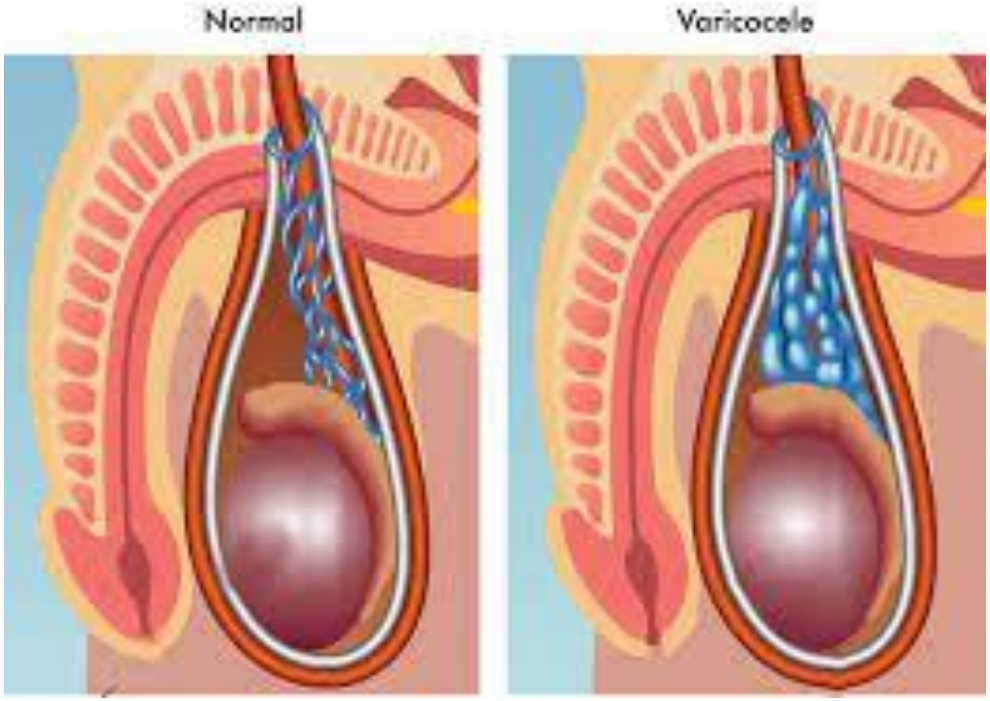
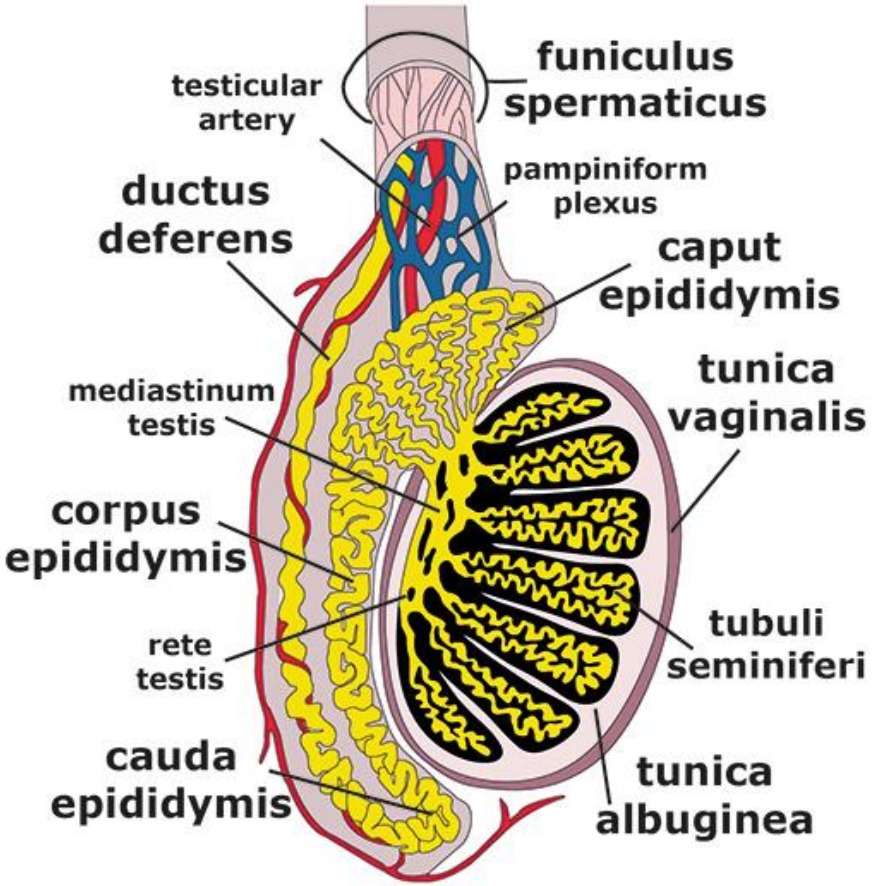
Varicocoele



