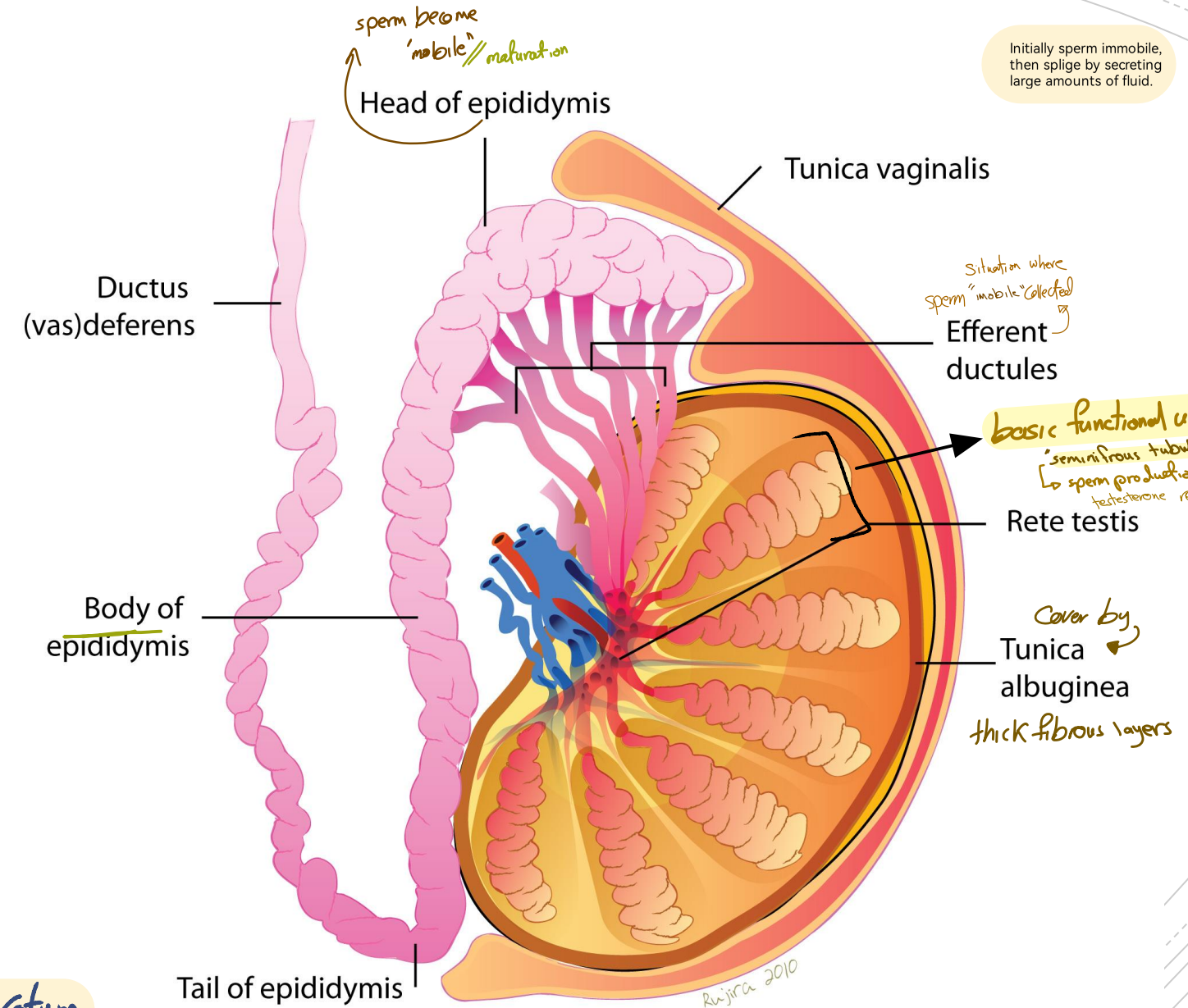
urogenital system.
Pathology of the Male Genital System- Testis.

Dr.Eman Kreishan, M.D.

4-5-2025.

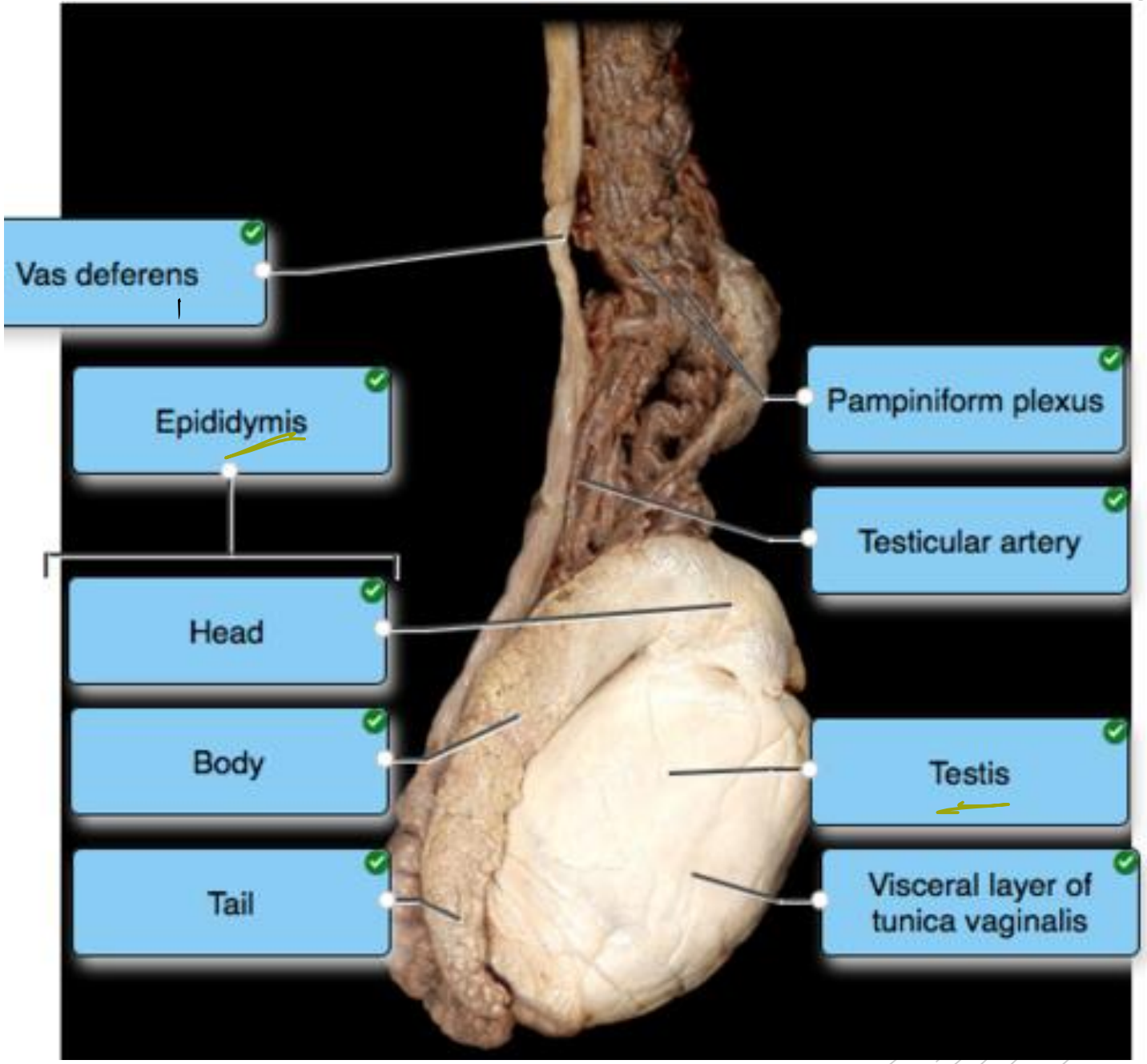
Testis. Anatomy.

