FEMALE GENITAL SYSTEM PATHOLOGY
Lec. 7

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Germ cell ovarian tumors

Represent 15% to 20% of all ovarian tumors

Usually occur in women of reproductive age (70% of all ovarian tumors in age < 20 Ys and 65% of all **ovarian malignancies** in age < 20 Ys)

NOTE: All Ovarian GCTs are considered Malignant Except Teratoma.

Classification:

A. Undifferentiated→ Dysgerminoma the most common.

B. Differentiated:

i. Extraembryonal differentiation:

1. Chorio carcinoma (non-Gestational)
2. Endodermal sinus tumor (Yolk .Sac tumor)
3. Extraembryonal carcinoma
4. Polyembryoma.

ii. Embryonal differentiation: Teratoma:

1. Immature:
- **a. Cystic**
- **b. Solid.**
- **c. Mixed**

2. Mature:
- **a. Cystic –**
- **b. Solid**

3. Monodermal (Specialized)
1. **Struma ovarii**
2. **Carcinoid**
3. **Mixed**
4. **Others**

iii. Mixed (diff.& undiffi):

iv. Mixed Germ cell & Specialized Gonadal Stroma.
- Gonadoblastoma.

A- Undifferentiated Germ Cell tumors :

Dysgerminoma:

Incidence: the most common germ cell tumor after teratoma.

- **Uncommon..**
- **Age: any age but commonly 10-30ys.**
- **20% are associated with pregnancy.**
- **Most have no endocrine hormonal function.**
- **Unilateral and solid mass.**

- **All dysgerminomas are low grade malignant tumor , but only about one third are highly aggressive.**
- **Because they are radiation and chemo-sensitive, overall survival exceeds 80%.**
- ***Is the ovarian counterpart of testicular seminoma.***

Gross Appearance:

