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Sheet note

Tumors of penis & testis

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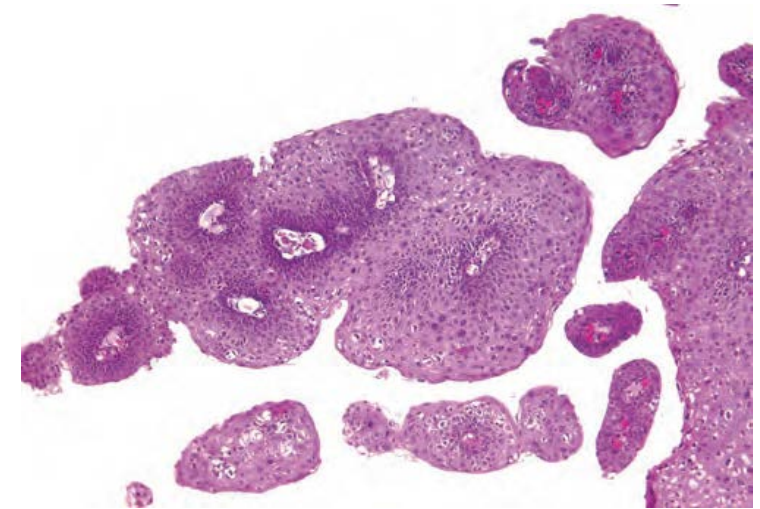
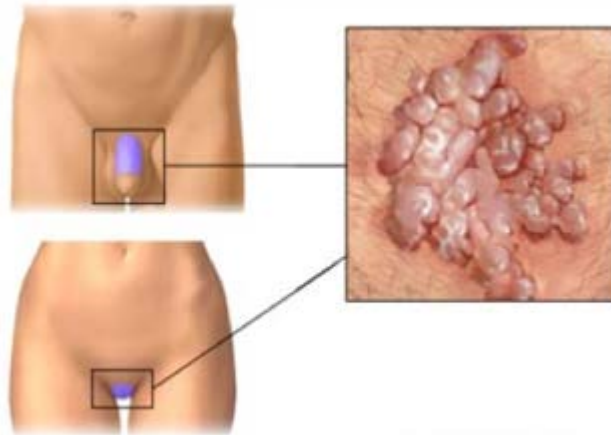


Diseases of penis, Condyloma Acuminatum

- A benign tumor (pathological hyperplasia)
- = genital wart

(shouldn't be confused with Condylomata lata or condyloma latum, it is a cutaneous condition characterized by wart-like lesions on the genitals. They are generally symptoms of the secondary phase of syphilis)

- Sexually transmitted
- Caused by HPV



- May occur on any moist mucocutaneous surface of the external genitals or perineum in either sex
- HPV types 6 & 11 (also HPV type 8 and mainly HPV6)

*Tend to recur but only rarely progress into in situ or invasive cancers
(here we mean HPV types 6 , 11 , 8 infections not types 16 & 18)



Diseases of penis, Condyloma Acuminatum, cont'd

- In the penis, mostly about the coronal sulcus and inner surface of the prepuce
- Single or multiple sessile (ملتصقين بالقاعدة على الجلد) or pedunculated (ملتصقة بعنق) , red papillary excrescences that may be up to several millimeters in diameter (or can be confluent like cauliflower مدمجة مع بعضها كالقرنبيط)
- Histologically:
 - a branching, villous, papillary connective tissue stroma (fibrovascular core) is covered by epithelium that may have considerable superficial hyperkeratosis and thickening of the underlying epidermis (**acanthosis**)
 - koilocytic atypia (viral cytopathic changes in squamous epithelium occur as a result of HPV infection)
 - no dysplasia (the lesion is a pathologic hyperplasia that is not carcinoma or carcinoma in situ, there is no dysplasia but koilocytic atypia)
 - normal orderly maturation of the epithelial cells is preserved (the defect/loss of maturation will be found if there is a dysplasia)



Malignant tumors of penis

- Squamous Cell Carcinoma in Situ (CIS):

