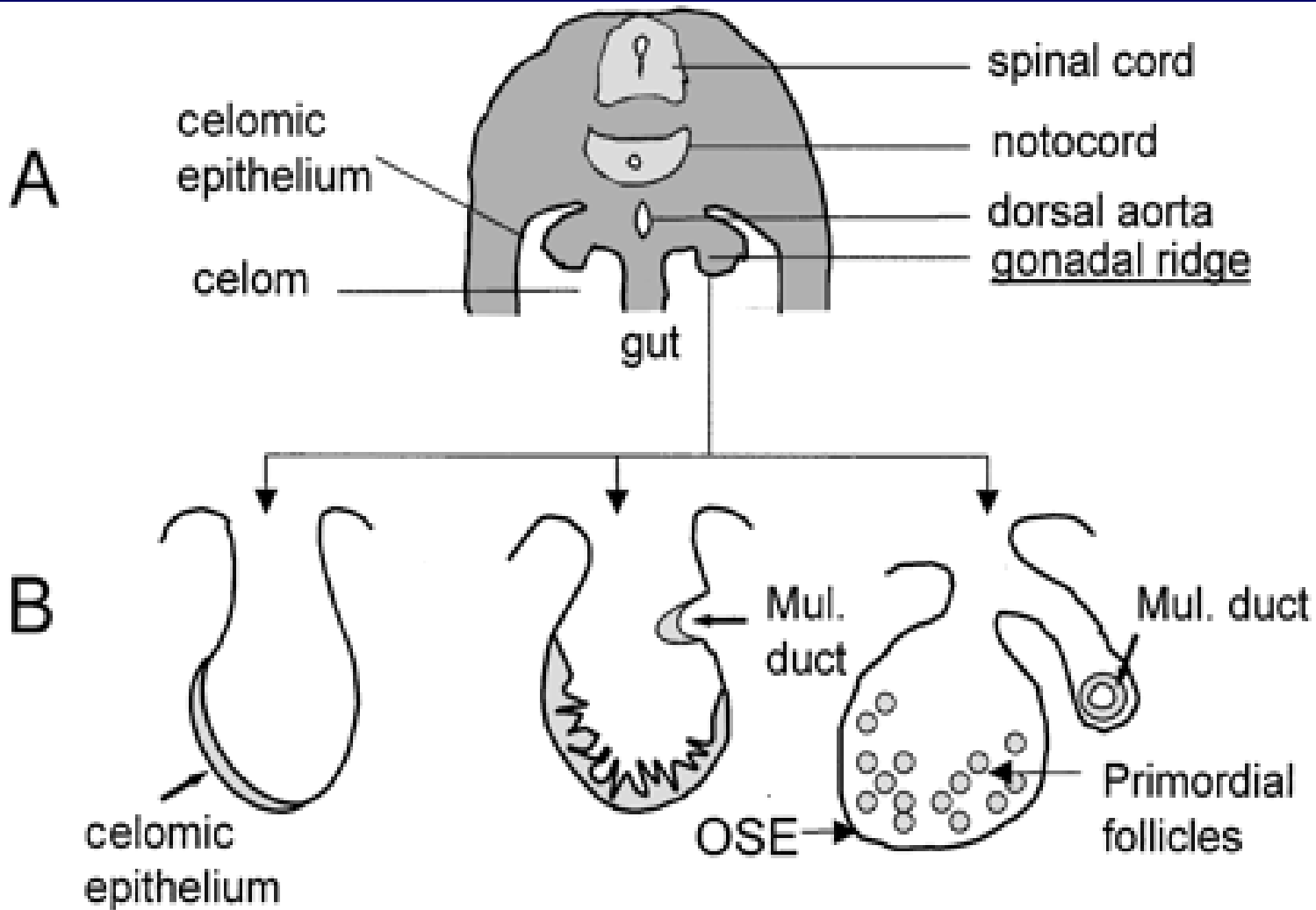


Benign tumours of the Ovary

Development of the ovary:

- It is of triple origin:
- Coelomic epithelium of the genital ridge.
- the underlying mesoderm
- Primitive germ cells



