

# Diseases of Male Genital System

**Dr. Ahmed Roshdi, PhD/MD**

Ass Prof of Pathology,  
Faculty of Medicine, Sohag University  
19<sup>th</sup> March 2017

Dr Ahmed Roshdi 9/04/17

## Introduction

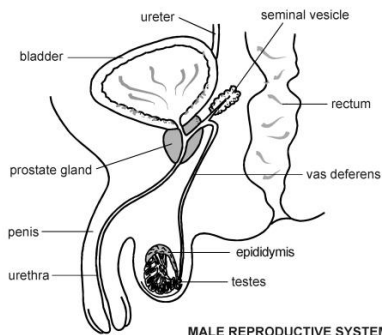
### Learning objectives

*By the end of this lecture; you should know:*

- The common terms that describe male genital diseases.
- The main congenital anomalies of male reproductive system and their clinical significance.
- Main infections of male genital tract and sexually transmitted diseases.
- Identify the common growth disorders and tumors of male genital tract.

Dr Ahmed Roshdi 9/04/17

## Introduction



Dr Ahmed Roshdi 9/04/17

## Introduction

- ❑ **Developmental disorders**
  - Cryptorchidism (undescended testis).
  - Congenital phimosis
- ❑ **Inflammatory diseases**
  - Orchitis
  - Prostatitis
  - Gonorrhoea
- ❑ **Growth disorders**
  - Testicular atrophy
  - Benign prostatic hyperplasia (BPH).
- ❑ **Neoplastic lesions**
  - Tumors of the testis
  - Tumors of the prostate

Dr Ahmed Roshdi 9/04/17

## DEVELOPMENTAL DISORDERS

Dr Ahmed Roshdi 9/04/17

## Developmental disorders

### Cryptorchidism (undescended testis).

- Definition: failure of the testes to descend or migrate to its scrotal sac.
- Incidence: Rare (about 1/400 males).
- May involve one or both testes.
- Clinical significance:
  - Usually associated with inguinal hernia.
  - The testis is subjected to atrophy.
  - Increased risk of testicular tumor

Dr Ahmed Roshdi 9/04/17

## Developmental disorders

### Congenital phimosis.

- Definition: too small opening of the prepuce over the glans.
- Usually congenital but may occur due to post-inflammation fibrosis
- Clinical significance:
  - Occasionally causes obstruction of urine flow.
  - Can be corrected by circumcision

### Other congenital abnormalities

- Hypospadias or epispadias: urethral opening at abnormal sites
- Testicular germ cell aplasia leading to male infertility.
- Congenital atresia of the vas or male urethra.

Dr Ahmed Roshdi 9/04/17

## INFLAMMATORY DISEASES

Dr Ahmed Roshdi 9/04/17

## Inflammatory diseases

### Orchitis and epididymo-orchitis

- Definition: inflammation of the testis.
- Commonly associated with epididymitis.
- Types:
  1. Acute non-suppurative orchitis:
    - Commonly viral.
    - Occurs as a complication of mumps
    - Usually bilateral.
    - May be complicated with infertility.
  2. Chronic orchitis:
    - Auto-immune
    - Tertiary syphilis

Dr Ahmed Roshdi 9/04/17

## Inflammatory diseases

### Prostatitis

- Definition: inflammation of the prostate.
- Types:
  1. Acute prostatitis:
    - Infection by a pyogenic organism as E.coli, chlamydia, klebsiella and gonococci.
    - Infection extends to prostate from urinary tract.
  2. Chronic prostatitis:
    - Non specific: follow acute prostatitis or auto-immune
    - Granulomatous: as TB or syphilis

Dr Ahmed Roshdi 9/04/17

## Inflammatory diseases

### Gonorrhoea

- **Definition:** suppurative inflammation of the urethra caused by gonococci.
- **Mode of transmission:** Mainly sexual intercourse
- **Presentation:**
  - Dysuria
  - Yellow purulent urethral discharge
- **Pathology:** a suppurative inflammation with dense neutrophils.
- **Complications** (rare as treatment is highly effective):
  1. Spread of infection to prostate, seminal vesicles, UB, ureters and kidneys.
  2. Bacteremia and septicemia leading to infective endocarditis, arthritis and isolated organ abscesses.
  3. Chronicity: leading to urethral stenosis.
  4. **Infertility.**

Dr Ahmed Roshdi 9/04/17

## Inflammatory diseases

### Sexually transmitted diseases:

- A group of infectious diseases involving both male and female partners.
- The common sexually transmitted infections are:
  - Gonorrhoea
  - Chlamydial infections
  - Genital herpes.
  - Condyloma acuminata (Human Papilloma Virus).
  - AIDS.
  - Lymphogranuloma venereum.
  - Syphilis.