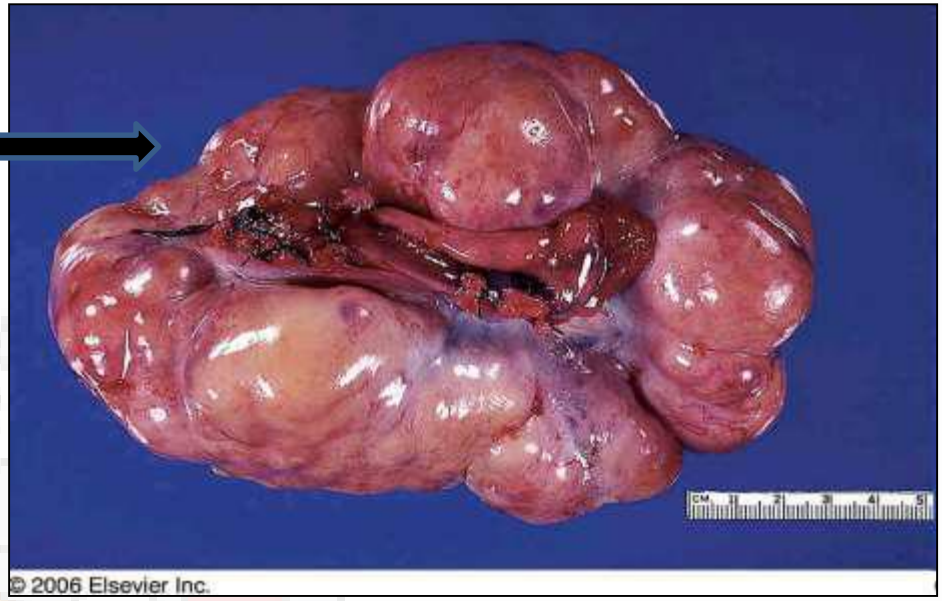
Often: large: may be >1000g

Solid , firm

convoluted surface

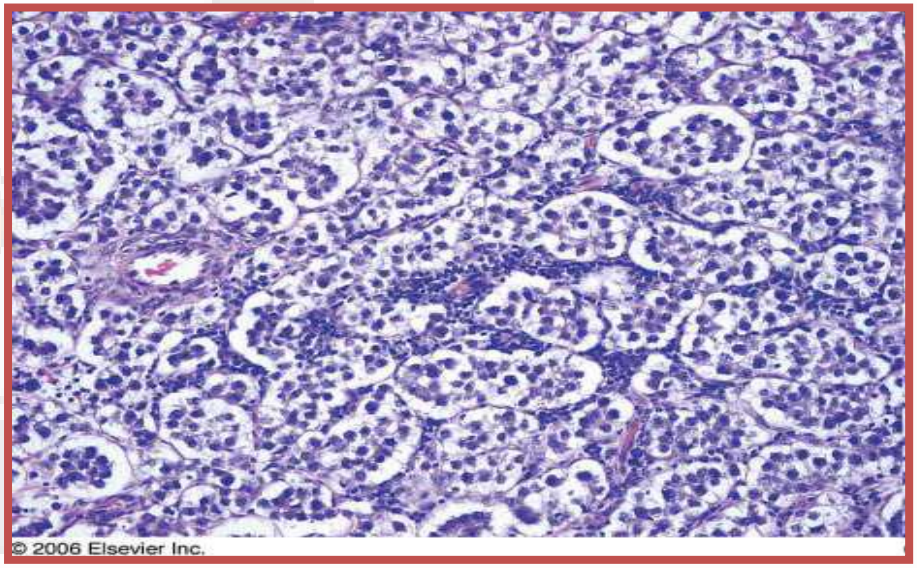
Cut surface of ovarian dysgerminoma.

The multinodular solid quality with Haemorrhage and necrosis.



Microscopic:

- Lesions consist of sheets and cords of large round to oval with pale cytoplasm & dark nuclei cells arranged in alveolar pattern & separated by scant fibrous stroma



B- Differentiated Germ Cell Tumors:

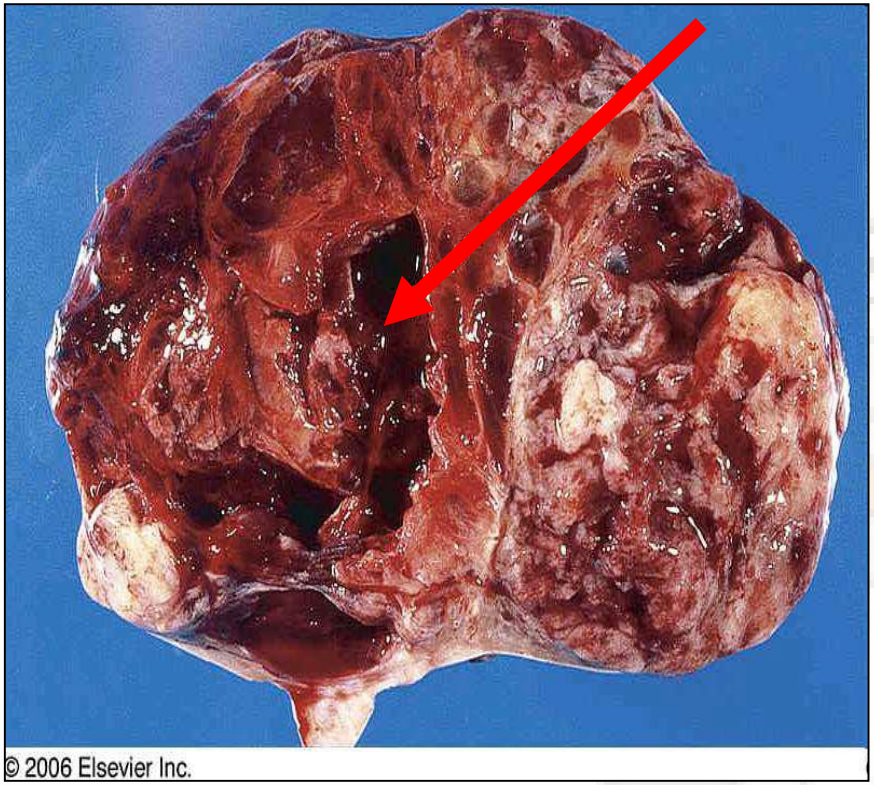
a. Extraembryonic Differentiation:

1- *Endodermal Sinus* (Yolk Sac) *tumor*:

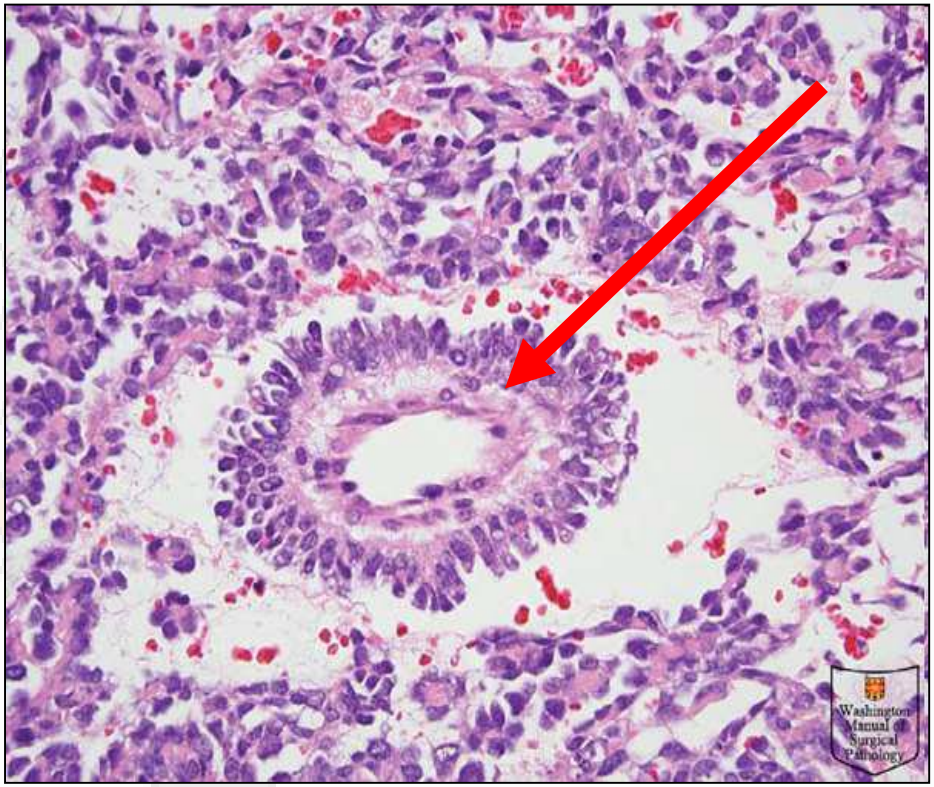
- Developed from differentiation of primitive malignant germ cell elements in the direction of yolk sac .
- Highly malignant tumor
- Incidence: 20% of germ cell tumors.
- Usually children and young adults: Median age 16-18 years ≈25% pre pubertal at diagnosis
- Unilateral in 100%
- Serum AFP level invariably elevated
- Highly aggressive, and associated with other germ cell tumor(*Dysgerminoma*)

Prognosis: bad due to:

- Highly aggressive malignancy.
- Advanced stage at diagnosis.
- Radio resistant tumor



Average diameter 15cm
External surface: smooth & glistening Cut surface: partially cystic and solid often with large foci of hemorrhage and Necrosis