Embryo

stage: 25 somites

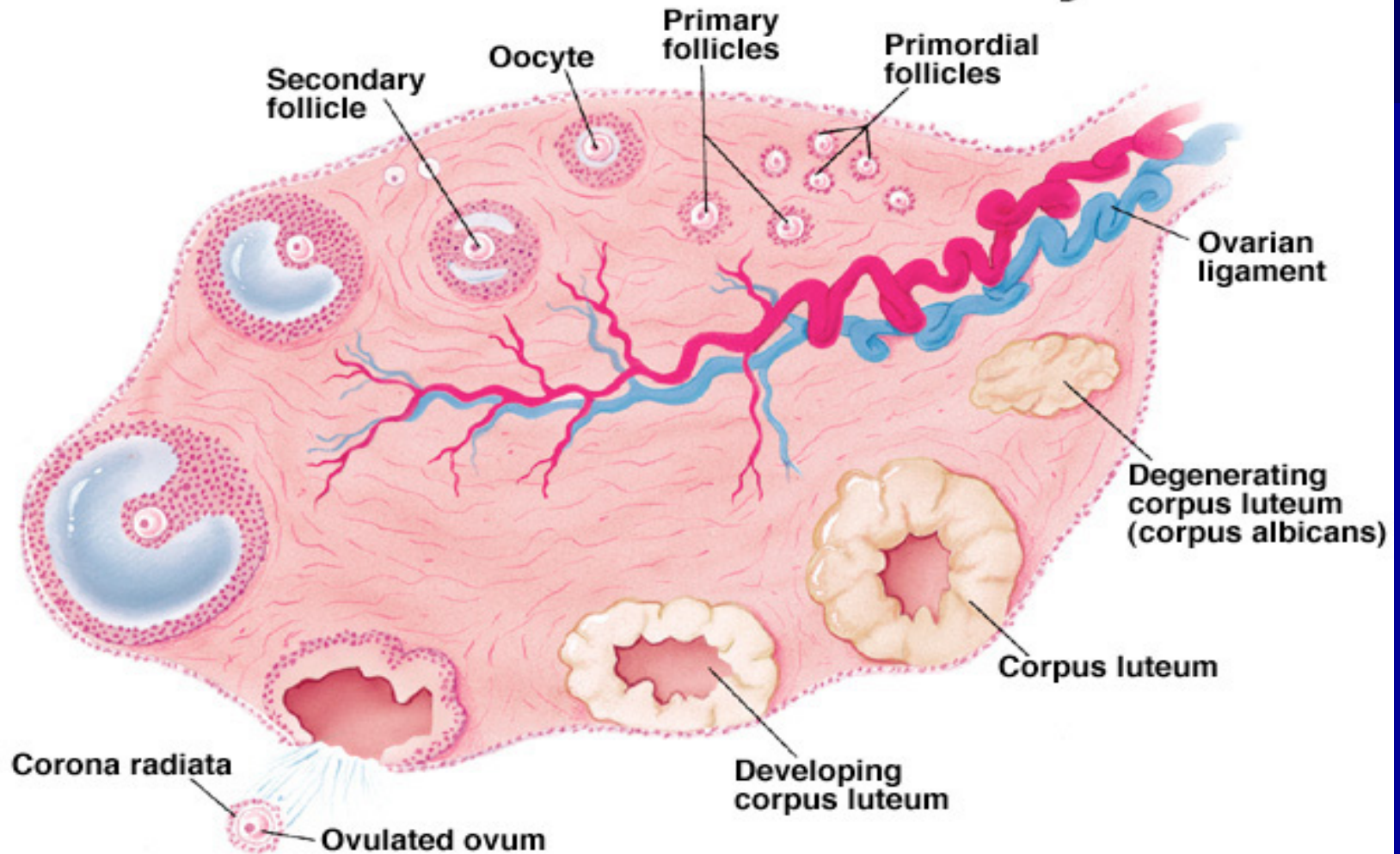
30 somites

14 weeks

Structure of ovaries:

- covered by a layer of simple cuboidal epithelium called germinal (ovarian) epithelium
- Underneath is a dense connective tissue capsule, the tunica albuginea
- an outer cortex contain follicles
- Medulla: loose connective tissue contain blood vessels and nerve fibers.

Structure of an Ovary



Physiological cyst:

- **Follicular cyst:** may persist for several menstrual cycles & may achieve a diameter of up to 10 cm.

may produce estrogen causing menstrual disturbance & endometrial hyperplasia

- **Luteal cyst:** Corpora lutea are not called luteal cyst unless they are more than 3 cm.