gonada reproduction system in male

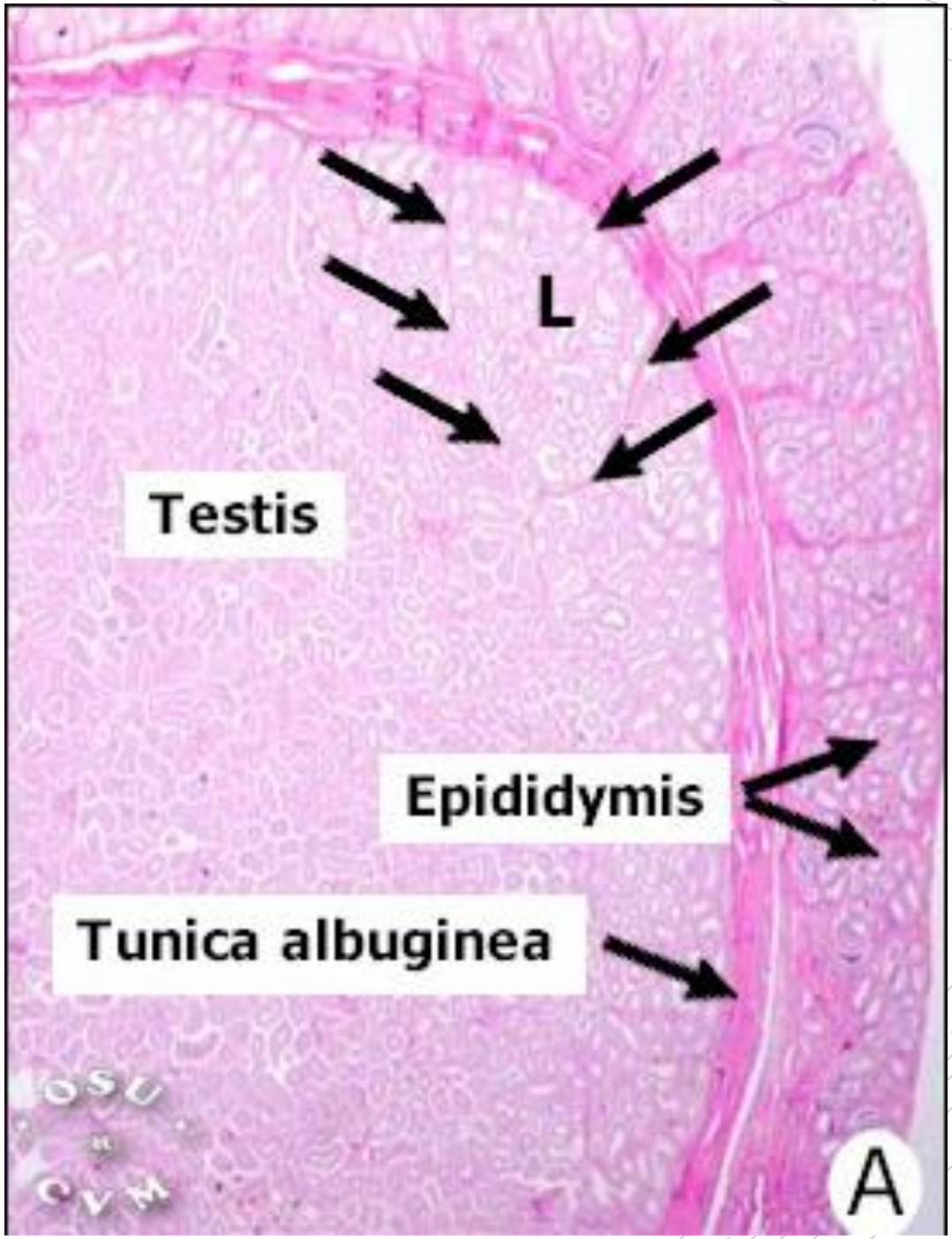


Situation within scrotum

Grossly


Vas deferens
Epididymis
Head
Body
Tail
Pampiniform plexus
Testicular artery
Testis
Visceral layer of tunica vaginalis

Testis..histology



one seminifrous has

2 Compount :-

1- epithelium cell → Sterli cell "line base of seminifrous"

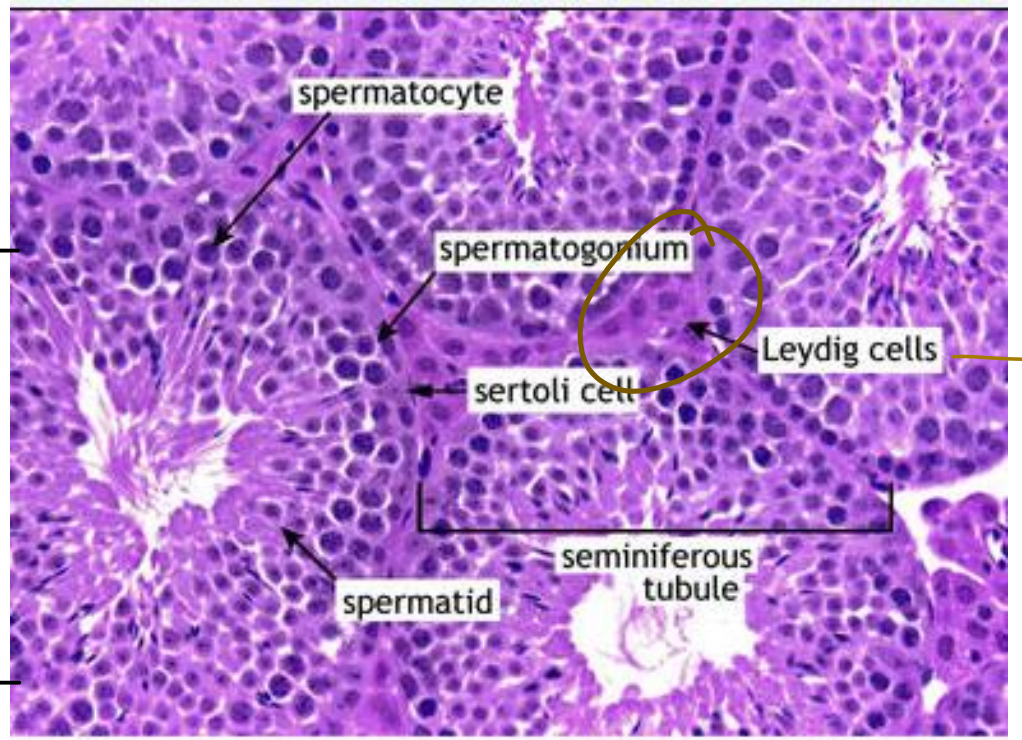
2- germinal cell "sperm production"

- first spermatogonium in basal immature

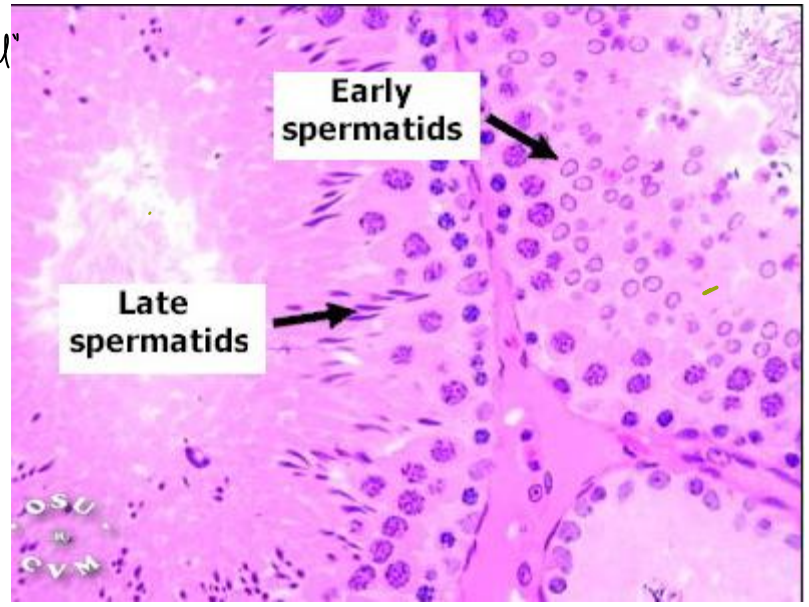
spermato cele in center

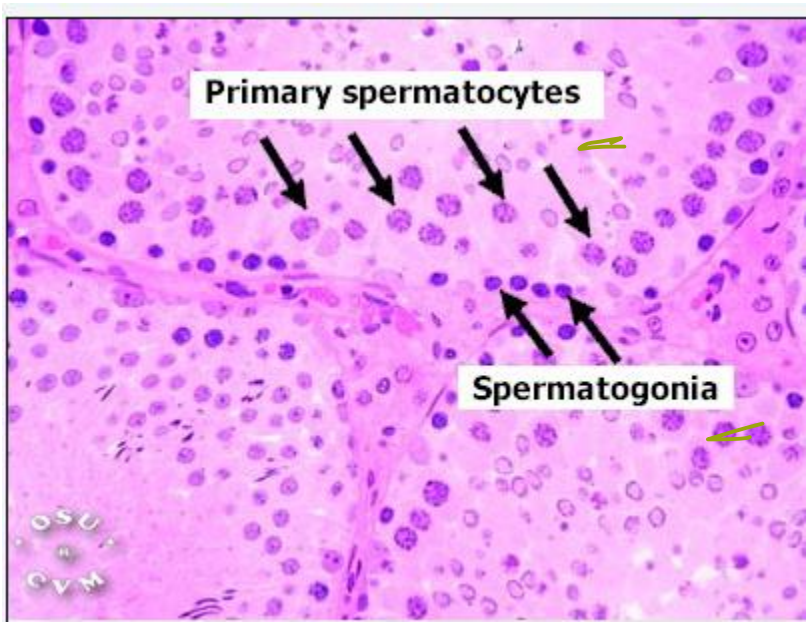
spermatid "final functional"

↳ inabel move to epidiphes thrauth fluid.



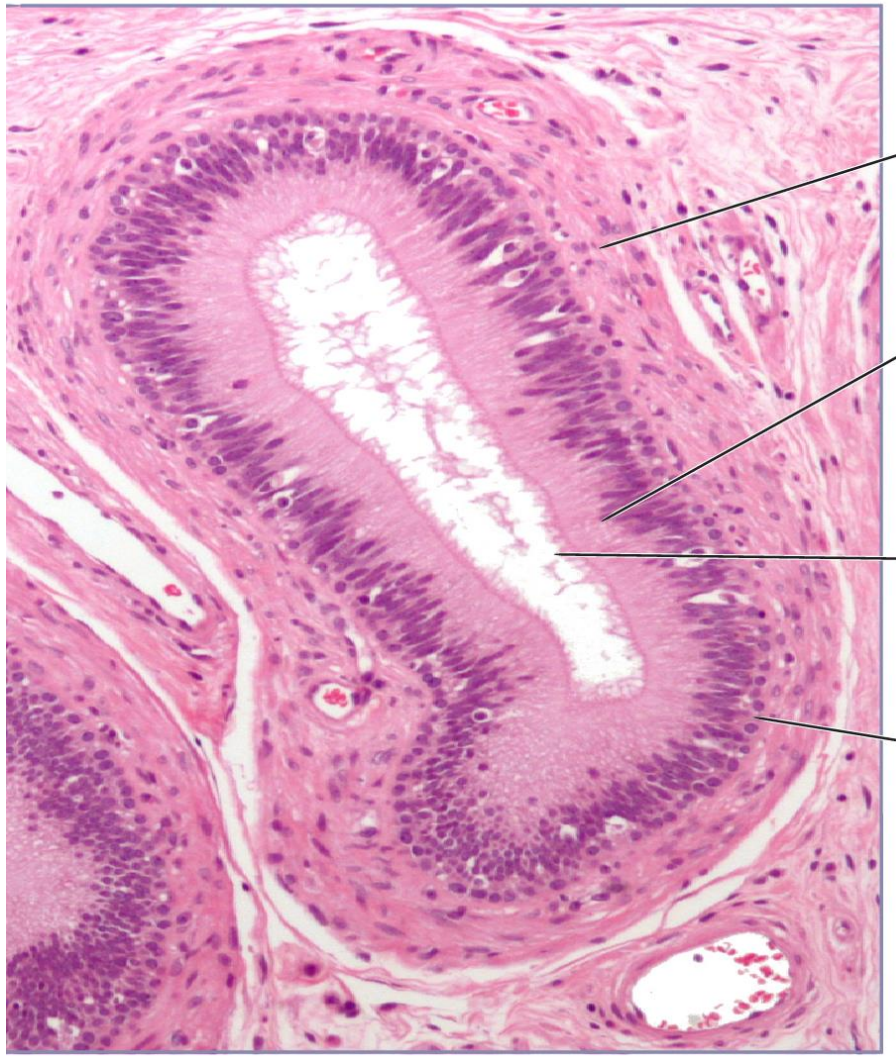
→ Supporting cell





Epididymis ..histology.