Anatomy

- Testicular artery - from the abdominal aorta just below the renal arteries
- Testicular veins drain into the renal vein on the left and the inferior vena cava on the right
- Lymphatic drainage- para-aortic nodes that are the draining lymph nodes



- The veins draining the testis and the epididymis form the pampiniform plexus
- Veins gradually join each other as they traverse the inguinal canal and at, or near, the inguinal ring
- There are only one or two testicular veins
- Testicular veins usually have valves near their terminations
- But these are sometimes absent
- Alternative (collateral) venous return – cremasteric veins

Varicocoele

- Varicose dilatation of the veins draining the testis
- Common, affecting perhaps 15–20% of adult males
- 90% are left sided, reflecting the proximal venous anatomy
- Unusual in boys and typically develop during late childhood and adolescence
- Usual cause is absence or incompetence of valves in the proximal testicular vein
- Most varicocoeles are idiopathic
- Obstruction of the left testicular vein by a renal tumour or nephrectomy is a cause (does not decompress in the supine position)

- There are 2 types

1. Primary

- Idiopathic
- Common type(95%)
- In adolescent and early adulthood
- Tall thin males

Secondary

2. In later life

- Occurs in renal cell carcinoma, lymphadenopathy and nephrectomy
- Do not disappear while lying down

Varicocoele and spermatogenesis

- Possible cause of primary infertility
- Oligozoospermia (reduced numbers of sperm in the ejaculate) – Most difficult to treat
- Varicocoele will tend to ‘warm’ the testis - around 2.5ºC below rectal temperature
- Effect of this temperature difference – reduce spermatogenesis
- There is little evidence that varicocoelectomy improves semen quality or the rate of conception

Clinical features

- Most varicocoeles are asymptomatic
- Dragging discomfort that is worse on standing at the end of the day – Due to distension of the testicular veins

Examination

- In the erect position
- The scrotum on the affected side hangs lower than normal
- On palpation, the varicose plexus feels like a bag of worms
- There may be a cough impulse
- If the patient lies down the veins empty by gravity
- In long-standing cases the affected testis is smaller

Investigations

- Ultrasonography can be helpful in the diagnosis of,

1. Small varicocoeles
2. In older men with an apparently recent onset of varicocoele

- Ultrasonography of the kidneys is important in excluding a left renal tumour

Grading

- Grade I varicocoele being impalpable (i.e. observed only on ultrasound)
- Grade II being palpable
- Grade III being visible

Treatment

- Operation is not indicated for an asymptomatic varicocoele
- When the discomfort is significant

Percutaneous embolization of the gonadal veins (first-line intervention)

Recurrence - 20% after embolisation

- If percutaneous embolization is not possible, or if the varicocoele recurs-

Surgical ligation of the testicular veins

- Although recurrence can occur even after such surgery

Surgical correction

- Recommend considering varicocele repair in patients with the following :

1. Clinical varicocele
2. Oligospermia
3. Infertility duration of ≥2 years
4. Otherwise unexplained infertility in the couple.
5. Adolescents with progressive failure of testicular development documented by serial clinical examination

Surgical correction

- Varicocele repair approc include

1. Retroperitoneal
2. Laparoscopic
3. Inguinal
4. Subinguinal

- All abnormal veins are tied permanently to prevent continued abnormal blood flow
- Avoidance of the vas deferens and the testicular artery during the surgery is critical

- Major predictors for a successful outcome of varicocelectomy

1. Grade II or III varicocele
2. Sperm density >8 million/mL
3. Sperm progressive motility >18%

Complications following surgery

- Recurrence – 10%
- Injury to the testicular artery

Outcome and Prognosis

- 66-70% of patients have improved bulk semen parameters (3-4 months after surgery)
- Significant improvements in sperm concentration, percent motility, and total motile sperm per ejaculate
- 40-60% of patients have increased conception rates
- Varicocelectomy is an effective treatment for male subfertility