- Ovarian tumours are a group of neoplasms affecting the ovary and have a diverse spectrum of features according to the particular tumour entity. They include benign, low-malignant potential/borderline and malignant subtypes.

- **Histological Classification of benign ovarian tumours :**

- I- **Benign germ cell tumours:**

- **Dermoid cyst (mature cystic teratoma)**
- **Mature solid teratoma**

- II- **Benign epithelial tumours:**

- **Serous cystadenoma**
- **Mucinous cystadenoma**
- **Endometrioid cystadenoma**
- **Brenner tumours**
- **Clear cell (mesonephroid) tumours**

III- Benign sex cord stromal tumours:

- **Granulosa cell tumours**
- **Theca cell tumours**
- **Fibroma**
- **Sertoli-Leydig cell tumours**

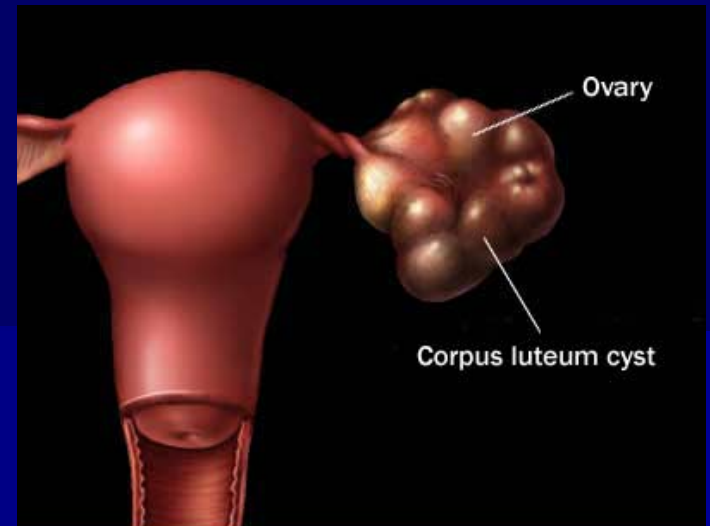
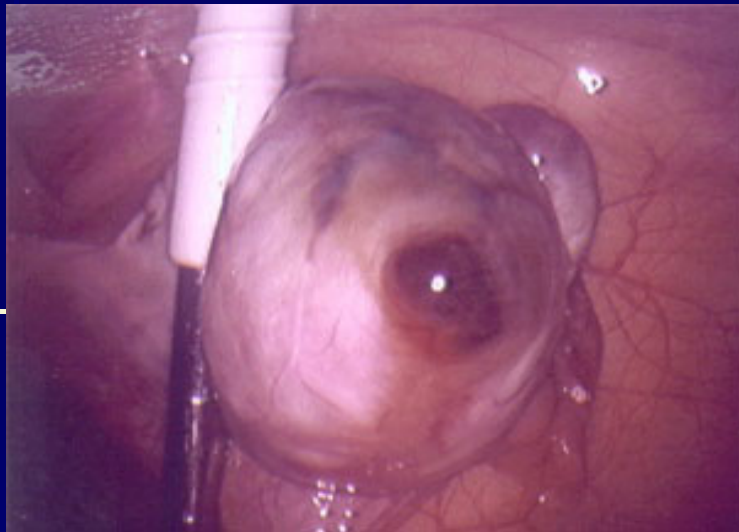
Benign germ cell tumours:

- The commonest ovarian tumours seen in women less than 30 years old.
- arise from totipotential germ cells & may contain elements of all three germ layers (embryonic differentiation).

Dermoid cyst (mature cystic teratoma):

- usually unilocular
- < 15 cm in diameter
- ectodermal structures are predominant. lined with epithelium like the epidermis & contains skin appendages, teeth, sebaceous material, hair & nervous tissue.
- Endodermal derivatives include thyroid, bronchus & intestine,
- the mesoderm may be represented by bone, cartilage & smooth muscle

- monodermal teratoma: The classic example is struma ovarii which contains hormonally active thyroid tissue.
- majority of dermoid cysts are asymptomatic. may undergo torsion or rupture spontaneously, either suddenly, causing an acute abdomen & chemical peritonitis; or slowly causing chronic granulomatous peritonitis.
- 2% contain malignant component