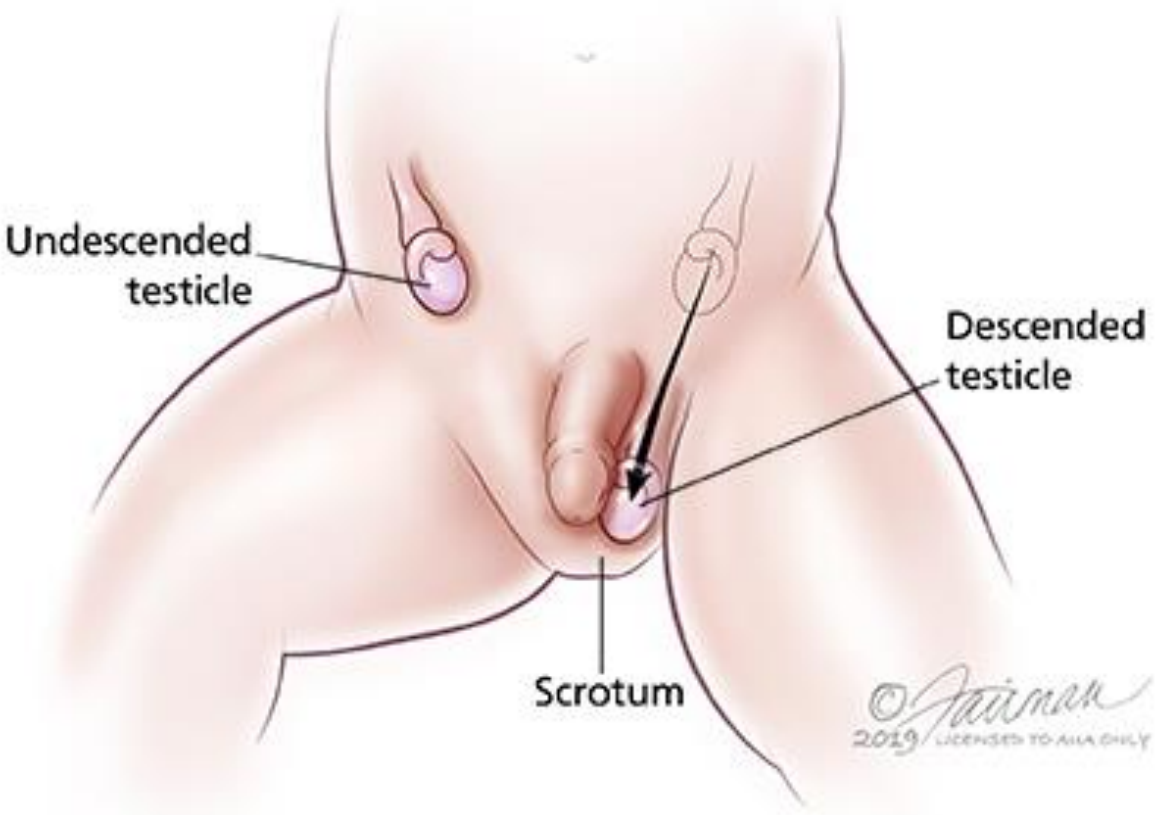
Epididymis



Testicular disorders

- Cryptorchidism.
- Vascular Disturbances.
- Neoplasms.

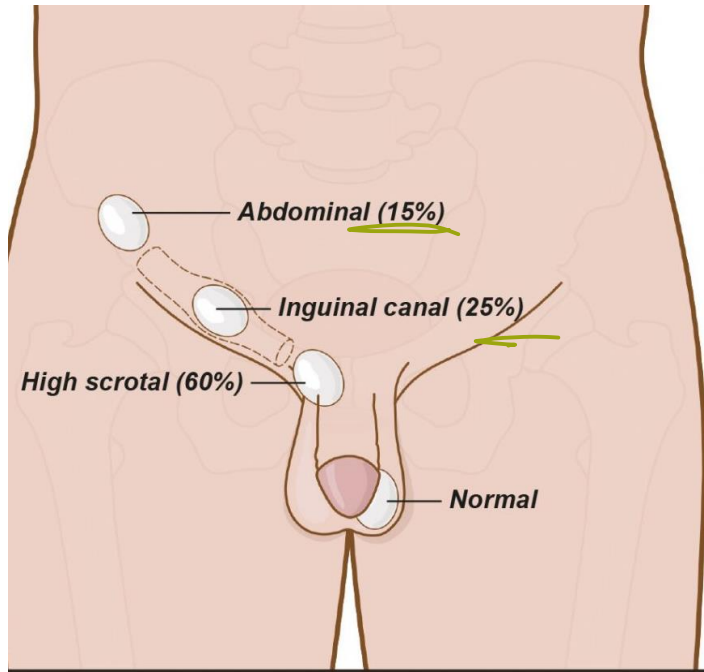
1. Cryptorchidism



*abnormal site
*may convert to neoplastic change

1. Cryptorchidism

- It is a failure of testicular descent into the scrotum.
- Normally, the testes descend from the abdominal cavity into the pelvis (3rd month of gestation)→ then through the inguinal canals into the scrotum (last 2 months of intrauterine life).



1. Cryptorchidism

- Cryptorchidism affects 1% of the male population.
- Mostly the cause is unknown.
- Bilateral in ~ 10% of affected patients
- Undescended testes may become atrophic → if bilateral → sterility.
- Associated with a 3-5 fold increased risk for testicular cancer →in **both** testes, (including normally descended testis) suggesting that some intrinsic abnormality)

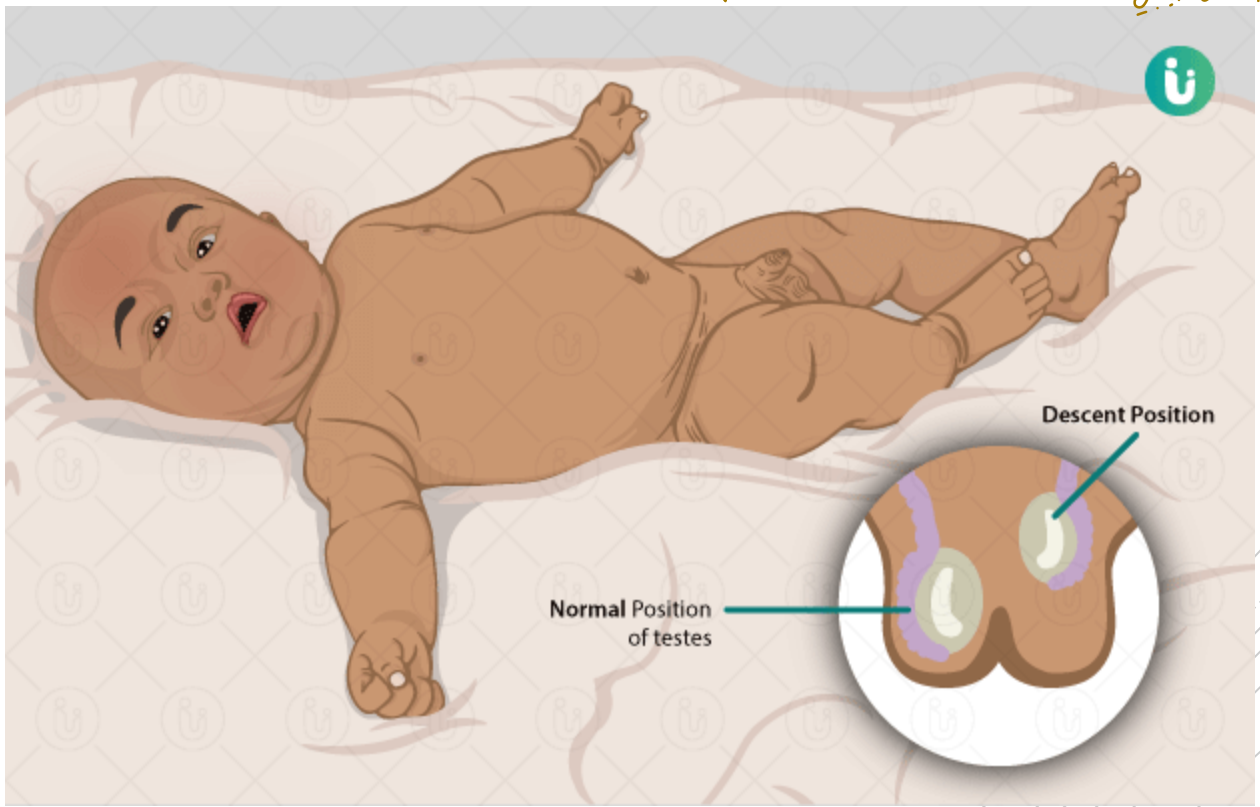
if patient have unilateral undesending
and we need to make introduction,
the risk of malignat tumor equal on both side
"bilateral side secrening "

