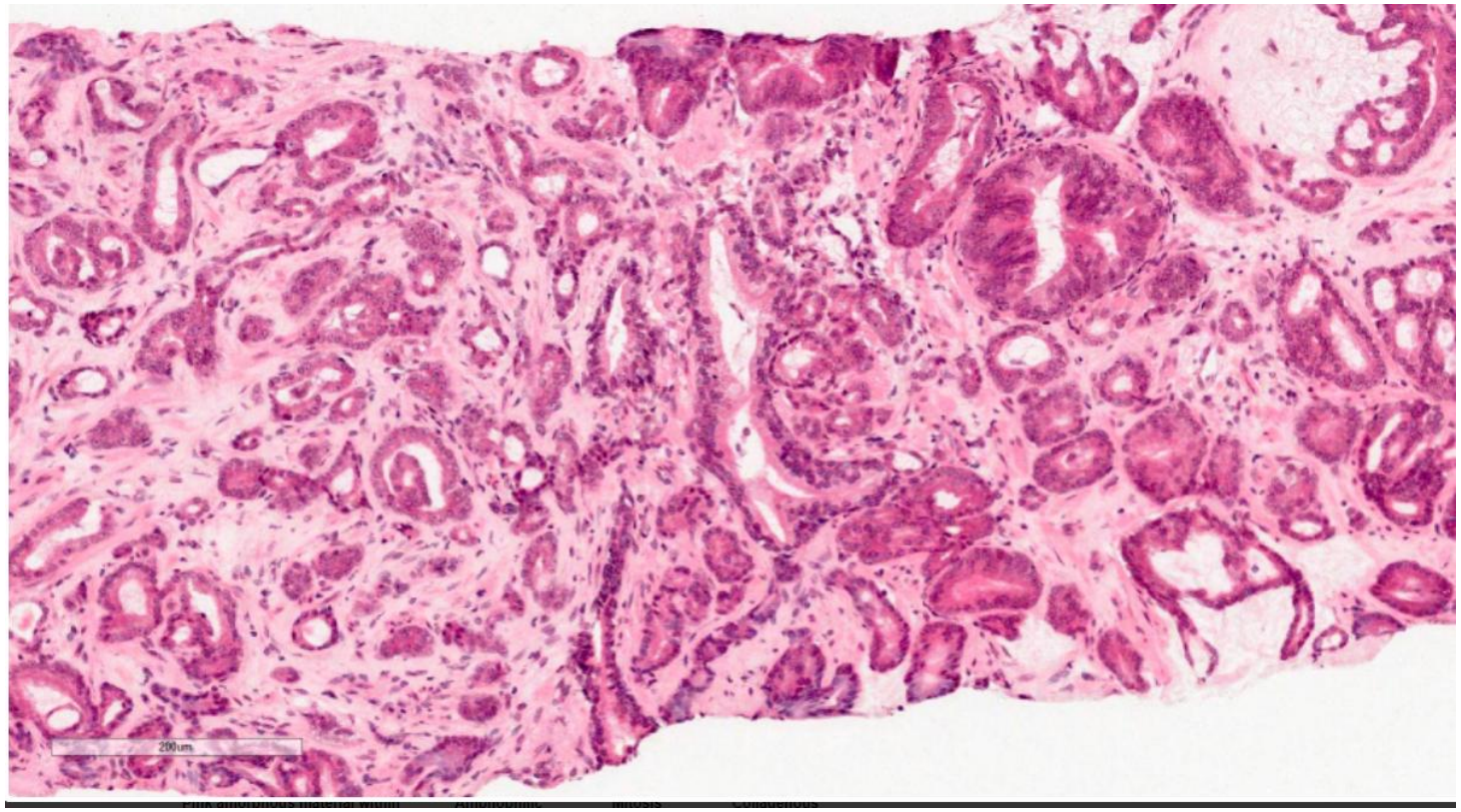


Morphology

GROSS: firm, gray-white lesions with ill-defined margins.

Most tumors are multifocal.

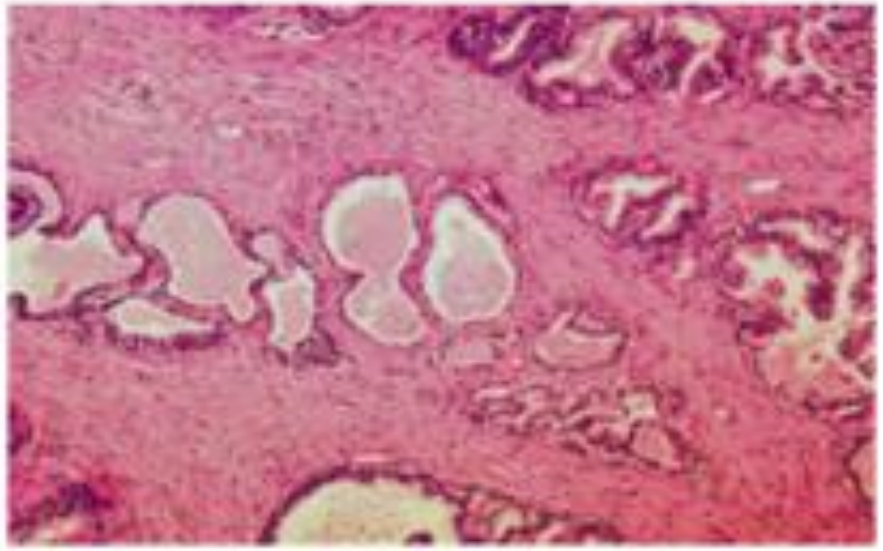
75 - 80% are posterior / posterolateral peripheral zone