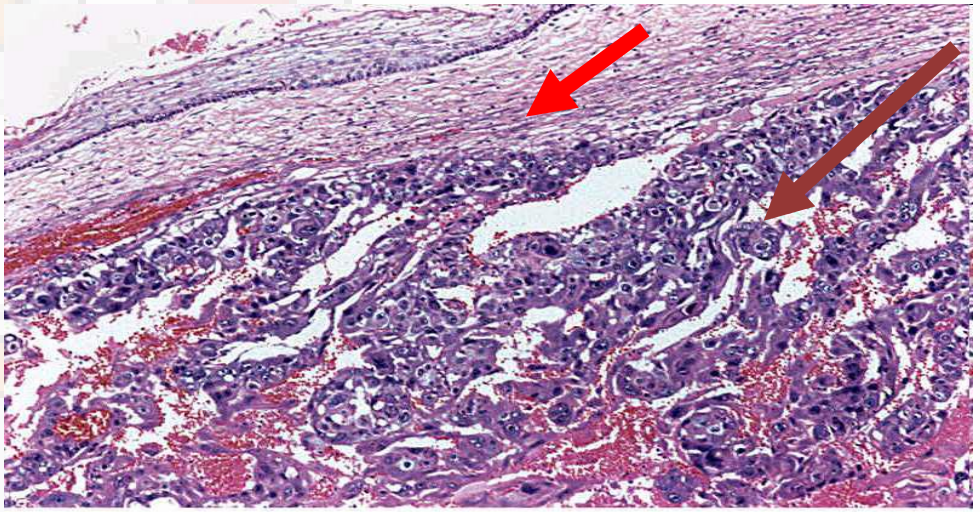
characteristic Schiller– Duvall bodies (papillary malignant
fibro vascular core containing a single central core and lined by poorly differentiated flat or cuboidal cells with free space around papillae) .

2- Ovarian Choriocarcinoma

- **Non Gestational: germ cell** Malignant tumor of the ovary with trophoblastic differentiation composed of syncytiotrophoblast, cytotrophoblast and intermediate trophoblast. Which is either :-

- **Pure choriocarcinoma.**
- **Mixed with other germ cell tumor.**

- They are identical to placental malignancies and elaborate chorionic gonadotropins HCG.
- Rare, aggressive, highly malignant, metastasizes widely through the bloodstream to the lungs, liver, bone etc.
- Radio resistant AND chemo resistant.



Typical admixture of syncytial and cyto trophoblastic elements in a necrotic and Hemorrhagic background

Embryonal differentiation :
Teratomas

❖ Are 15-20 % of ovarian tumors. Majority occur in the first 2 decades

❖ The tumors are subdivided into mature, immature and monodermal.

❖ Mature cystic teratoma are the most common. They are benign.

❖ Immature teratomas are malignant and rare.

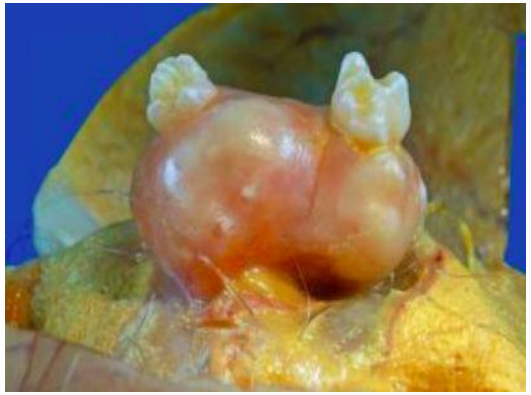
❖ The younger the patient, the greater the likelihood of malignant behavior

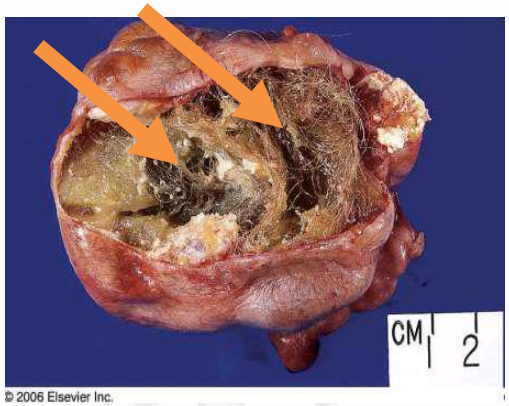
Mature benign cystic teratoma (dermoid cyst).