Diagnosis:

- only established with certainty after 1 year of age, particularly in premature infants, because testicular descent into the scrotum is not always complete at birth.

retractile testis

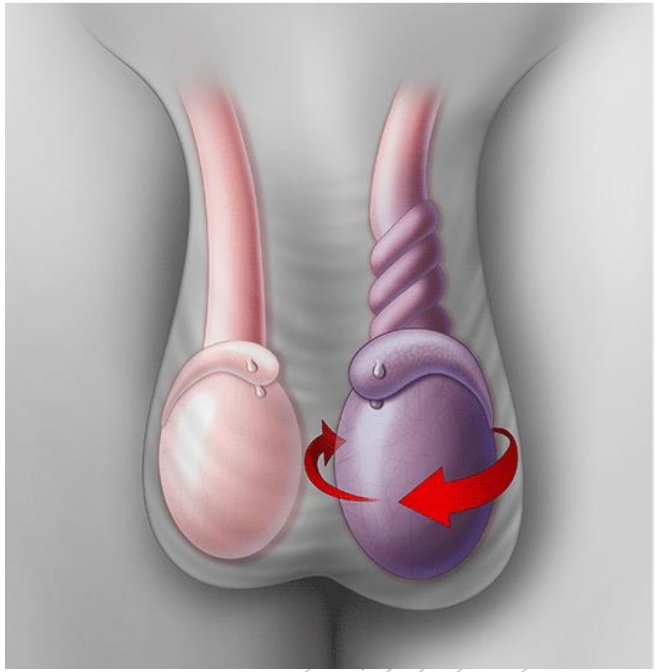
فانكون موجودة في بعض الحالات بشكل طبيعي



2. Vascular Disturbances. Torsion

After trauma

- Torsion or twisting of the spermatic cord → results in obstruction of testicular venous drainage (thick-walled & more resilient arteries are left patent)
- Leads to intense vascular engorgement & infarction if not relieved.



types

- Two types:

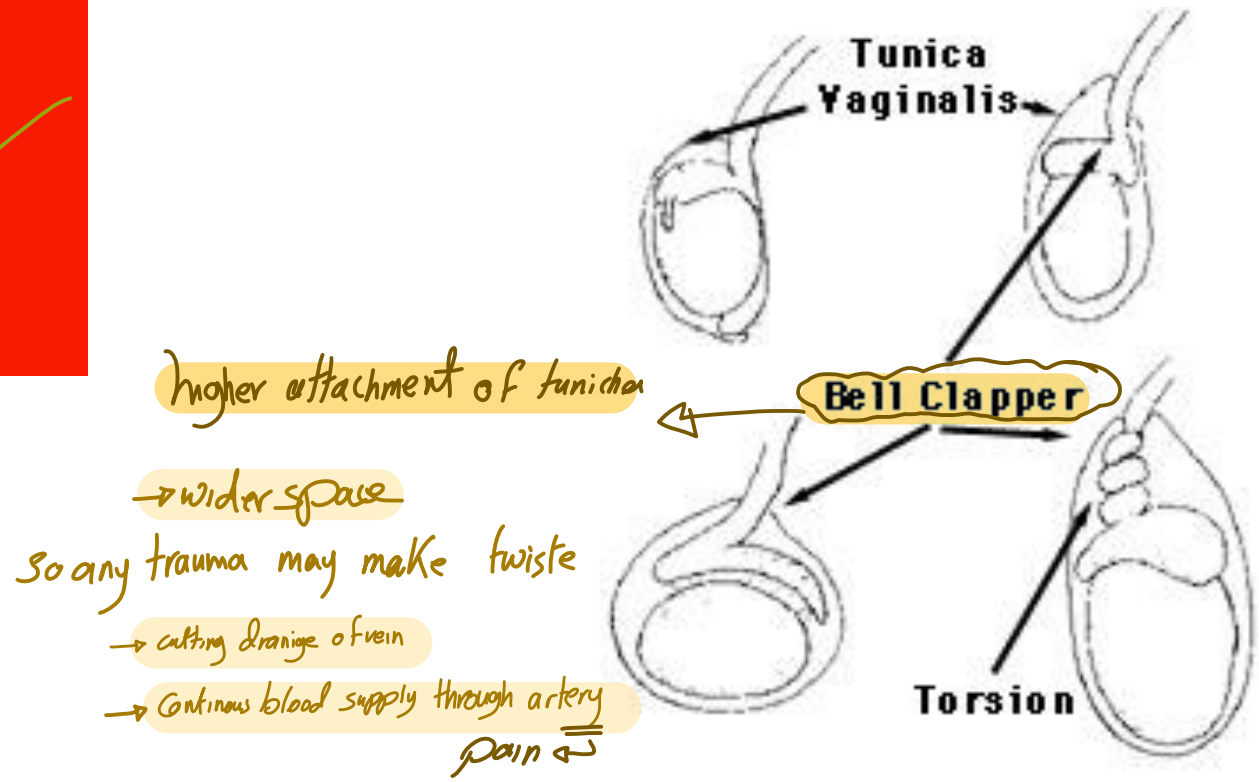
- Neonatal torsion :
- occurs in utero or shortly after birth. No associated anatomic defect is present.
- Adult torsion.

Adult Torsion

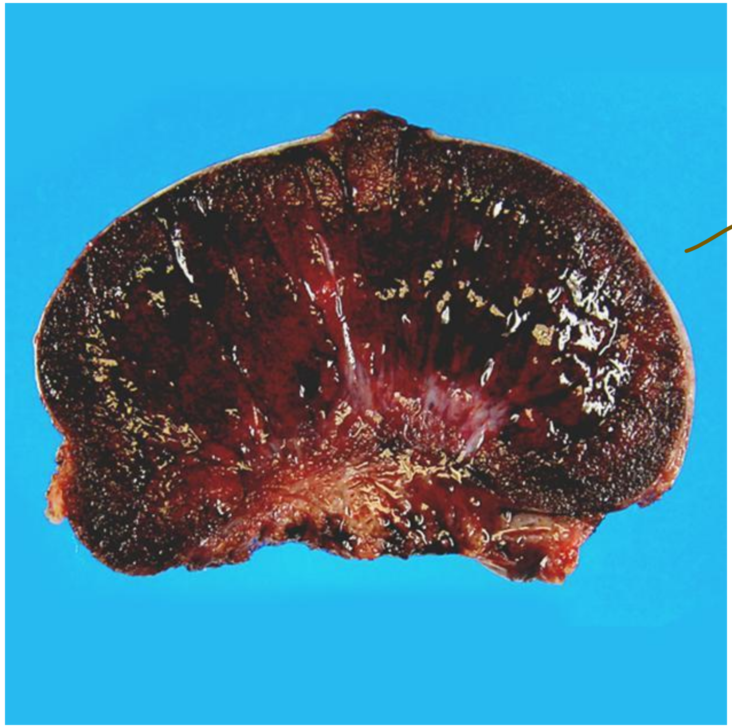
- Surgical emergency due to twisting of the testicle around the spermatic cord or vascular pedicle attachments .
- Mostly under 18 years old.
- Usually patient presented with Unilateral scrotal pain, nausea and vomiting.

pathogenesis

- In contrast with neonatal torsion, it results from a bilateral congenital anomaly; testis is abnormally anchored in the scrotal sac , leading to ↑ mobility (bell clapper abnormality).