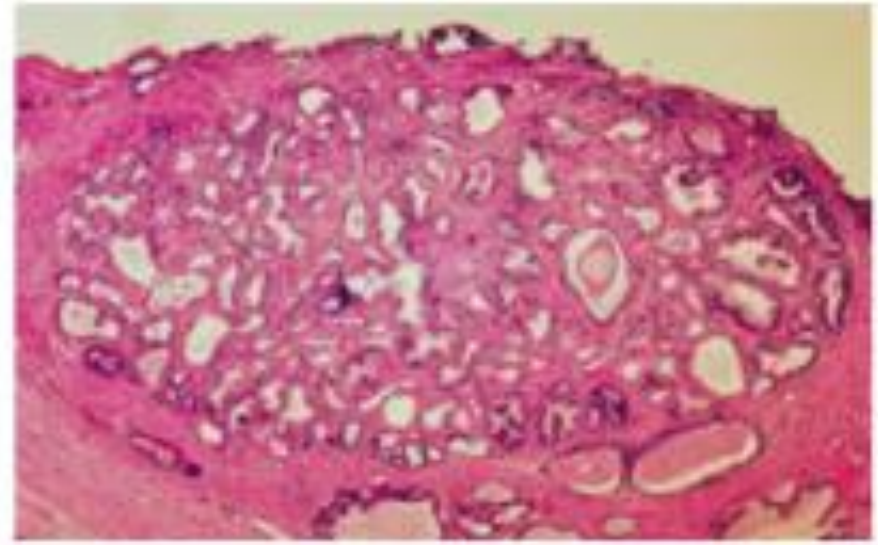
Microscopically

well-defined glands, typically smaller than benign glands and are lined by a single uniform layer of cuboidal epithelium, lacking basal cell layer seen in benign glands and containing promenint nucleoli.

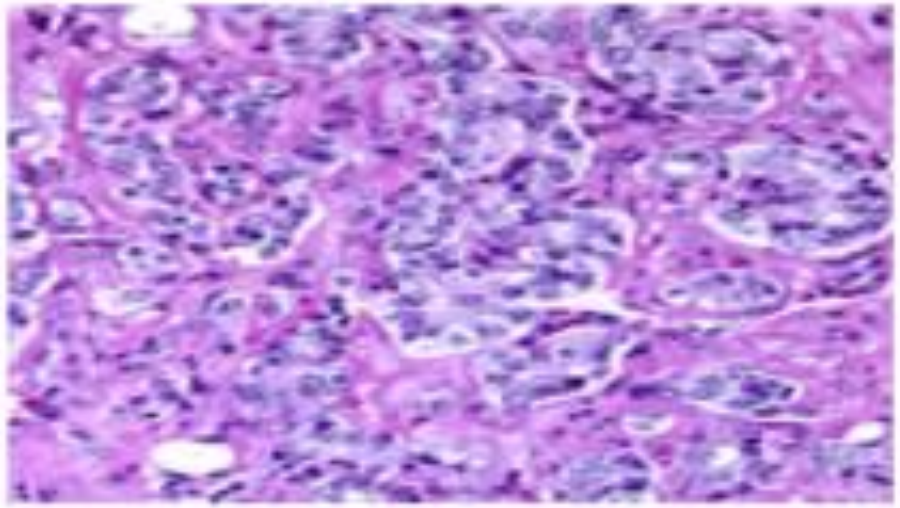
Normal Prostate



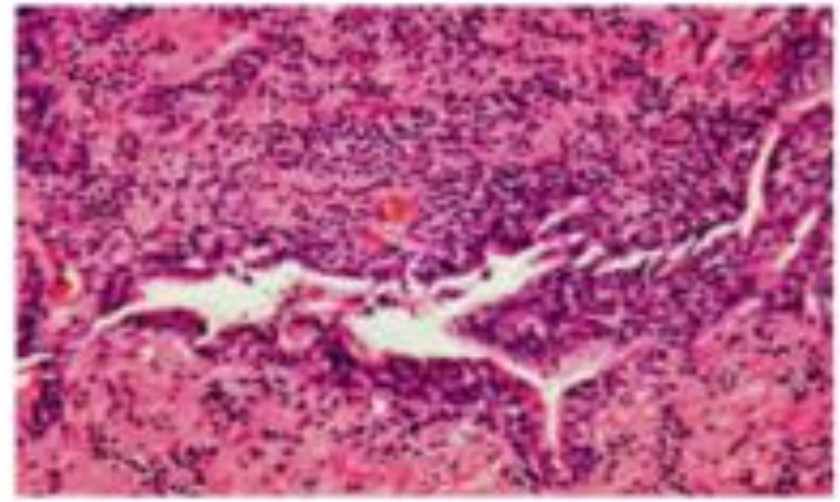
BPH



Prostate Cancer



Prostate Inflammation



Clinical features

Generally asymptomatic unless locally advanced or metastatic

Often discovered following investigation of nonspecific lower urinary tract symptoms.

Serum screening tests: elevated prostate-specific antigen (PSA) level.

Digital rectal examination (DRE): prostate may feel normal or may be enlarged / asymmetrical .

Bone metastases, particularly to the axial skeleton, are frequent late in the disease and typically cause osteoblastic (bone-producing) lesions.

Digital rectal examination

Trans rectal ultrasound

MRI Fusion biopsy

PCA3 (Prostate CAncer

Prostate-specific antigen blood test (PSA)

Diagnosis

Treatment.

The most common treatments for clinically localized prostate cancer are radical prostatectomy and radiotherapy.

The prognosis after radical prostatectomy is based on:

- the pathologic stage.
- the margins of the resected specimens are free of tumor or not.
- Gleason grade (grading system on the basis of glandular patterns of differentiation)