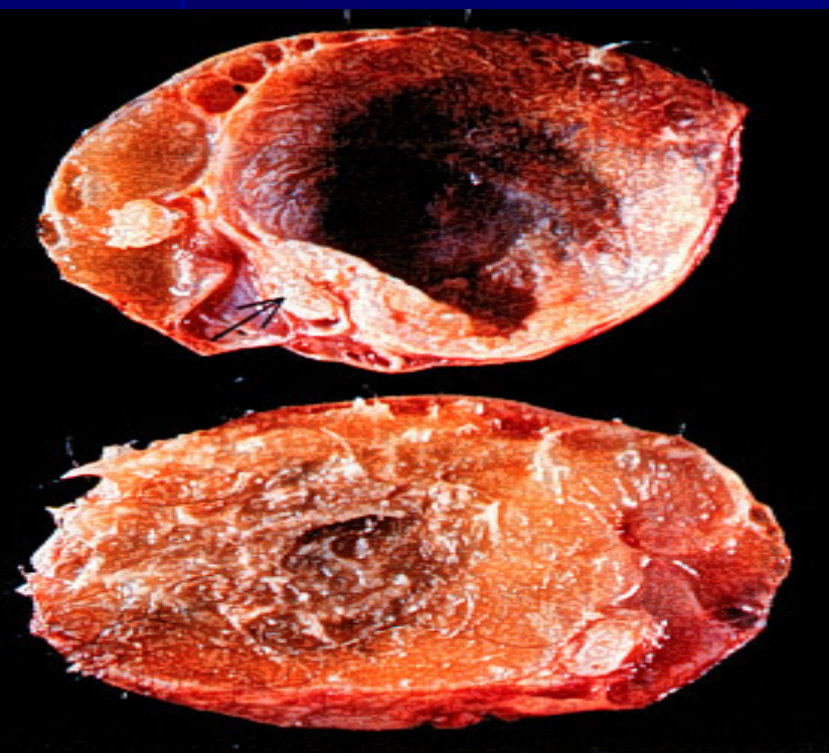
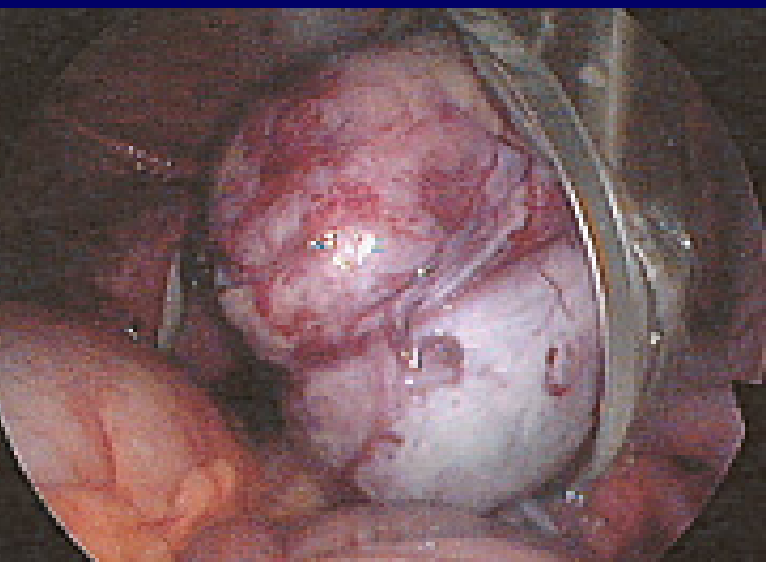