...Bowen disease and Bowenoid papulosis (both have the same appearance in the microscope with different clinical presentation)

...strongly associated with HPV...especially 16 (associated with cancerous types like HPV type 16)

*Bowen disease:

...in the genital region of both men and women

...usually older than 35 (older than bowenoid papulosis)

...in men: mainly the skin of the shaft of the penis and the scrotum

...grossly: a solitary(Bowenoid >> Multiple), thickened, gray-white, opaque plaque...may be red

...histologically:

- numerous mitoses, some atypical

- the cells are markedly dysplastic with large hyperchromatic nuclei and lack of orderly maturation (also a mitosis, and pleomorphism in all layers of epithelium)

- intact basement membrane

...transform into cancer over many years in 10% of the cases



Malignant tumors of penis, cont'd

*Bowenoid papulosis

- (both men and women)
- Younger age
- Multiple (rather than solitary)
- Reddish brown papular lesions
- Histologically indistinguishable from Bowen disease
- It virtually never develops into an invasive carcinoma
- Many cases regress spontaneously



Malignant tumors of penis, invasive squamous cell carcinoma

(very rare in Jordan but in other region like Africa it could be 20% of cancers in males)

- Most commonly on the glans penis or prepuce
- Ages: 40-70
- More with HPV (especially 16,18), poor hygiene, in the non-circumcised, smoking
- Grossly: papillary or flat and ulcerated (can be papillary exophytic growth, flat indurated **تبيس بالجلد** ulcerated skin lesion or can be large take cauliflower appearance)
- The prognosis is related to the stage of the tumor
- A variant called: verrucous carcinoma is locally invasive but rarely metastasize



Cryptorchidism & testicular atrophy

- Cryptorchidism = failure of testicular descent into the scrotum(the testes descend from the abdominal cavity into the plevis this stage depend on mullerian inhibitory factor and then through the inguinal canals into the scrotum this stage depend on androg)
- The diagnosis of cryptorchidism is only established with certainty after the age of 1 year, particularly in premature infants, because testicular descent into the scrotum is not always complete at birth...However, current recommendations are to correct at 6-12 months
- By 1 year of age, cryptorchidism affects 1% of the male population
- Bilateral in approximately 10-25% of affected patients(mostly unilateral) (Usually doesn't associated with anomalies but maybe come with hypospadias in which the opening of the urethra is on the underside of the penis instead of at the tip)
- (by the time) Undescended testes become atrophic & bilateral cryptorchidism causes sterility (histologically changes begin to appear by 2 years of age on undescended testis, then defect in maturation of germ cells or tubular changes occur by the time)
- Even unilateral cryptorchidism may be associated with atrophy of the contralateral descended gonad and therefore may also lead to sterility



Cryptorchidism & testicular atrophy, cont'd

(– an undescended testicle : most often seen in inguinal canal more than abdominal region: 1)at higher risk of trauma and 2) 10-20% of cases at increased risk of inguinal hernia at the same side.)

- In addition to infertility, failure of descent is associated with a 3- to 5-fold increased risk of testicular cancer...even in the contralateral testis(refers to some intrinsic abnormality)
- Surgical placement of the undescended testis into the scrotum (orchiopexy) before puberty decreases the likelihood of testicular atrophy and reduces but does not eliminate the risk of cancer and infertility
- Atrophic changes similar to those in cryptorchid testes may be caused by several other insults, including:
ischemia , trauma, irradiation, and antineoplastic chemotherapy, as well as conditions associated with chronically elevated estrogen levels (e.g., cirrhosis)
(Chronic ischemia / testicular torsion)mechanical obstruction (block the venous drainage may develop to red infarction(which cause cutting off the flow of blood to the attached testicle make it under the risk of testicular atrophy /bacterial and viral infections like mumps and COVID-19)



Testicular neoplasms

(In young adults the most probably to occur are testicular cancer, melanoma, thyroid cancer and hematological malignancies.)