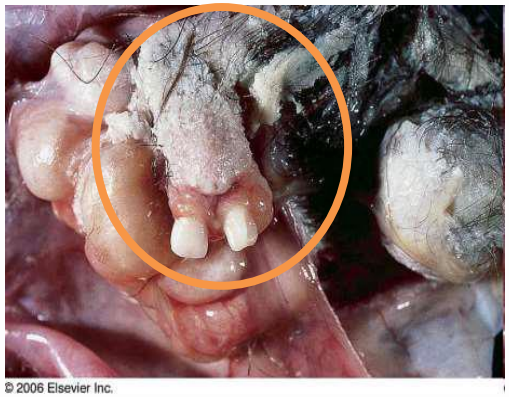
- Is the most common ovarian germ cell tumor and the most common type of ovarian teratoma
- Also most common ovarian tumor < 20 Ys

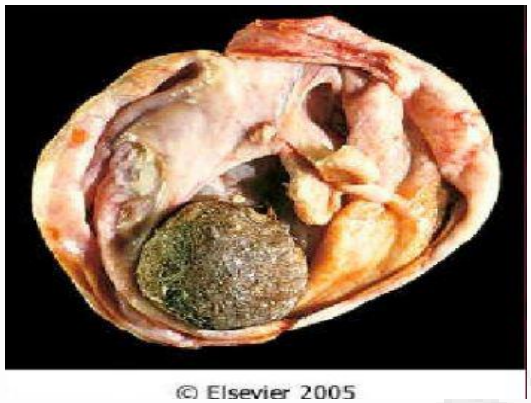
(The most common ovarian tumor is surface epithelial cell tumors and the most common ovarian germ cell tumor: mature cystic teratoma).

- 90% unilateral.
- Usually benign.
- **Composed of mature elements of the ectoderm, endoderm and mesoderm and is a cystic tumor, filled with sebaceous material and hair and occasionally teeth.**
- **Usually these tumors contain cysts lined by epidermis with adnexal**
- **appendages—hence the common designation dermoid cysts**
- The vast majority of such tumors are cured by excision; 1% undergo malignant transformation, most commonly as squamous cell carcinoma.
- Complications include: torsion, rupture (hemorrhage), infection etc









On cut section, they often are filled with sebaceous secretion and matted hair that, when removed, reveal a hair-bearing epidermal lining . Sometimes there is a nodular projection from which teeth protrude. Occasionally, foci of bone and cartilage, nests of bronchial or gastrointestinal epithelium, or other tissues are present.

- Cystic cavities lined by

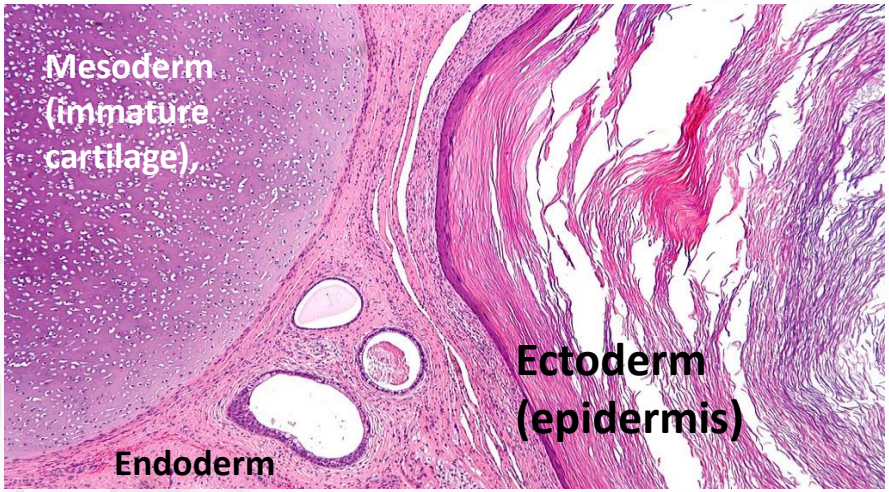
mature epidermis as ectodermal derivatives
* skin appendages (sweat & sebaceous glands & hair follicles)
* neural (particularly glial) tissue