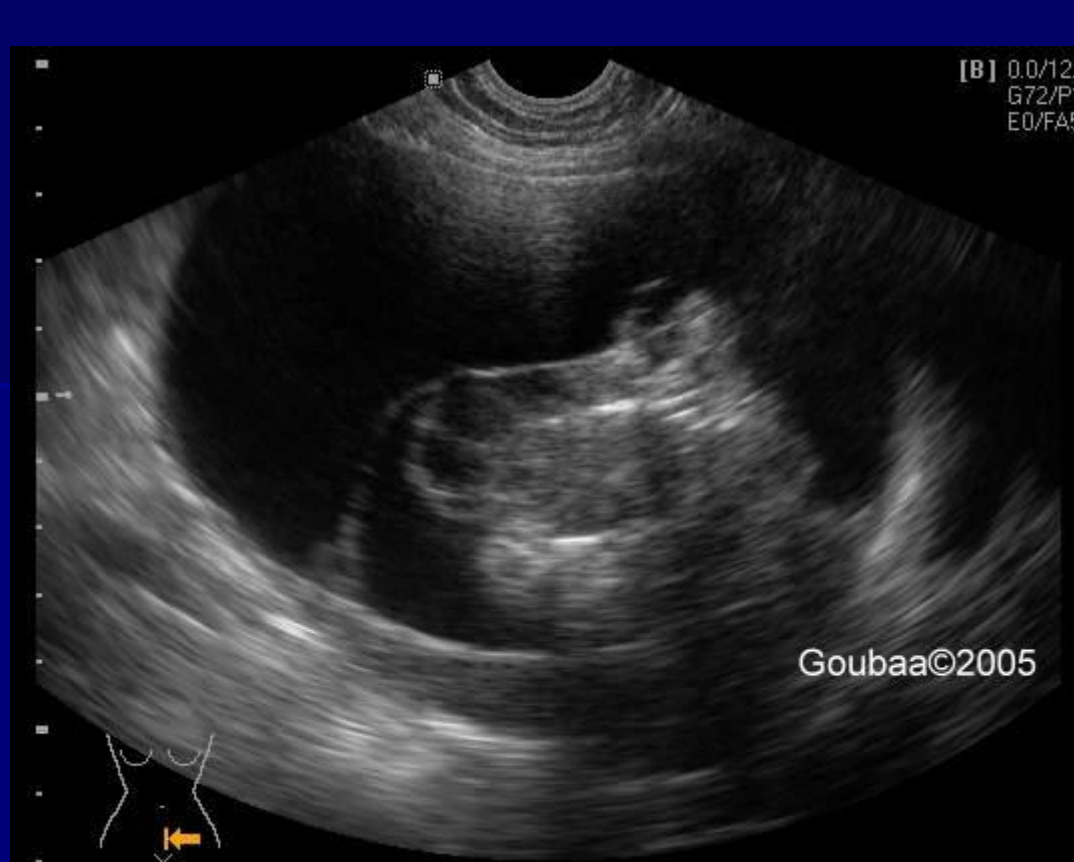
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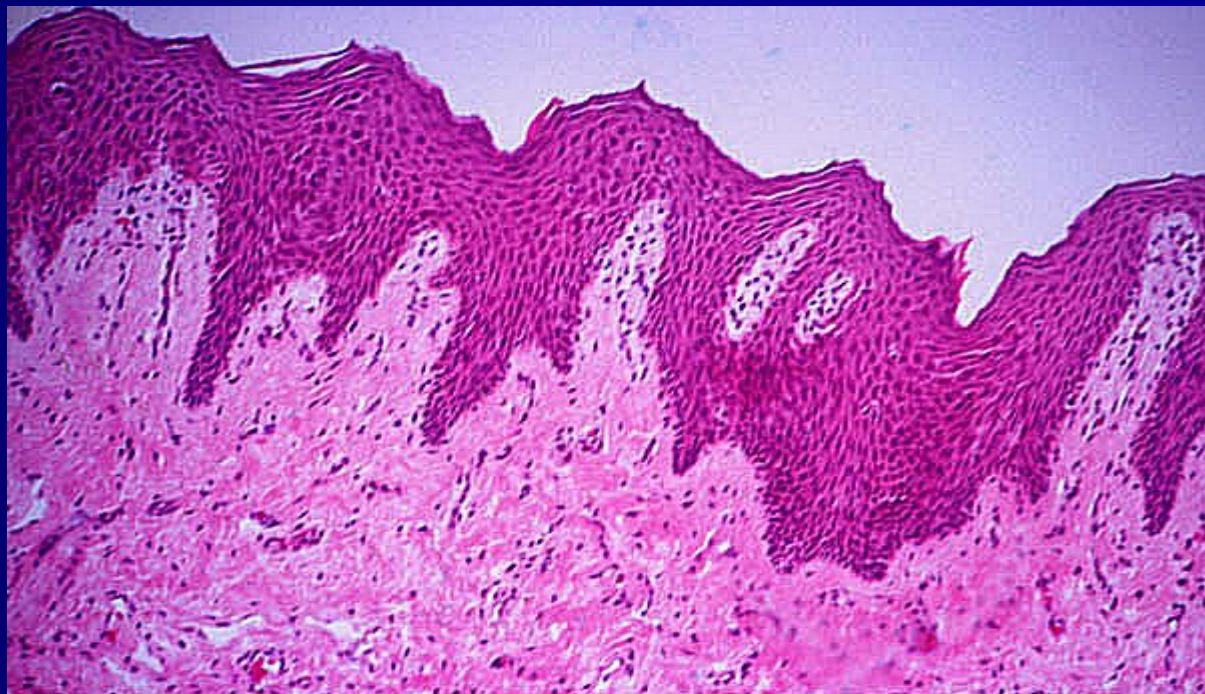
