

2nd lecture

The testis and scrotum: _____ Prof. Abdulrazzaq Al-Salman

Anatomy of testis:

The testes develop in the retroperitoneum below the kidneys in early fetal life. About the same time as the wolffian duct becomes the epididymis and vas deferens, the precursor of the gubernaculum develops as a fold of peritoneum. Maternal chorionic gonadotrophin stimulates growth of the testis and may stimulate its migration.

The testicular arteries from the abdominal aorta on the left and from the renal artery on the right. The venous drainage finds its way to the left renal vein and the inferior vena cava.

The epididymis on the posterior aspect of the testis and is palpable as a separate structure. The vas deferens takes its origin from the epididymis. In the inguinal canal, the vas deferens is invested by the cremasteric muscle along with the other components of the spermatic cord.

Incomplete descent of the testis: The testis is arrested in some part of its path to the scrotum.

Ectopic testis: The testis is abnormally placed outside this path.

Incidence

About 4% of boys are born with one or both testes incompletely descended. About half of these reach the scrotum during the first month of life, but full descent after that is uncommon.. In 10% of unilateral cases there is a family history.

Pathology

Incompletely descended testes are often poorly developed. The epithelial elements are immature histologically and by late puberty irreversible destructive changes halt spermatogenesis and limit the production of androgens. An incompletely descended testis brought down in early childhood often functions satisfactorily.

Clinical features

The condition is more common on the right and is bilateral in 20% of cases. Secondary sexual characteristics are typically normal.

The testis may be:

- intra-abdominal, lying extraperitoneally above the internal inguinal ring.
- inguinal, in which case it may or may not be palpable.
- in the superficial inguinal pouch, in which case it must be distinguished from retractile testis. The scrotum is normal as opposed to underdeveloped, which is usually seen with true incomplete descent. A retractile testis can be gently milked from its

position in the inguinal region to the bottom of the scrotum. In infancy, most inapparent testes are retractile. They are normal and require no treatment.

Hazards of incomplete descent are:

- sterility in bilateral cases (especially intra-abdominal testes);
- pain as a result of trauma.
- an associated indirect inguinal hernia is often present .
- torsion.
- epididymo-orchitis in an incompletely descended right testis can mimic appendicitis.
- atrophy of an inguinal testis before puberty may possibly be caused by recurrent minor trauma;
- increased liability to malignant disease; cancer is more common in an incompletely descended testes – orchidopexy may or may not diminish the risk but it does improve the prospect of early diagnosis .

Surgical treatment: Orchidopexy is usually performed after the age of 1 year to avoid the risks of operating on a tiny patient. Testes should be brought down into the scrotum before the boy starts school.

Testicular torsion

Clinical features: Testicular torsion is most common between 10 and 25 years of age although a few cases occur in infancy. Symptoms vary with the degree of torsion. Most commonly there is sudden agonising pain in the groin and the lower abdomen. The patient feels nauseated and may vomit. Torsion of a fully descended testis is usually easily recognised. The testis seems high and the tender twisted cord can be palpated above it.

In mumps orchitis the cord is not particularly thickened. The onset of redness of the skin and a mild pyrexia may result in the condition being confused with epididymo-orchitis in the older patient; however, in epididymo-orchitis there will usually be dysuria associated with the accompanying urinary infection. Elevation of the testis reduces the pain in epididymo-orchitis and makes it worse in torsion. Very occasionally, torsion can be convincingly mimicked by a small tense strangulated inguinal hernia compressing the cord and causing compression of the pampiniform plexus.

Doppler ultrasound scan will confirm the absence of the blood supply to the affected testis. If there is any doubt about the diagnosis, the scrotum should be explored without delay.

Treatment

In the first hour or so it may be possible to untwist the testis by gentle manipulation. If manipulation is successful, pain subsides and the testis is out of danger. Arrangements should be made for early operative fixation to avoid recurrent torsion. The other testis should also be fixed because the anatomical predisposition is likely to be bilateral. An infarcted testis should be removed – the patient can be counselled later about a prosthetic replacement.

Torsion of a testicular appendage is sometimes mistaken for acute epididymo-orchitis and cannot be distinguished with certainty from testicular torsion. The most common structure to twist is the appendix of the testis (the pedunculated hydatid of Morgagni). Immediate operation with ligation and amputation of the twisted appendage cures the condition.

Idiopathic scrotal oedema is an oddity that occurs between the age of 4 and 12 years and must be differentiated from torsion. The scrotum is very swollen but there is little pain or tenderness. The swelling may extend into the perineum, groin and penis. It is thought to be an allergic phenomenon; occasionally there is eosinophilia. The swelling subsides after a day or so but may recur

VARICOCELE

A varicocele is a varicose dilatation of the veins draining the testis.

Surgical anatomy

The veins draining the testis and the epididymis form the pampiniform plexus. The veins become fewer as they traverse the inguinal canal and at or near the inguinal ring they join to form one or two testicular veins, which pass upwards behind the peritoneum. The left testicular vein empties into the left renal vein, the right into the inferior vena cava below the right renal vein. The testicular veins may have valves near their terminations, but these are often absent. There is an alternative (collateral) venous return from the testes through the cremasteric veins, which drain mainly into the inferior epigastrics.

Aetiology

Most varicoceles present in adolescence or early adulthood, usually on the left. In many cases the dilated vessels are cremasteric veins and not part of the pampiniform plexus. Obstruction of the left testicular vein by a renal tumour or after nephrectomy is a cause of varicocele in later life; characteristically, the varicocele does not decompress in the supine position.

Clinical features: Varicocele is usually symptomless but there may be an annoying dragging discomfort that is worse if the testis is unsupported. The scrotum on the affected side hangs lower than normal, and on palpation, with the patient standing, the varicose plexus feels like a bag of worms. There may be a cough impulse. It is widely believed that varicocele causes infertility but the evidence is inconclusive.

Varicocele and spermatogenesis

Of all the possible causes of primary infertility, oligospermia is one of the most difficult to treat. Because varicocele is relatively common, some of those with oligospermia have a varicocele, and it is tempting to blame this for the infertility. Perhaps the presence of the unilateral varicocele somehow interferes with the normal temperature control of the scrotum, which keeps the testes at some 2.5°C below rectal temperature. Unfortunately, there is little evidence that varicocelectomy improves semen quality or the rate of conception.

Treatment

Operation is not indicated for asymptomatic varicocele. The simplest procedure is laparoscopic ligation of the testicular vein above the inguinal ligament where the pampiniform plexus has coalesced into one or two vessels. However, when facilities are available, embolisation of the testicular vein under radiographic control is probably the treatment of choice. Because of the presence of plentiful collateral veins, recurrence is common after all types of varicocele surgery.