

**Objectives:**

- To define testicular tumors
- To illustrate the types of testicular tumors
- To recognise and understand the management of testicular tumours
- To recognize and understand the management of scrotal infection and gangrene
- To recognize and understand the management scrotal tumors.

**Testicular tumors**

- Testicular cancer represents around 1–1.5% of male neoplasms
- There is an increased incidence of these tumours in the past 30 years.
- The vast majority are germ cell tumours
- The peak incidence of seminomas is in the 4<sup>th</sup> decade of life, with the non-seminomatous germ cell tumours (NSGCT) being more common in the 3rd decade of life.
- They are the commonest form of tumour in young men: generally they are rare –2-3 new cases per 100,000 males per year
- High incidence in high socioeconomic class
- Right side > Left side which parallel to higher incidence of cryptorchidism in Right side
- 1-2% bilateral

**Risk factors:**

- history of testicular maldescent, 10 %
- a history of a contralateral testicular tumour
- Klinefelter's syndrome.
- Exogenous estrogen administration to the mother during pregnancy.
- Trauma
- Infection related testicular atrophy

**Classification and pathology**

Tumours of the testis are classified according to their predominant cellular type:

- **germ cell tumours (GCT)** (90–95%) these include:
  - ❖ Seminoma 35%
  - ❖ Non seminoma (NSGCT):
    - embryonal cell carcinoma 20%
    - yolk sac tumour,
    - teratoma 5%,
    - choriocarcinoma 1%

- mixed tumor 39%
- **Interstitial tumours** (1–2%): these include:
  - Leydig cell tumours- masculinization
  - Sertoli cell tumor- feminization.
- **Gonadoblastoma – 0.5%**
- **lymphoma** (3–7%);
- **other tumours** (1–2%).

### **Patterns of metastatic spread:**

With the exception of Choriocarcinoma { hematogenous spread to the lung }  
 ALL OTHER TESTICULAR TUMOR spread by:

1. step wise lymphatic spread:
  - Testis
  - Retroperitoneal lymph Ns. Below diaphragm.
  - Lymph Ns. Above diaphragm.
2. Blood stream to the lung, liver, brain, bone and others.

If there LOCAL extension to Epididymis and Cord structures – External iliac L.N.  
 and if To scrotal wall – Inguinal L.N.

### **Staging System:**

#### **\*Clinical staging:**

- I-Limited to the testis
- II-Retroperitoneal L.N. involvement below the diaphragm
  - IIA: less than 2cm,
  - IIB: higher than 2cm.
- III- Beyond retroperitoneal lymph nodes involvement (L.N. above the diaphragm)
- IV- Distant metastases- lung, liver, others

#### **\*TNM classification of American Joint Committee 1996**

### **Clinical Presentation:**

#### **A-Symptoms:**

- Primary site:**- painless enlargement of the testis
  - firm mass related to the testis
  - acute testicular pain in 10% of cases due to infarction or hamorrhage
- **Secondaries:** -Only 10% of patient presented with symptoms of secondaries
  - Nerve root compression =backache

- lung secondaries =dyspnea, cough, hemoptysis
- IVC Obstruction =lower limb edema
- Renal colic = obstruction Of ureter by L.N.

**B-Signs:**

- Testicular mass or diffuse enlargement, not tender firm to hard
- 10% Secondary hydrocele
- Abdominal Examination: bulky retroperitoneal L.N.
- Palpable supraclavicular L.N.
- Gynecomastia in 5-7% of the cases.

**C-Lab.investigation:**

- Anemia in advance cases
- Disturbance of liver function tests in hepatic metastasis
- Disturbance of renal function tests in ureteric obstruction.

**D-Tumor markers:****Definition:**

- Useful in --diagnosis
- staging
- treatment
- follow up of the patient and early detection of tumor recurrence

AFP—Alfa fetoprotein: 70% + in NSGCTs and never in seminoma.

HCG—Human choronic gonadotrophin : 60% in NSGCTs  
7% in SGCTs

LDH – Lactic dehydrogenase : increase in both

**Staging & diagnosis:**

**For Primary:** - scrotal U/S: Ultrasound is a mandatory investigation in all cases of suspected testicular tumour

- Inguinal Orchiectomy:
  - \*diagnosis and histology of the tumor
  - \*staging
  - \*control the local disease

**For secondaries:** -CxR: cannon ball  
-CT  
-MRI  
-Pedal lymphangiography

**Treatment**

The orchiectomy is undertaken via an inguinal incision (inguinal or radical orchiectomy) for all types of tumors and then :

## Stage I

- **Seminoma:** radiotherapy to para aortic lymph nodes or Surveillance and chemotherapy for relapse
- NSGCTs are not radiosensitive but they are highly sensitive to combination chemotherapy with bleomycin, etoposide and cis-platinum (so called BEP chemotherapy).