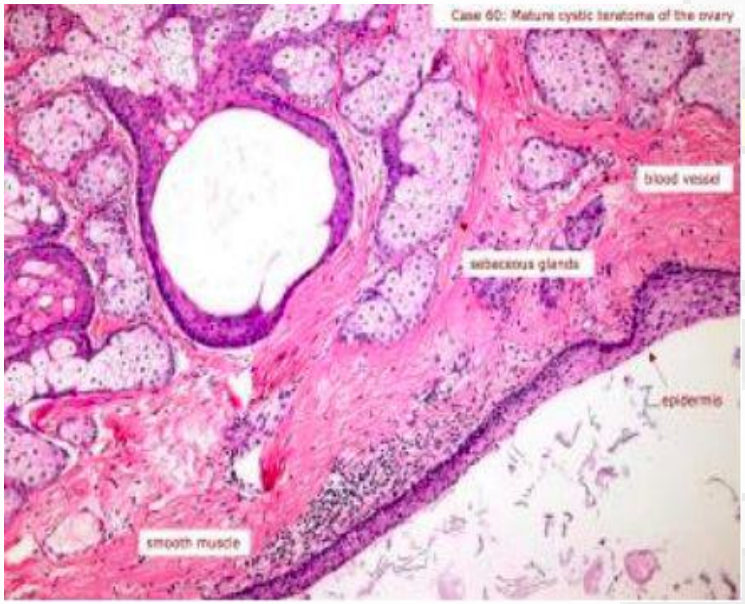
- Also mesodermal derivatives :

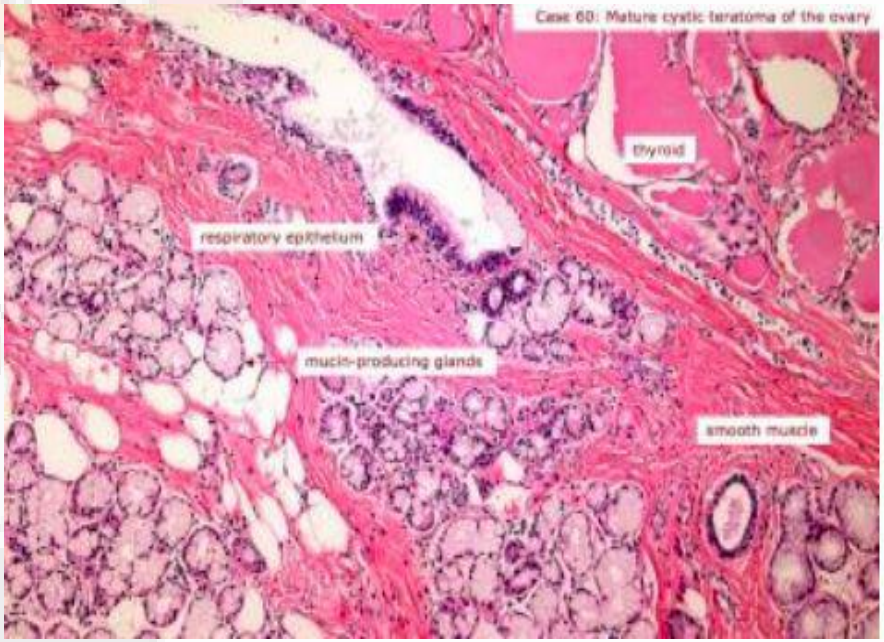
* cartilage
* Muscles
* Bones

- Endodermal derivatives :

GIT , RT , Thyroid .....etc.