- They include

...germ cell tumors (95%)...mostly malignant

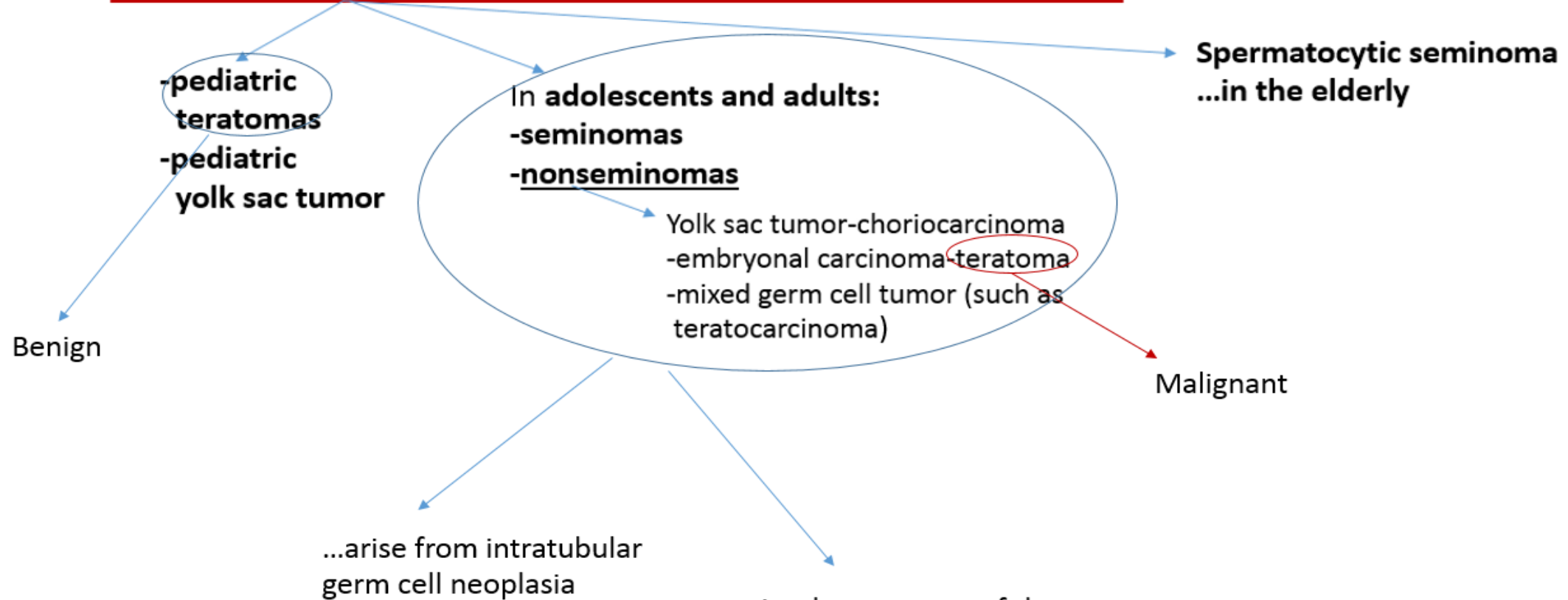
...sex cord–stromal tumors...mostly benign (Sertoli and leydig cells they are derived from the epithelial sex cords of the developing gonads. Sertoli cell tumor and leydige cell tumor named as sex cord–stromal tumors ,they are uncommon and occur in both testes and ovaries).

- In postpubertal males, all germ cell tumors are malignant
- In the 15- to 34-year-old age group (young adults), testicular cancer the most common solid malignancy in males
- More common in whites
- A history of cryptorchidism is present in 10% of testicular cancer cases
- Intersex and testicular dysgenesis syndromes are at increased risk (intersex syndrome like hermaphrodites)(testicular dysgenesis syndromes characterized by the presence of symptoms and disorders such as hypospadias, cryptorchidism and abnormal sperm characteristic , can caused by environmental factors(during uterine life) or genetic factor)
- Family history...brothers of males with germ cell tumors have an 8- to 10-fold increased risk

... I mean malignant germ cell tumors



Testicular germ cell neoplasms



(Seminomas and nonseminomas of adult and Adolescent all arise from the in situ lesion intratubular germ cell neoplasia and foci of these in situ lesions are common to be found adjacent to tumor)

isochromosome of the short arm of chromosome 12, i(12p)

(characterized by the presence of chromosomal abnormality called isochromosome of the short arm of chromosome 12, i(12p), an mutated copy of chromosome 12 formed by the duplication of short arm with deletion of the other long arm.



