Disorders of the testis & spermatic cord

Ectopy & cryptorchidism

- In ectopy the testis has strayed from the path of the normal descent;
- In cryptorchidism, it is arrested in the normal path of descent.

Ectopy may be due to an abnormal connection of the distal end of gubernaculum testis that leads the gonads to abnormal position.

The ectopic sites are as follow:
1- superficial inguinal (most common).
2- perineal (rare).
3- femoral or crural (rare).
4- transverse or paradoxic both testes descend the same inguinal canal.
5- pelvic.

- Cryptorchidism is a condition in which the testicle is arrested at some point in its normal descent anywhere between the renal & scrotal areas.
• Unilateral arrest is more common than bilateral arrest

• At the time of birth (9 months gestation) the incidence of maldescent is 3.4% half of such testicle descend in the first month of life

• The incidence of cryptorchidism in adults is 1%

• in premature infants, it is 30%.

• Categorisation : Palpable 80% and Non palpable 20%

**Etiology**

causes of maldescent testis is not clear may due to.

A – abnormality of the gubernaculum testis.

(cord like structure that extend from the lower pole of the testis to the scrotum).

B – intrinsic testicular defect.

making the testicle insensitive to gonadotropins. Best explanation for unilateral

C – deficient gonadotropic hormonal stimulation. Testicular descent is androgen mediated event, Best explanation of bilateral cryptorchidism, & more incidence of undescent testis in premature infant

**Pathogenesis & pathology.**

The scrotum is an effective temperature regulator for the testis, which are kept 1-2 °C cooler than body temperature.
• The spermatogenic cells are sensitive to body temperature.

• Studies of the ultrastructure of the cryptorchid testis found deleterious changes in the 1st year of life. By the age of 4 yr massive collagen deposition was evident.

• So the testis has to be in the scrotum by the age of 6 months. Fortunately, the Leydig cells are not affected by body temperature.

**Clinical findings.**

The cardinal feature is the absence of one or both testes from the scrotum. So the scrotum on the affected side is underdeveloped.

- The testis either non palpable or felt external to the inguinal ring.
- The patient may also complain of pain from trauma to the testis due to abnormal position.
- Adult pt with bilateral cryptorchidism may present with infertility.

Hormonal studies, ultrasound, MRI, & laparoscope aid in the diagnosis.

**Complications.**

1- torsion of the spermatic cord.

2- tumor, cancer is 25-30 times more common in misplaced testis than normal testis. orchiopexy facilitate early detection rather than decrease the incidence of malignancy.
3- trauma,
4- Hernia
5- Subfertility
6- abnormal semen analysis.

**Treatment.**

**Medical**: success rate about 20% by using (hCG)or (GnRH) can be used in bilateral case

**Surgery**: should be as early as 6 months

Palpable testis then orchiopexy

Non palpable testis then Inguinal exploration with possible laproscopy

• Microvascular autotransplantation

**Disorders of the spermatic cord**

**Varicocele**

• Dilatation & tortuosity of veins within the pampiniform plexus above the testis.

• A left side Varicocele is found in 15% of young healthy men. In contrast the incidence of Varicocele in subfertile men approaches 40%.

• It is unusual in boys under 10 but became more frequent at beginning of puberty

• Its adverse influence increases with the time
• Incompetent valves are more common in the left internal spermatic vein & right angle insertion of the left spermatic vein to the left renal vein

![Diagram of spermatic cord, varicocele, epididymis, and testis]

**Presentation**: mostly presenting asymptomatic or could be scrotal pain and swelling, fertility problems

**Assessment**: history an examination in up right position

**Grading:**

I. Non palpable

II. Palpable

III. Palpable & visible

If still there is suspicion so we do uls see

• If there is venous reflux by doppler

• Testicular size

• Sperm concentration & motility are significantly decreased in 65-75% of subject.

• Infertility is often observed & can be reversed in high percentage of patients by correction of varicocele.
• The effect of varicocele on testicle remain unclear several theories have been postulated.

1- hormonal imbalance due to decrease testosterone secretion by leydig cell

2- reflux of potentially toxic renal & adrenal metabolites.

3- increase hydrostatic pressure which reduce the efficiency of blood return & testis hypoxia

4- increase scrotal temperature due to reflux of warm corporeal blood into the pampiniform plexus

❖ **Treatment**

• **Conservative** if there no indication of surgery

Follow up

• During adolescent ,testicular size should be checked annually .after adolescent ,repeated sperm analysis is to be recommended.

  **Surgery**  **Indication**

❖ small testis

❖ Symptomatic varcocele

❖ Pathological spermiogram

❖ Additional testicular pathology like mass

❖ Bilateral palpable varcocele
Surgical ligation of the internal spermatic veins. Percutaneous methods like injection of sclerosing fluid may be of value.

**Hydrocele**

Collection of fluid within the tunica or processus vaginalis. Although it may occur within the spermatic cord, its most often seen surrounding the testicle.

Causes:-

1. Primary :cause unknown associated with patency of processes vaginalis

   It classified as follow

   A-communicating :it connect with the peritoneal

   B-Non-communicated :not connected with peritoneal

2- Secondary : the fluid accumulate secondary to the pathological process like infection ,tumor ,trauma . clear & yellow.

   **Clinical presentation** : **Symptoms**

1. Painless swelling
2. Embarrassment

3. Dysuria & frequency if due to infection

Examination

❖ Position: swelling usually unilateral but can be bilateral
❖ Colour & temperature normal
❖ Tenderness: primary not tender but secondary may be tender
❖ Composition: fluctuant and have fluid thrill if large enough
❖ Reducibility: can not reduced
❖ Testis impalpable and transilluminate

Management:
❖ Primary

   in children

✓ Most neonatal hydrocele resolve in first 2 year of live if persist then repair

   In adult

✓ Surgical excision

❖ Secondary

✓ Treat the underlying cause.

   Acute secrotum in children
A child or adolescent present with acute scrotal pain, swelling, and tenderness

Aetiology

1. Torsion testis
2. Torsion appendix testis
3. Epididymatis or epididmo-orchitis
4. Other like mumps orchitis, varicocele, scrotal edema or hematoma

**Torsion of the spermatic cord**

Torsion of the testicle is a twist of spermatic cord leading to strangulation of the blood supply, it mostly occurs between the age of 10-30.

Unless treatment is given within 4 hr, testicular atrophy may occur.

![Diagram of testicular torsion](image)

**Causes.**

1- undescend testis.
2- trauma.

3- congenital anomalies of the tunica vaginalis or spermatic cord.

Voluminous tunica vaginalis that insert well up on the cord. This allow the testis to rotate within the tunica.

The initiating factor is spasm of the cremaster muscle which insert obliquely on the cord.

**Clinical findings.**

- Sudden onset of pain Followed by swelling, reddening of the scrotal skin, lower abdominal pain, & nausea & vomiting.
- Past history of similar pain in 50%
  - Examination usually reveals
    - Absent cremastic reflex (most important)
    - swollen, tender organ that is retracted upward
    - Horizontal lie of testes.
    - Pain may increase by lifting the testis. This differentiate torsion from epididimorchitis

Diagnosis

*if certain* : emergent surgery

*if uncertain :uls* with doppler study document blood flow & anatomy if absent vascularity then indicate torsion.

*D.Dx*
Acute epididymitis,

acute orchitis,

trauma.

*Treatment.*

Early surgical detorsion + fixation of the affected testis & the contralateral testis as prophylactic procedure should be done as early as 1st 6 hours