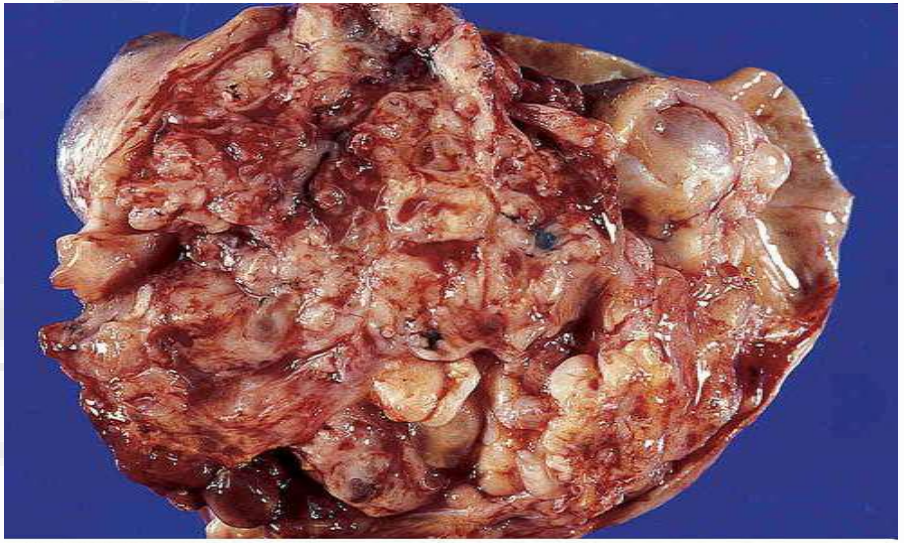






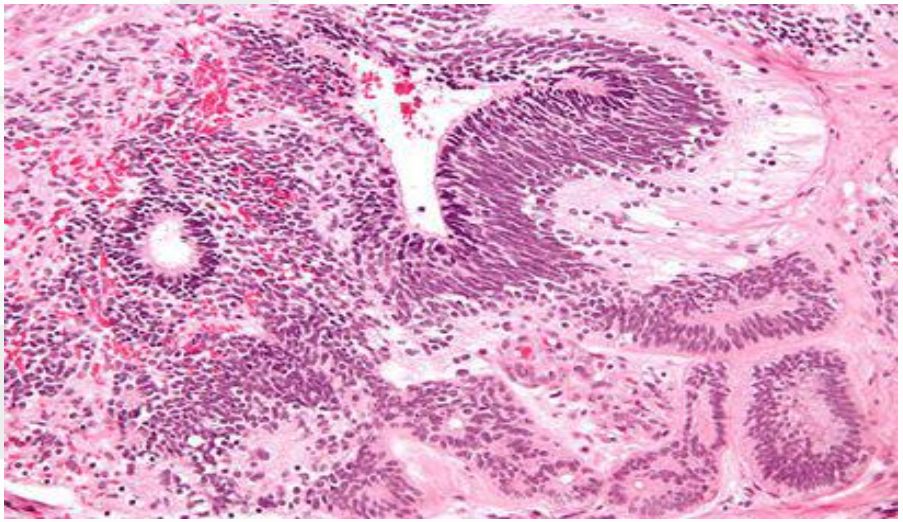
Immature Malignant Teratoma

- **the 2nd most common germ cell malignancy after dysgerminoma .**
- **It is very less common than benign teratoma**
- **Occur mostly in children with peak age is 19Ys**
- Composed of embryonic (rather than adult) elements resembling immature fetal tissues. These occur chiefly in adolescents and young women.
- Usually unilateral solid mass.
- Grow rapidly and frequently penetrate the capsule
- Even high-grade malignancies can respond well to chemotherapy.