- ✓ Klinefelter syndrome patients at high-risk to develop testicular neoplasm in the mediastinum not in the testis.
- ✓ The development of testicular germ cell neoplasm in one testis also is associated with a markedly increased risk for neoplasia in the contralateral testis
- ✓ In the testes of the Pediatric, there are two types of germ neoplasm, teratoma and yolk sac tumours
- ✓ Testicular teratomas in the adult are malignant but in the Pediatric benign
- ✓ Teratocarcinoma > teratoma with embryonal carcinoma.
- ✓ Three categories (the first two category are classical types)

Testicular germ cell neoplasms, notes

- Pediatric yolk sac tumor is the most common primary testicular neoplasm in children younger than 3 years of age...followed by pediatric teratoma
- Pure teratoma is rare in adults...more commonly as part of mixed germ cell tumor(Dermoid cysts and epidermoid cysts are pure teratoma: common in the ovary & rare in the testis)(teratoma is a tumor composed of mature fetal tissue derived from three embryonic layers and if the differentiation occur toward the skin then we called it dermoid)
- Pure yolk sac tumor is also rare in adults (more commonly as part of mixed germ cell tumor)
- Seminoma is the most common testicular neoplasm in young adults...peak in 3rd decade
- Spermatocytic seminoma...age >60...much better than classic seminoma

EXTRA > Both dermoid and epidermoid from ectoderm layer.

Dermoid contains epidermis and skin appendages.

Epidermoid contains squamous epithelium(epidermis only).



Testicular germ cell neoplasms...notes, cont'd

- The tumor marker for choriocarcinoma: beta-hCG (high elevated)
...also in 10-15% of seminoma cases...doesn't affect the prognosis (low elevated)
- The tumor marker for yolk sac tumor: alpha fetoprotein (AFP)
- Pure choriocarcinoma is the worst
...may spread without testicular enlargement (associated with hemorrhage and necrosis mostly)
...the lung and liver are virtually involved...hematogenous spread
- Embryonal carcinoma is bad
- Behavior of mixed germ cell tumor depends on its elements...and also different tumor markers can be elevated
- Seminomas are better than nonseminomas
...tend to remain localized for a long time
...radiosensitive

(Tumor markers permitting evaluation of patients with suspected testicular neoplasms, offering tumor burden, staging, measurement of disease progression and response to therapy.)