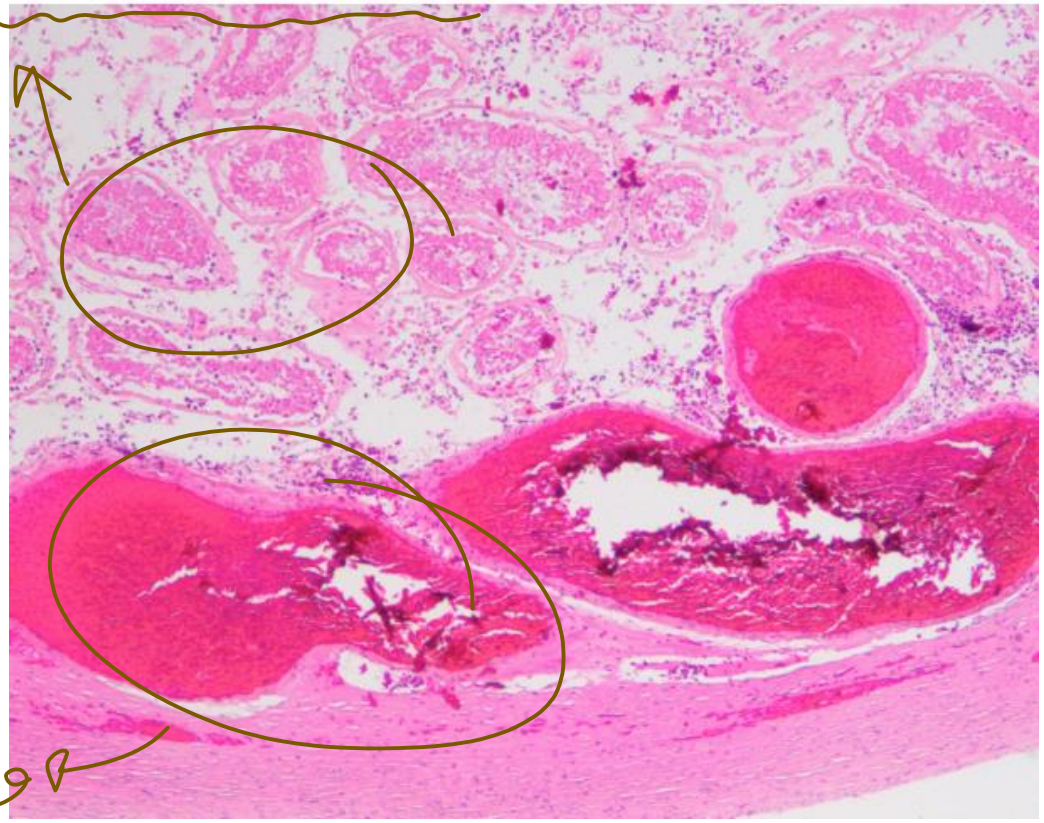
Testicular torsion



الدم يتجمع
في مساحة صغيرة
very sever pain

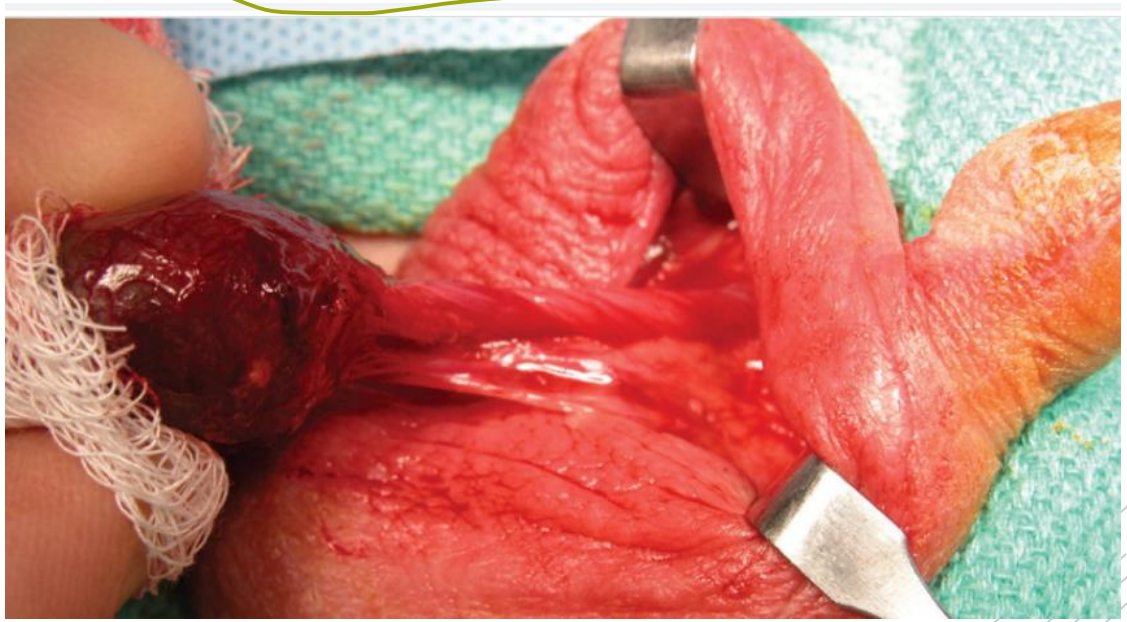
Microscopic

- Damaged blood vessels with coagulative necrosis



Treatment

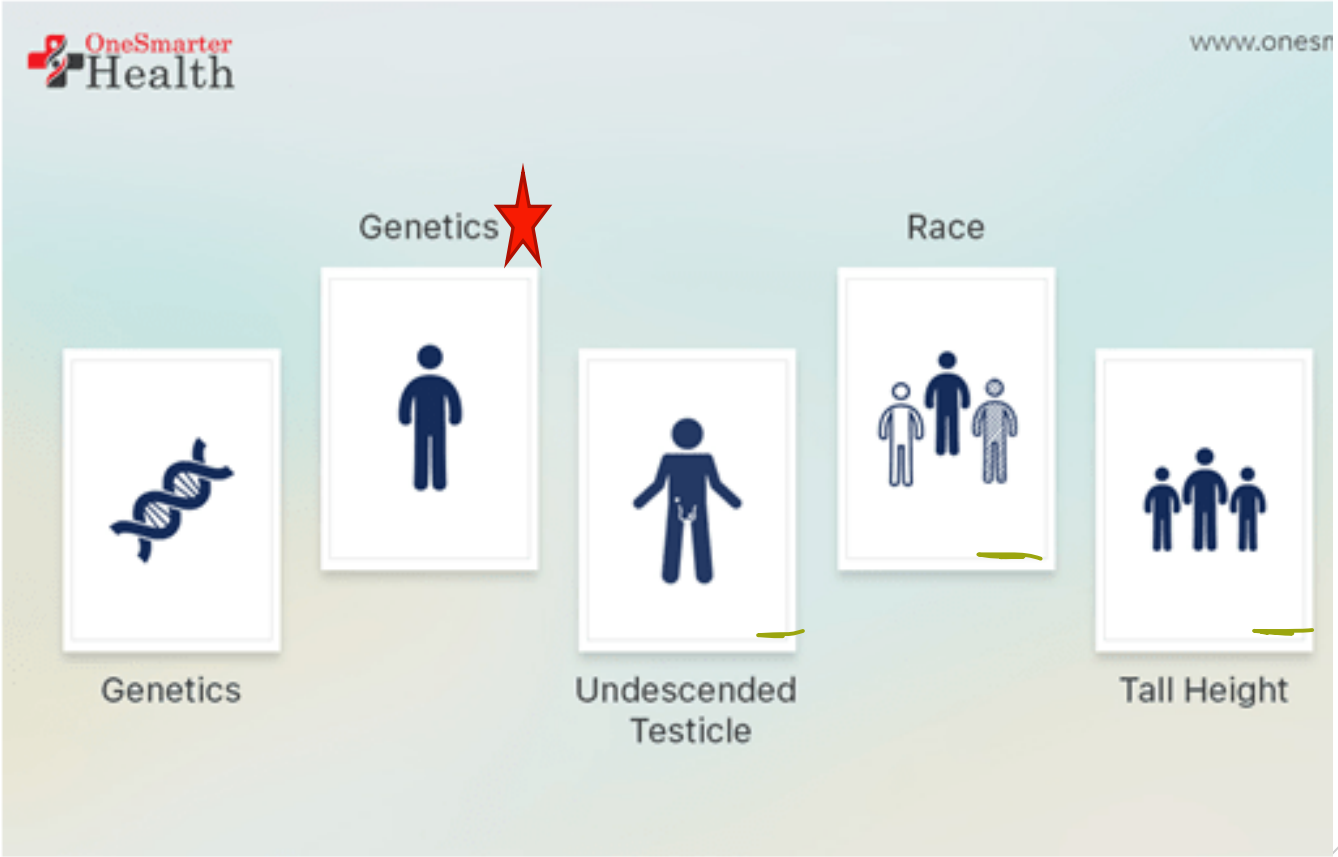
- If explored surgically & the cord is manually untwisted within ~ 6 hours, the testis will likely remain viable.
- To prevent the catastrophic occurrence of another torsion in contralateral testis , unaffected testis is surgically fixed within the scrotum (orchiopexy).



3. Neoplasms

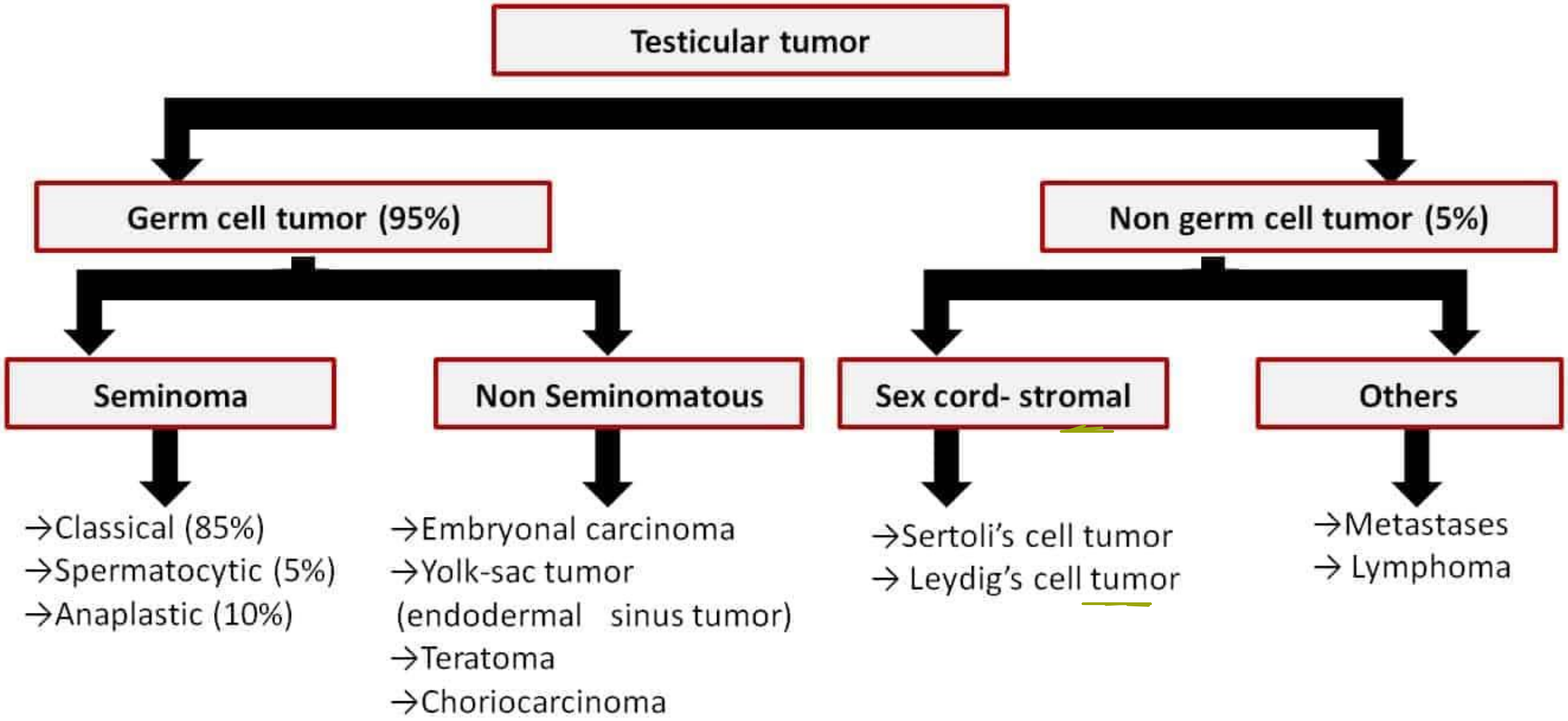
- In the 15-34-year-old age group, they are the most common tumors in men (peak in incidence).
- Heterogeneous groups include:
  - ✓ Germ cell tumors: 95%, all are malignant.
  - ✓ Sex cord–stromal tumors: uncommon, usually benign, & derived from Sertoli or Leydig cells.
- The cause of testicular neoplasms is poorly understood.