Dr Ahmed Roshdi 9/04/17

## Growth Disorders

Dr Ahmed Roshdi 9/04/17

## Growth disorders

### Testicular atrophy

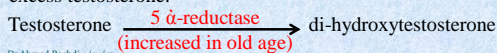
- **Definition:** regression of testicular size after full maturity.
- **Etiology:**
  - Cryptorchidism
  - Vascular: shortage of blood supply
  - Hormonal
  - Primary as in cases of intersex and Klinefelter syndrome.
- **Effect:**
  - Infertility

Dr Ahmed Roshdi 9/04/17

## Growth disorders

### Benign prostatic hyperplasia (BPH):

- **Definition:**  
Nodular enlargement of the prostate caused by hyperplasia of both glandular and stromal components
- **Incidence:**
  - Highly frequent among elderly.
  - It involves <8% of men during the 4<sup>th</sup> decade, but it reaches 50% in the 5<sup>th</sup> decade and 75% in the 8<sup>th</sup> decade.
  - It is not considered as a pre-neoplastic
- **Etiology (pathogenesis):** The main hypothesis is exposure to excess testosterone:



Dr Ahmed Roshdi 9/04/17

## Growth disorders

### Benign prostatic hyperplasia (BPH):

- **Grossly**
  - Involves per-urethral zone (lateral and middle prostatic lobes).
  - Enlarged gland with increased weight.
  - Nodular appearance.
  - Rubbery consistency.
  - Grayish pink colour with small cysts on cut section.
  - May be huge in size and form mass at the bladder neck

Dr Ahmed Roshdi 9/04/17

## Growth disorders

### Benign prostatic hyperplasia (BPH):

- **Grossly**



Dr Ahmed Roshdi 9/04/17

## Growth disorders

### Benign prostatic hyperplasia (BPH):

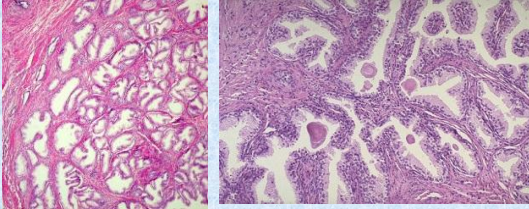
- **MP**
  - Hyperplasia of both glandular and fibo-muscular stroma
  - Acini are variable in size and shape with cyst formation.
  - Lined by single layer of tall columnar cells with papillae formation (saw tooth appearance)
  - Abundant pale cytoplasm and basal benign nuclei.
  - Degenerated luminal material with calcification (Corpora amylacea)

Dr Ahmed Roshdi 9/04/17

## Growth disorders

### Benign prostatic hyperplasia (BPH):

▪ MP



Dr Ahmed Roshdi 9/04/17

## Growth disorders

### Benign prostatic hyperplasia (BPH):

▪ Complications (compression & obstruction of urine outflow):

**Urethral**

- Dysuria
- Hematuria
- Urine retention

**Ureters and renal**

- Hydro-ureter
- Hydro-nephrosis
- Ascending infection
- Renal failure

**Urinary bladder**

- Dilatation and hypertrophy of UB wall
- Residual urine → frequency
- Urine incontinence
- Cystitis and UB stones

Dr Ahmed Roshdi 9/04/17

## Neoplastic Lesion

Dr Ahmed Roshdi 9/04/17

## Neoplastic lesions

### Tumors of the testis:

▪ **Classification**

**A- Germ cell tumors**

- Seminomatous
  - Classic seminoma
  - Spermatocytic seminoma
- Non-seminomatous
  - Embryonal carcinoma
  - Yolk sac tumor
  - Choriocarcinoma
  - Teratoma
    - Mature
    - Immature
  - Mixed germ cell tumors