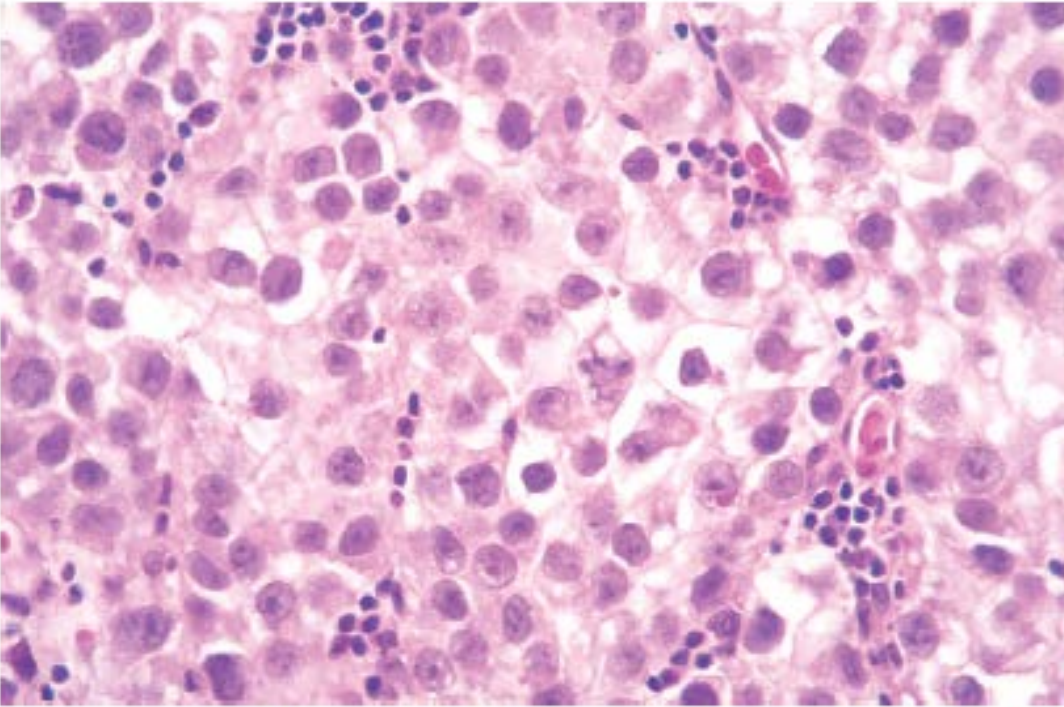
Testicular germ cell neoplasms...notes, cont'd

- Present most frequently with a *painless testicular mass* that (unlike enlargements caused by hydroceles) is non-translucent

(a hydrocele is a type of swelling in the scrotum that occurs when fluid collects in the sheath surrounding a testicle and to diagnose it your doctor will shine a light through the scrotum, If fluid is present, the scrotum will allow light transmission and the scrotum will appear to light up with the light passing through>translucent. However, if scrotal swelling is due to a solid mass (cancer), then the light will not shine through the scrotum> non-translucent.)(hematocelea swelling caused by blood collecting in a body cavity and it is >non-translucent.)

- Biopsy of a testicular neoplasm is associated with a risk of tumor spillage, which would necessitate excision of the scrotal skin in addition to orchiectomy
- LDH serum marker is also increased according to the tumor burden