Risk factors



isochromosome 12 i(12p)

Intersex syndromes


Testicular tumor
Germ cell tumor (95%)
Non germ cell tumor (5%)
Seminoma
Non Seminomatous
Sex cord- stromal
Others
→Classical (85%)
→Spermatocytic (5%)
→Anaplastic (10%)
→Embryonal carcinoma
→Yolk-sac tumor
(endodermal sinus tumor)
→Teratoma
→Choriocarcinoma
→Sertoli's cell tumor
→ Leydig's cell tumor
→Metastases
→ Lymphoma

Clinical features

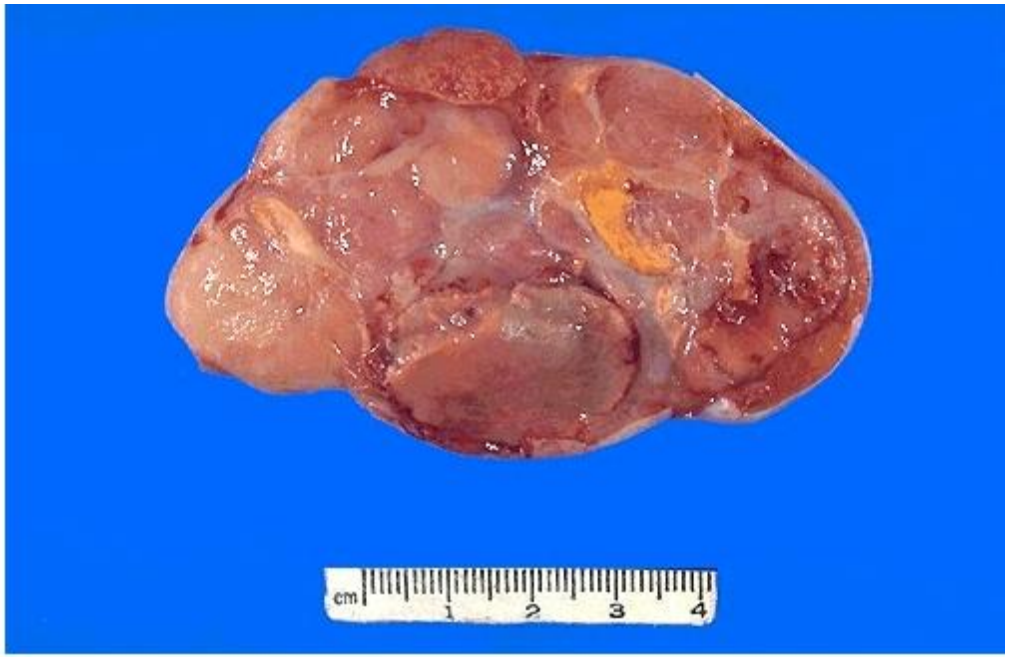
- Presentation: mostly as a painless testicular mass.
- Biopsy of a testicular neoplasm is associated with a risk of tumor spillage (contraindicated).
- Standard management of a solid testicular mass is radical orchiectomy, based on the presumption of malignancy.

1. Seminoma

- Third decade of life – never in infants.
- Histologically identical tumors called dysgerminomas , in the ovary, and germinomas of the CNS.
- Presentation: progressive painless enlargement of the testis.

morphology

Gross: soft, well-demarcated gray-white, usually w/o hemorrhage



Microscopic

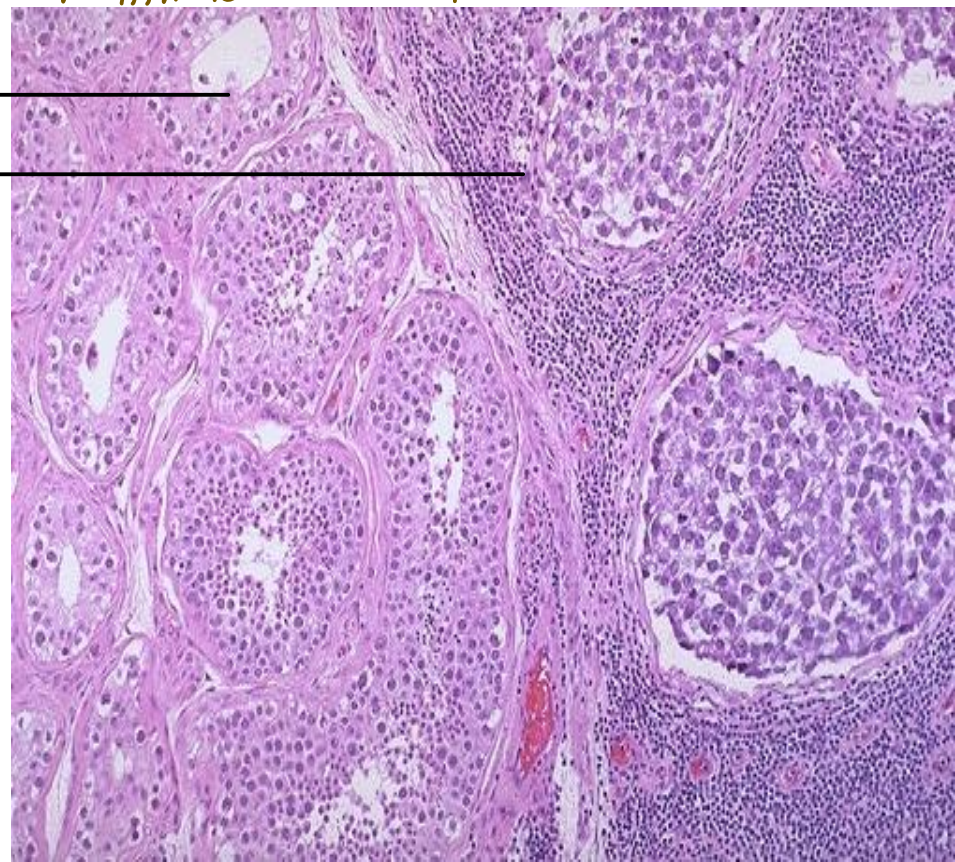
- Large, uniform cells with clear, glycogen-rich cytoplasm, round nuclei, and conspicuous nucleoli.
- Intervening fibrous septa with dense lymphocytic infiltrate.
- Granulomatous reaction & syncytiotrophoblasts (15%).

multinucleated cell → ↑hCG

normal

Abnormal

- high cellularity
- hyperchromatic cell
- space filled with lymphocyte
- large cell



2. Embryonal carcinoma

- malignant germ cell tumor (GCT) resembling undifferentiated stem cells during embryonic development.
- Second most common type of testicular pure GCT
- Average age of presentation 25 - 35 years old, ~10 years younger than seminoma
- Can occur in Anterior mediastinum and retroperitoneum

Morphology

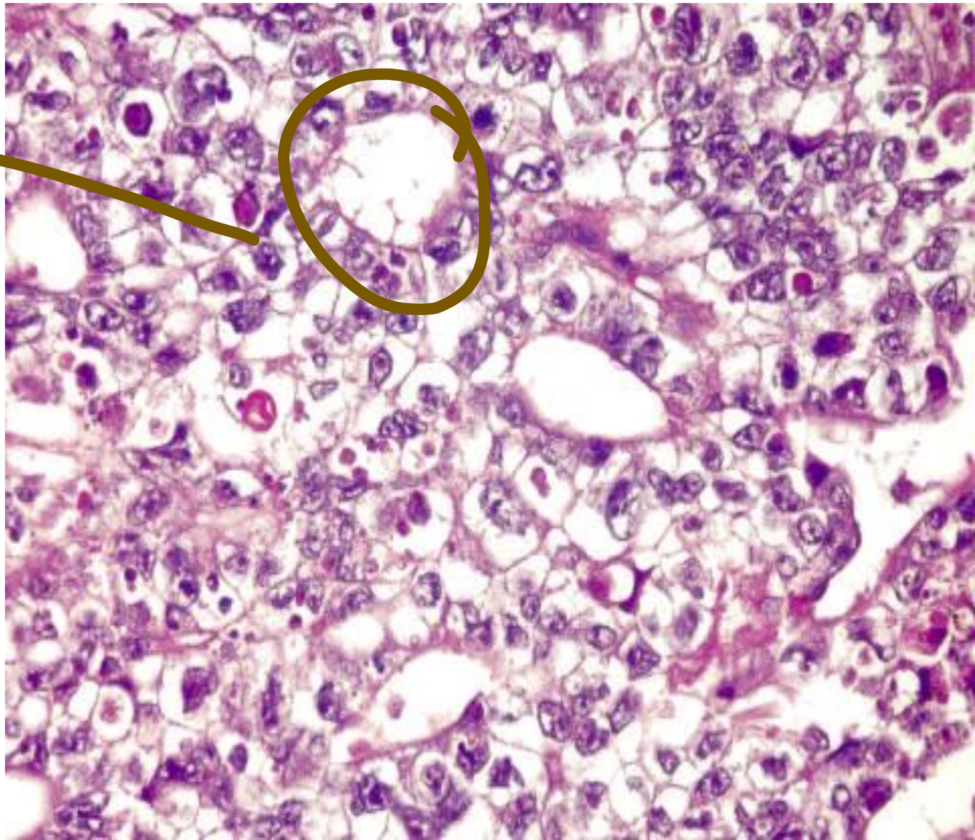
- **Gross:** ill-defined, invasive masses containing foci of hemorrhage and necrosis.