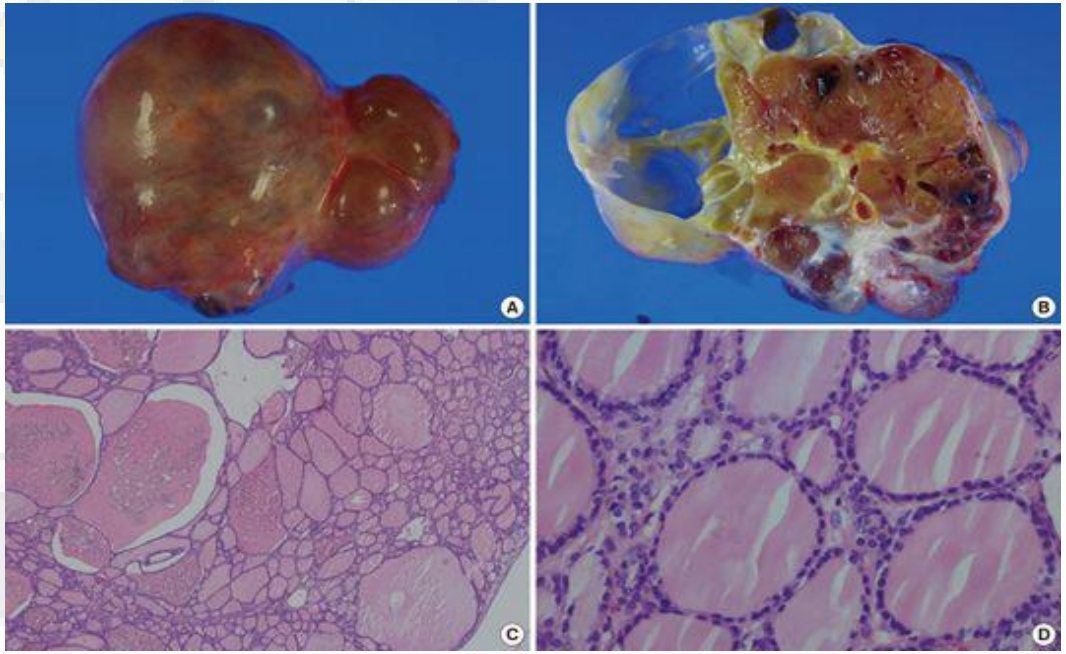
Grssly May be:
* solid throughout
* solid with multiple minute cysts
* predominantly cystic

Microscopically :- Similar to mature teratoma but in addition they contain immature or embryonal tissues especially immature neuroepithelial cells.



Monodermal teratoma:

- Uncommon neoplasm.
- A teratoma composed of one tissue element.
- The most common type of monodermal teratoma is called "struma ovarii", which is made up of mature thyroid tissue.
- The thyroid tissue can sometimes become malignant.
- Sometimes a carcinoid tumor can arise from it. In rare occasions.



Teratomas (of ovarian GCTs)		
A- Immature Cystic Teratoma	B- Mature Cystic Teratoma	C- Monodermal Teratoma
-Malignant, occurs in children and young adults. -Unilateral and solid. -contain immature or embryonal tissues especially immature neuroepithelial cells. -Grading is based on the amount of immature tissue.	**-The most common ovarian germ cell tumor** and the most common type of ovarian teratoma **-Benign** (composed of **Ectoderm, Endoderm, Mesoderm)** **-cystic** tumor, filled with **sebaceous materia, hair** and **teeth**. -Complications include: **torsion**, **rupture and infection**	-Composed of **one tissue element.** -The most common type of monodermal teratoma is called "**struma ovarii**", which is made up of **mature thyroid tissue.** -The thyroid tissue can sometimes become **malignant**. -Sometimes a **carcinoid tumor can arise from it.**


THANK YOU
FOR YOUR
ATTENTION