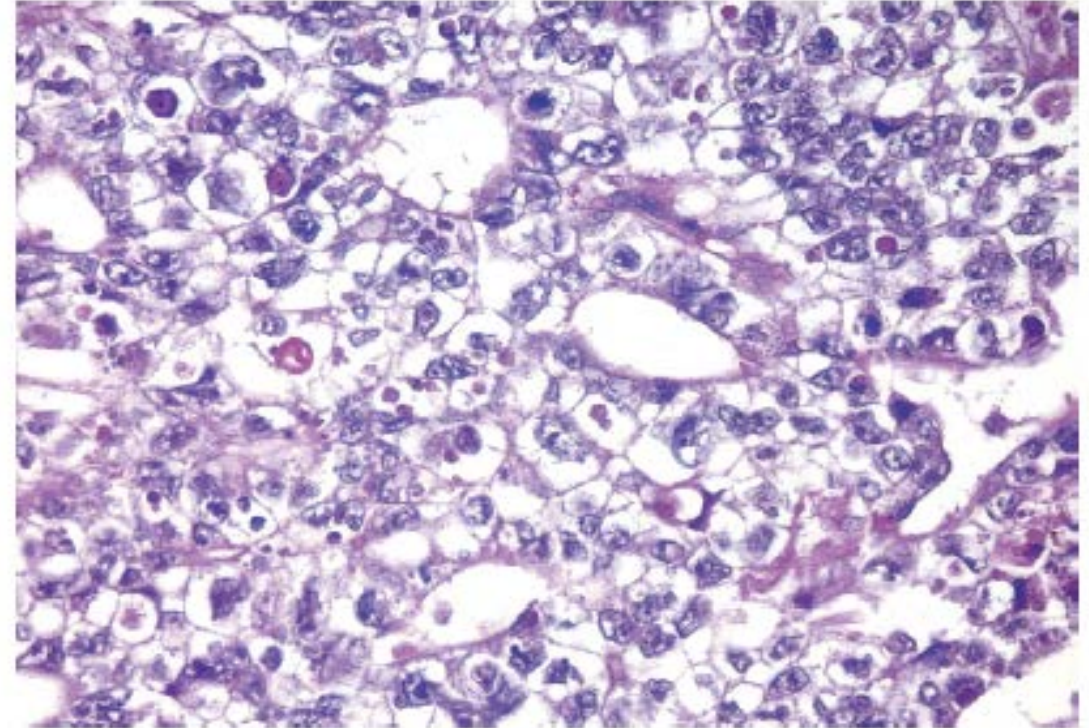




Seminoma of the testis. Microscopic examination reveals large cells with distinct cell borders, pale nuclei, prominent nucleoli, and a sparse lymphocytic infiltrate.

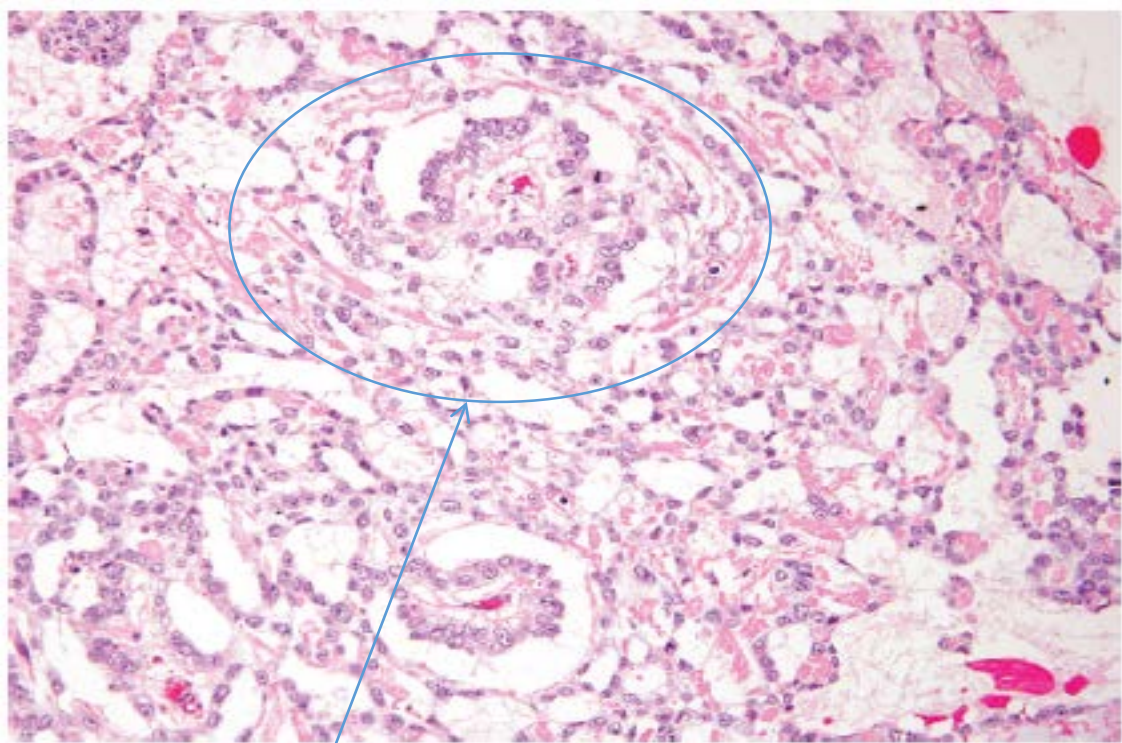
(Seminoma is a germinal cell tumor composed of clear to pale glycogen-rich cytoplasm, large distinct borders with polygonal architecture cells, enlarged nuclei, prominent nucleoli, chronic inflammation between cells as lymphocytes or as granulomatous reaction)

(Has malignant appearance, these tumor cells are highly atypical with large nuclei and hyperchromatic, crossly associated with hemorrhage and necrosis/ malignant epithelium maybe make appearance resembling glandular structure.)