Microscopic

- large cells with basophilic cytoplasm, they are undifferentiated & may form primitive glands.

Polymorphism // فاتشبه بعض

Poorly diagnosis



- .

3. Yolk sac tumor

- The most common primary testicular neoplasm in children younger than 3 years old.
- In this age group, it has a very good prognosis. + pure tumor
- In adults, yolk sac tumors most often are seen admixed with embryonal carcinoma (incidence of yolk sac elements is 80% in mixed). + poor diagnosis

Morphology

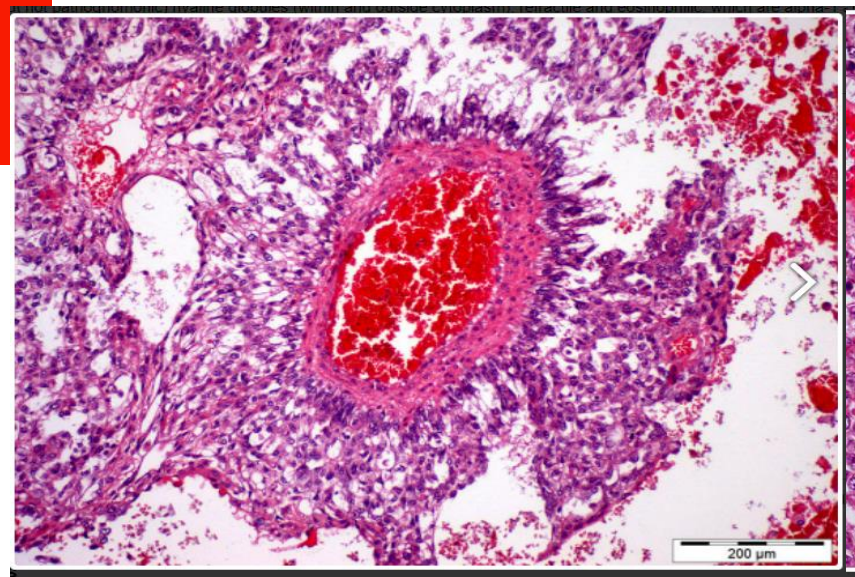
•Poorly circumscribed, nonencapsulated, predominantly solid. Gray to white to yellow to tan, gelatinous surface

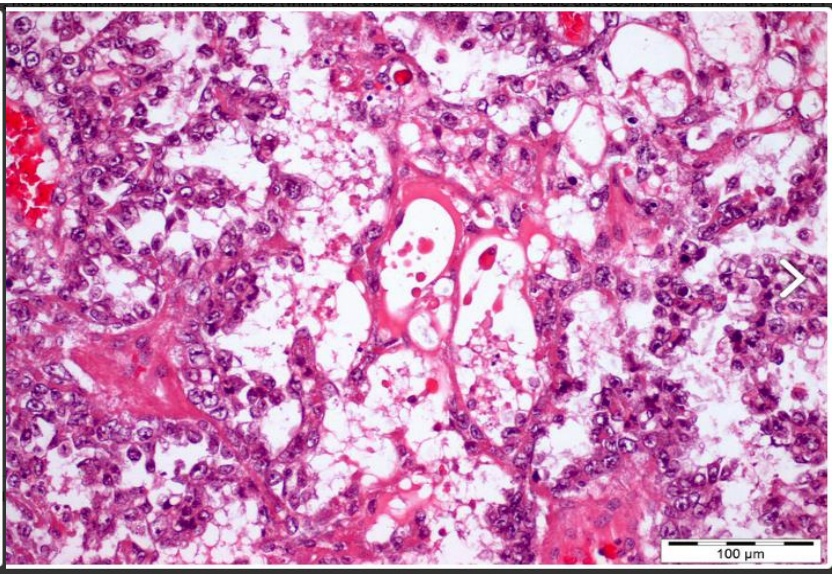
Microscopic

- tumor composed of low cuboidal to columnar epithelial cells that form microcysts, lacelike (reticular) patterns.
- A distinctive feature is the presence of structures resembling primitive glomeruli, the so-called Schiller-Duval bodies.

central BV surroned by tumor cell

- Tumors have eosinophilic globules containing α1-anti-trypsin and alpha fetoprotein (AFP – can be detected in the serum)





4. Choriocarcinoma

tumor marker
BCG

- Malignant germ cell tumor composed of syncytiotrophoblast, cytotrophoblast and intermediate trophoblast cells,

- May present initially with metastases (liver, lung, mediastinum, retroperitoneum) with normal testis or small tumor but with increased serum hCG.

Morphology

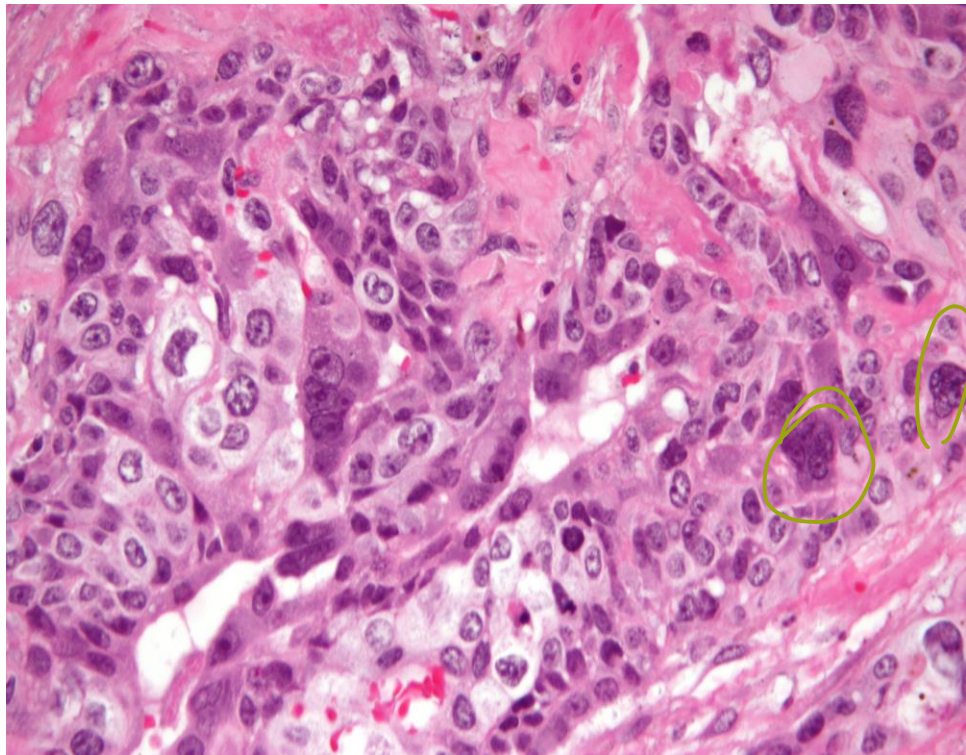
❖Gross:

- may be small lesions, even those with extensive systemic metastases
- May show total necrosis & extensive hemorrhage

Microscopic

(1)Cytotrophoblast: Sheets of small cuboidal cells, irregularly intermingled with

- (2)Syncytiotrophoblast: large, eosinophilic cells with multiple dark, pleomorphic nuclei.