**B- Sex cord stromal tumors** → Sertoli leydig cell tumors

**C- Others** → Lymphoma and mesenchymal tumors

Dr Ahmed Roshdi 9/04/17

## Neoplastic lesions

### Tumors of the testis:

▪ **Seminoma**

- The commonest (50%) of germ cell tumors.
- Commonly involves middle age (around 40 years).
- Has a very good outcome as the tumor is strongly radiosensitive
- **Grossly:**
  - Partial or complete replacement of testicular tissue.
  - Well-defined oval or round mass.
  - Firm to hard
  - Solid homogenous or nodular cut section
  - Grayish yellow
  - Hemorrhage or necrosis

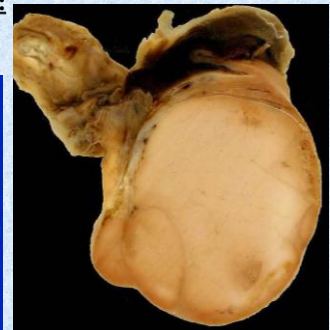
Dr Ahmed Roshdi 9/04/17

## Neoplastic lesions

### Tumors of the testis:

▪ **Seminoma**

➢ **Grossly**





## Neoplastic lesions

**Tumors of the testis:**

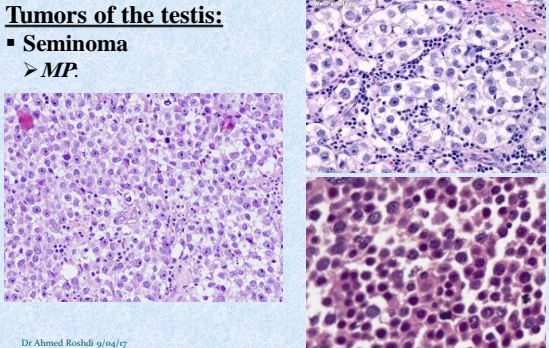
- **Seminoma**
  - **MP:**
    1. **Classic seminoma:**
      - Sheets of nests of tumor cells with scanty thin stroma.
      - Large polyhedral or rounded cells.
      - Abundant pale or clear cytoplasm and central small nuclei.
      - Stromal infiltration by lymphocytes forming aggregates.
    2. **Spermatocytic seminoma**
      - Small neoplastic cells resemble secondary spermatocytes
      - Monotonous rounded cells with esinophilic cytoplasm
      - Less frequent metastasis and have better prognosis

Dr Ahmed Roshdi 9/04/17

## Neoplastic lesions

**Tumors of the testis:**

- **Seminoma**
  - **MP:**



Dr Ahmed Roshdi 9/04/17

## Neoplastic lesions

**Tumors of the testis: Tumors other than seminoma**

Tumor	Rate	Peak age	Morphology	Tumor marker
Embryomal carcinoma	2-3%	20-30 yrs	Large pleomorphic tumor cells arranged in solid sheets tubules, glands	
Yolk sac tumor	Rare	±3 yrs	Mixed structures with presence of Schiller Duvall bodies; small tubule like structure with central esinophilic material	AFP
Chorio-carcinoma	Rare	20-30 yrs	Malignant cyto and syn-cytotrophoblasts	hHCG
Teratoma	5-10%	Any age	Mixed germlines tumor. Teratomas of young children are usually benign while those of old age are malignant.	
Mixed germ cell tumor	40%	15-30 yrs	Combinations of seminoma and different types of germ cell tumors	AFP and hHCG
Lymphoma	7%	>60 yrs	Usually diffuse large cell lymphoma	

Dr Ahmed Roshdi 9/04/17

## Neoplastic lesions

**Tumors of the testis:**

- **Spread of testicular tumors:**
  - ❑ **Direct:** replacement of testicular tissue and extension to nearby structures as epididymis and scrotum
  - ❑ **Lymphatic:** para-iliac and para-aortic and less frequently to inguinal LNs
  - ❑ **Blood spread:** to lung, liver, bone and brain.