Embryonal carcinoma. Note the sheets of undifferentiated cells and primitive gland-like structures. The nuclei are large and hyperchromatic.





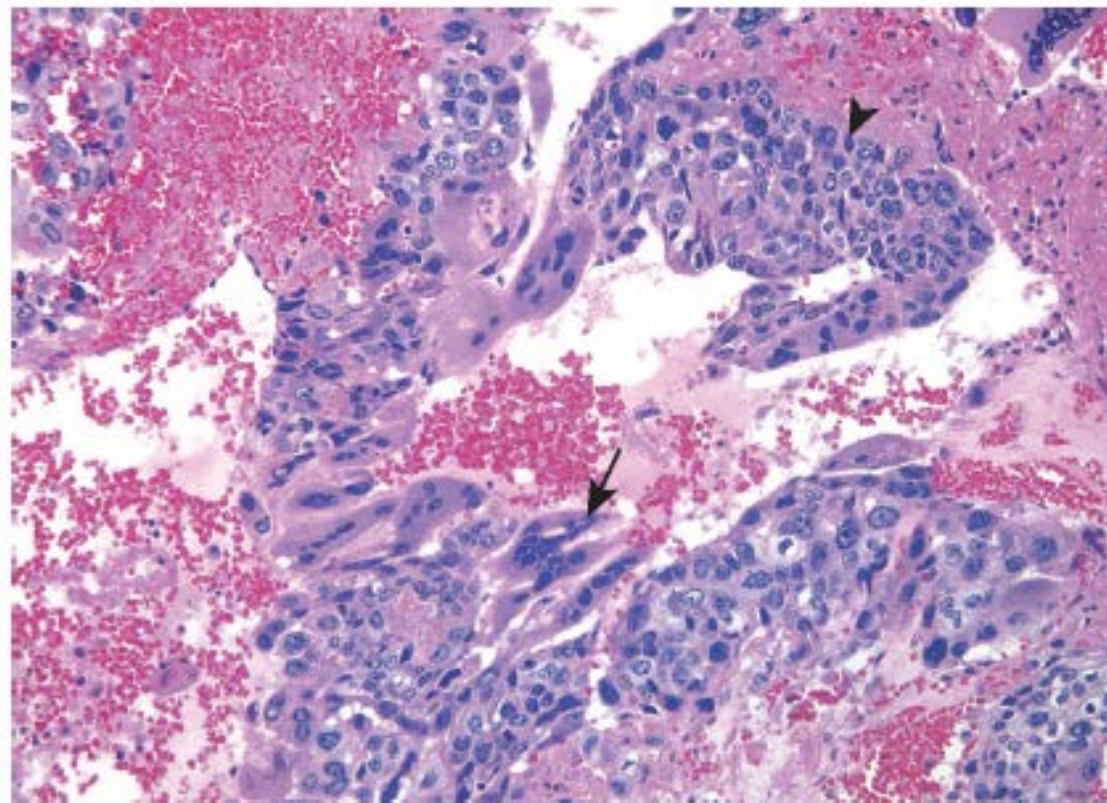
Yolk sac tumor demonstrating areas of loosely textured, microcystic tissue and papillary structures resembling a developing glomerulus (Schiller-Duval bodies).

If found, they are pathognomonic for yolk sac tumor

- * endodermal sinus tumors (yolk sac tumors)
- * Spaces in background are microcystic or reticular patterns, the cells draw loose network of anastomosing channel.
- * Schiller-Duval bodies are said to resemble a developing glomerulus, they have a core with a central capillary, all lined by flattened layers of both visceral and parietal cells, appears in 50% of cases.

The every note in this slide important

These tumors often show necrosis and hemorrhagic, there are two types of cells: cyto- and syncytiotrophoblasts. مدمجة خلوية



Choriocarcinoma. Both cytotrophoblastic cells with central nuclei (arrowhead, upper right) and syncytiotrophoblastic cells with multiple dark nuclei embedded in eosinophilic cytoplasm (arrow, middle) are present. Hemorrhage and necrosis are prominent.



Thank You