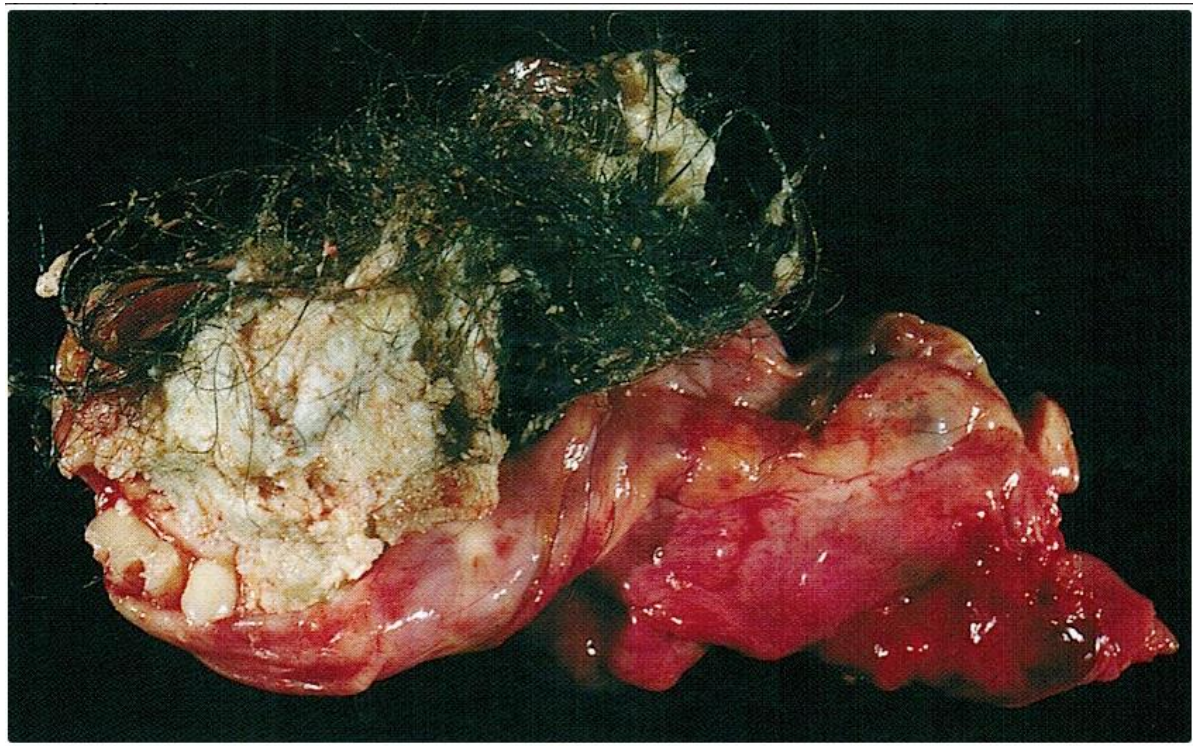
5. Teratoma

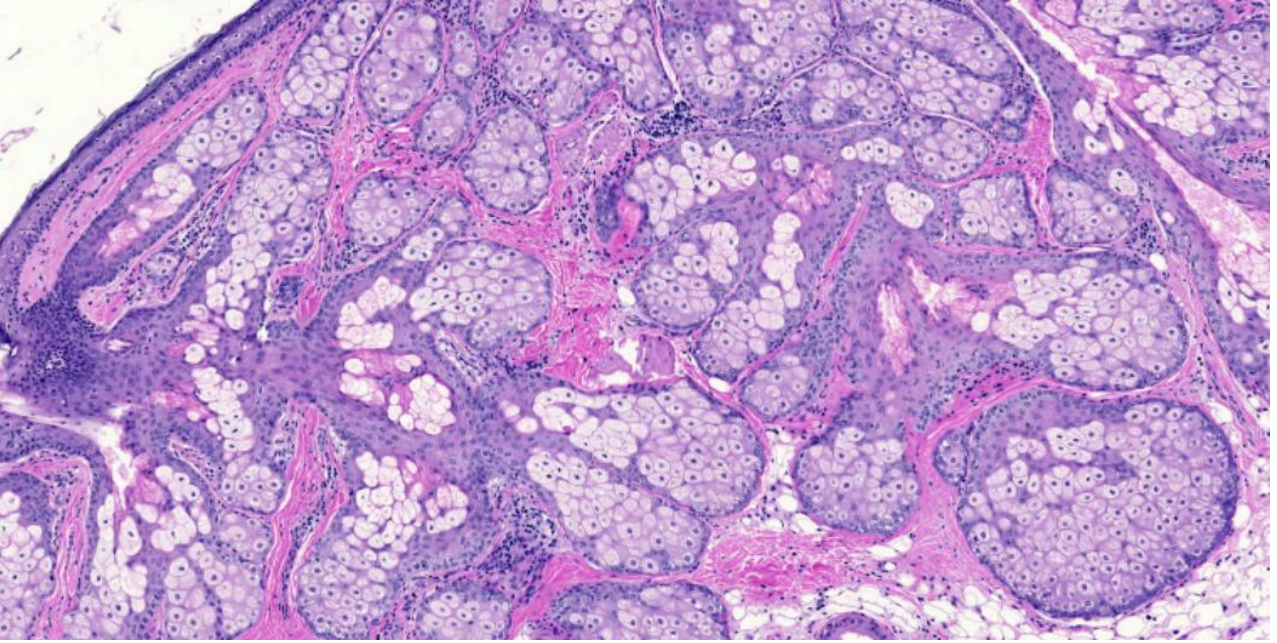
- Neoplastic germ cells differentiate along multiple somatic cell lineages. from endoderm ectoderm mesoderm
- Pure forms of teratoma are common in infants and children , 2nd in frequency only to yolk sac tumors.
- In adults it is seen in combination with other histologic types (mixed), pure forms are rare.

Morphology

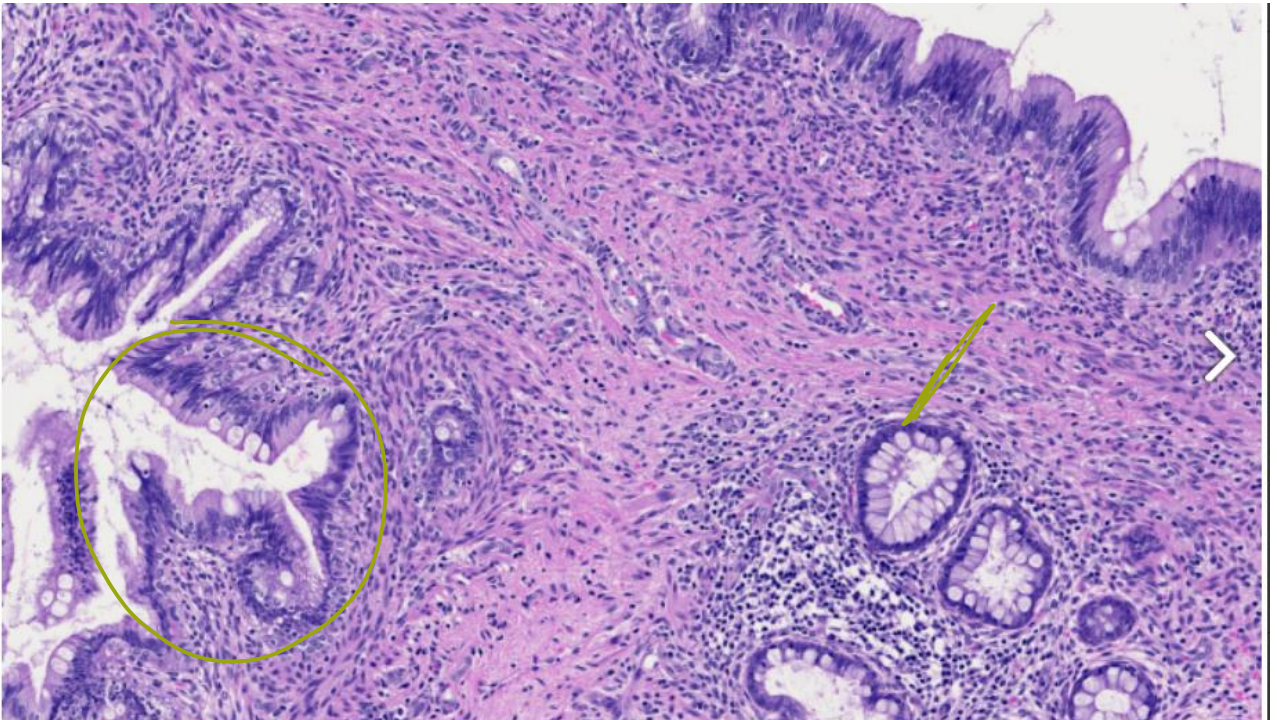
- Elements may be:
  - ❖ mature (resembling various tissues within the adult)
  - ❖ immature (sharing features with fetal or embryonal tissues).
- In prepubertal males, teratomas are benign.
- The majority of teratomas in postpubertal males are malignant whether they have mature or immature elements.

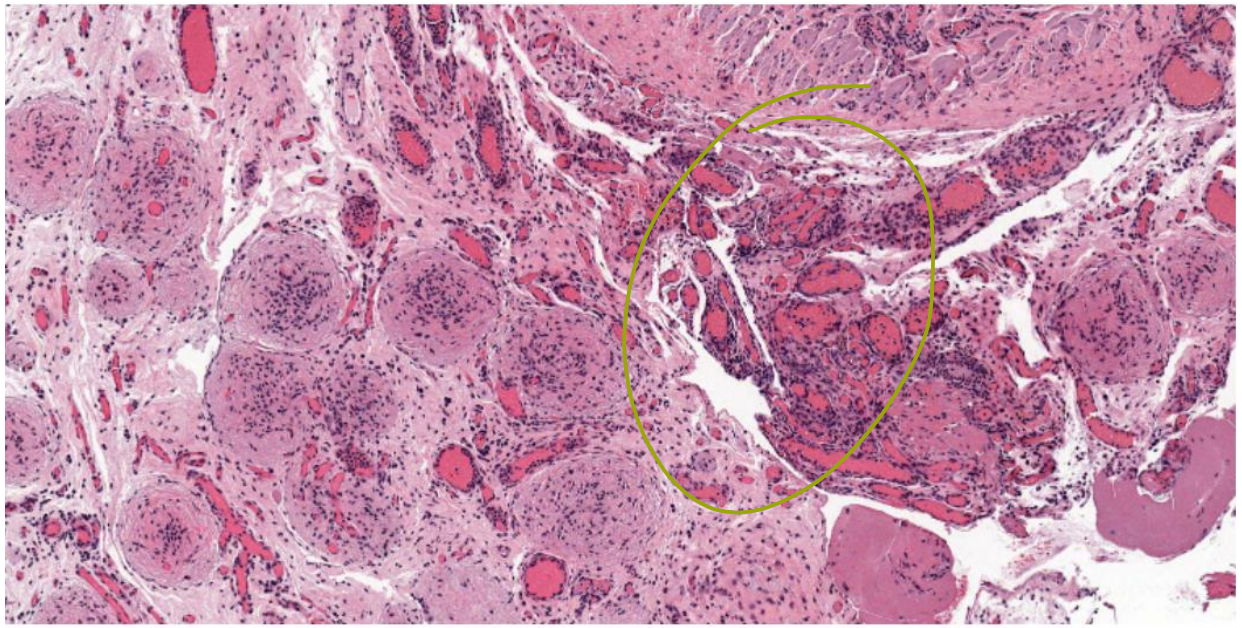
Gross






1 mm





Tumor markers

Refers to the number of cancer cells, the size of a tumor, or the amount of cancer in the body. Also called tumor load.

- Serum tumor markers secreted by germ cell tumors is important in two ways; diagnostically & in following the response to therapy after the diagnosis:

✓ Human chorionic gonadotropin (hCG): always elevated in Choriocarcinoma + ass/with syncytiotrophblastic

✓ Alpha fetoprotein (AFP): when elevated in testicular neoplasm , indicates a yolk sac tumor component.

✓ Lactate dehydrogenase (LDH): correlate with the tumor burden.


GOOD
LUCK!
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