Dr Ahmed Roshdi 9/04/17

## Neoplastic lesions

**Cancer prostate:**

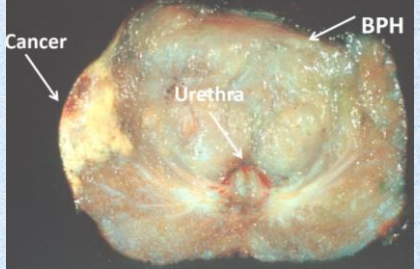
- **Definition:**
  - Malignant tumor of prostatic epithelium
- **Incidence**
  - One of the commonest malignant tumors of men.
  - Involves mainly old patients (± 60 years).
  - Early detection by screening by serum PSA level for elderly.
- **Predisposing factors:**
  - Exposure to excess hormones (androgen)
  - BPH is NOT a predisposing factor.
- **Grossly:**
  - Mainly arise from the peripheral zone
  - Ill-defined nodule or mass of varying size with grayish white

Dr. out section

## Neoplastic lesions

**Cancer prostate:**

- **Grossly:**

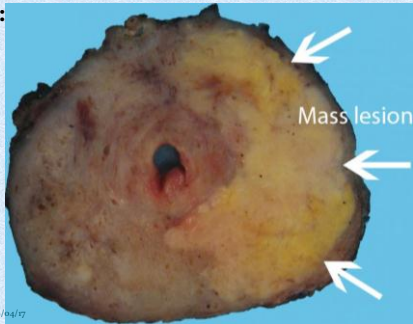


Dr Ahmed Roshdi 9/04/17

## Neoplastic lesions

### Cancer prostate:

#### ▪ Grossly:



Dr Ahmed Roshdi 9/04/17

## Neoplastic lesions

### Cancer prostate:

#### ▪ MP:

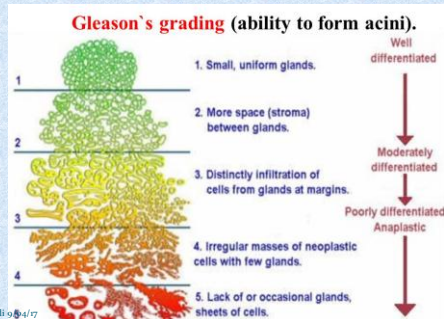
- Proliferated small closely packed prostatic acini.
- Lined by a single layer of atypical cuboidal cells.
- Monotonous cells with high N/C ratio and prominent nucleoli.
- NO myoepithelial cells
- Desmoplastic stroma
- In less differentiated tumors; the acini are irregular with cribriforming and the cells are pleomorphic.
- In poorly differentiated tumors: the cells arrange in cords or nests with rare acini and the cells are highly pleomorphic

Dr Ahmed Roshdi 9/04/17

## Neoplastic lesions

### Cancer prostate:

#### ▪ MP:



Dr Ahmed Roshdi 9/04/17

## Neoplastic lesions

### Cancer prostate:

#### ▪ Spread of cancer prostate:

- Direct:** urethra (obstruction and urine retention), UB and seminal vesicles.
- Lymphatic:** papa-iliac and para-aortic and less frequently to inguinal LNs.
- Peri-neural invasion:** very frequent leading to sever pain
- Blood spread:** to lung, liver, bone and brain. Metastatic to bone (vertebral bodies) is frequent and usually osteosclerotic.

Dr Ahmed Roshdi 9/04/17

## Neoplastic lesions

### Cancer prostate:

#### ▪ **Diagnosis of cancer prostate:**

- Early detection: by screening of serum prostatic specific antigen (PSA) level.
- Rectal examination (PR) for clinical assessment.
- Trans-rectal ultrasound guided (TRUS) biopsy.
- Follow up of patients by serum PSA and serum prostatic acid phosphatase.

Dr Ahmed Roshdi 9/04/17

## Common terms

#### • **Hydrocele**

- Pathological accumulation of serous fluid around testicles.
- Manifested by enlargement of the scrotum.

#### • **Varicocele**

- Dilatation of scrotal veins causing obstruction and malfunction of circulation
- Manifested by engorgement and elongation of vessels with dull aching pain of the scrotum

Dr Ahmed Roshdi 9/04/17

*Thank you*