## Stage II- IV

- Seminoma: Combination BEP chemotherapy +Surgical resection of residual mass
- NSGCTs: Combination BEP chemotherapy, Retroperitoneal lymph node dissection is sometimes needed in cases of NSGCT when retroperitoneal masses remain after chemotherapy

**Testicular tumours in children**

These are usually anaplastic teratomas. They occur before the age of 3 years and are often rapidly fatal.

**Prognosis:**

**For seminoma**, if there are no metastases, 90–95% of patients will be alive 5 years after diagnosis. If there are poor prognostic features, the survival rate drops to around 70%.

**For NSGCTs** a 5-year survival rate of more than 90% is achievable in patients with good prognosis tumours, while for more advanced tumours, the 5-year survival rate is about 60%.

**Fournier's gangrene**

is an uncommon and **a potentially life-threatening form of necrotizing fasciitis involving the male genitalia**. It is also known as idiopathic gangrene of the scrotum, streptococcal scrotal gangrene, perineal phlegmon, and spontaneous fulminant gangrene of the scrotum

An obvious cause is absent in over half the cases.

Infection most commonly arises from the skin, urethra, or rectal regions.

**Predisposing factors include**

- Diabetes mellitus, alcoholism,
- local trauma,
- paraphimosis,
- periurethral extravasation of urine,
- perirectal or perianal infections, and
- surgery such as circumcision or herniorrhaphy.

There is a mixed infection of aerobic and anaerobic bacteria in a fulminating inflammation of the subcutaneous tissues, which results in an obliterative arteritis of the arterioles to the scrotal skin that in turn results in gangrene. The condition can spread rapidly to involve the fascia and skin of the penis, perineum and abdominal wall.

### *Clinical features*

- Sudden pain in the scrotum associated with prostration, pallor and pyrexia.
- Cellulitis spreads rapidly (within hours) with small necrotic areas of skin which, if untreated, coalesce to involve the entire scrotal and penile coverings, which may then slough, leaving the testes exposed but healthy.
- There may be crepitus and a foul-smelling exudate.
- The patient typically becomes septic and severely unwell in a short period of time

TESTES is NOT INVOLVED in ALL cases because it has different blood supply.

### *Treatment*

- is a surgical emergency.
- Initial management involves intravenous fluid resuscitation
- early use of broad spectrum intravenous antibiotics.
- Urgent wide surgical excision of the dead and infected tissue is essential and the extent of the internal necrosis is typically much greater than the external appearances suggest, such that extensive debridement is often necessary.
- Secondary closure or use of skin graft to cover the testes

### **Tumor of the scrotum:**

#### **Squamous cell carcinoma.**

**Etiology:** unknown, carcinogens—tar, oil, soot, Chimney sweeper

**Clinical picture:** Wart or Ulcer and as it grows it may involve the testis.

**Spread :** local invasion

Lymphatic: to superficial inguinal .L.N.

**Treatment:** Primary tumor : local excision

L.Ns.: if not settle with antibiotic treatment then bilateral inguinal L.N dissection is indicated(parallels the management of penile

cancer)

### Scrotal injuries:

Primary closure is preferable

Suturing by absorbable suture

### Filarial elephantiasis of the scrotum

- Filarial elephantiasis of the scrotum is caused by obstruction of the pelvic lymphatics by worms, of which *Wuchereria bancrofti* accounts for 90% of cases.
- The condition is common in the tropics and is transmitted by mosquitoes.
- It is often accompanied by superadded infection and lymphangitis, resulting in swelling of the genital skin and skin of the lower limbs
- In long-standing cases, the enormously swollen scrotum may bury the penis
- Associated symptoms and signs include fever, epididymitis, hydrocoele and chyluria.
- **The diagnosis** is usually made clinically although immunological testing can be helpful.
- **Medical treatment** involves the use of diethylcarbamazine (DEC), ivermectin and albendazole, with the exact regime depending upon geographical location.
- **Surgical treatment** is rarely helpful, although a range of procedures have been devised to remove redundant skin and to reconstruct the enlarged scrotum.

### Non-filarial elephantiasis

- Elephantiasis can occur in the absence of filariasis, most notably in sub-Saharan Africa.
- Non-filarial elephantiasis can result from fibrosis of the lymphatics caused by lymphogranuloma venereum, but in many cases it is thought to arise as a consequence of persistent contact with irritant soils.