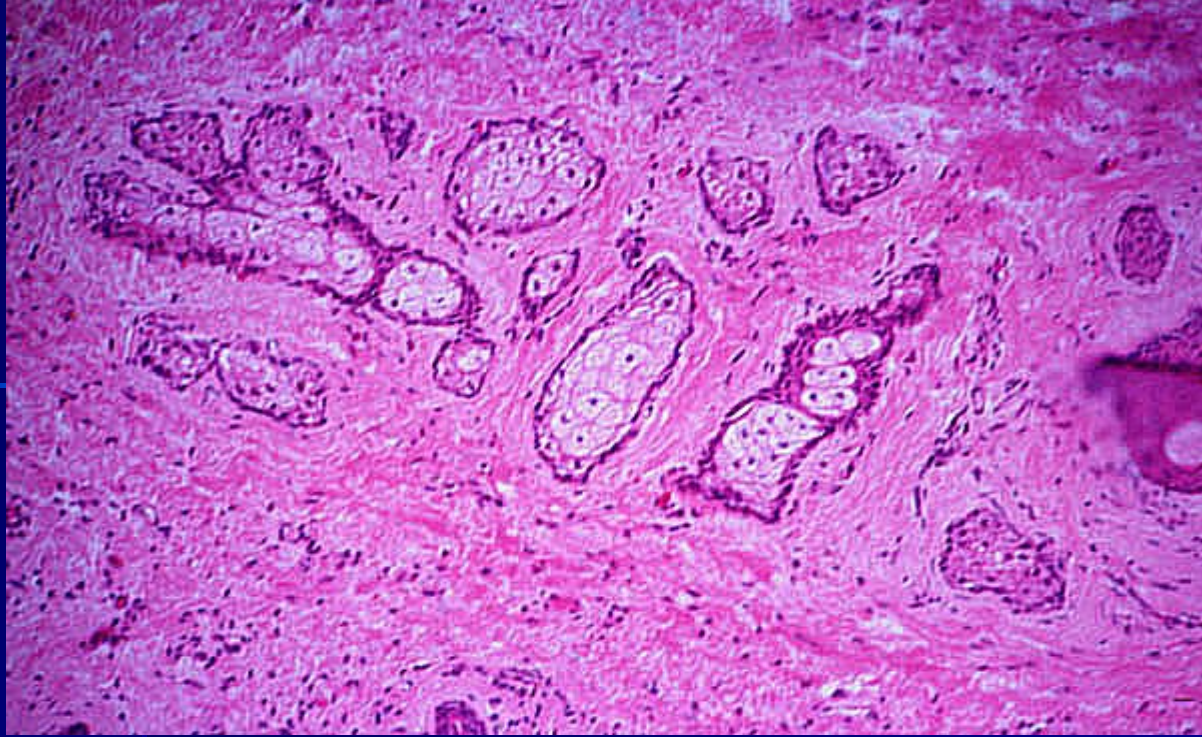


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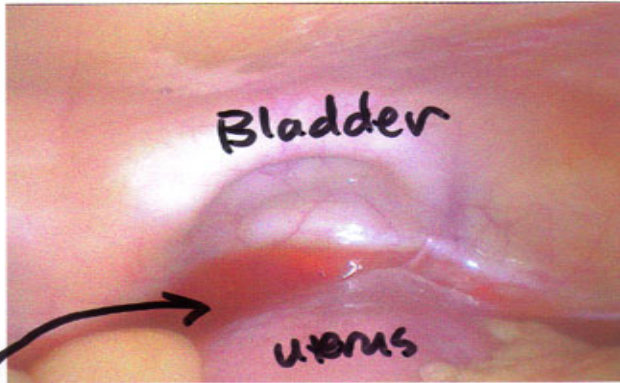


Mature cystic teratoma

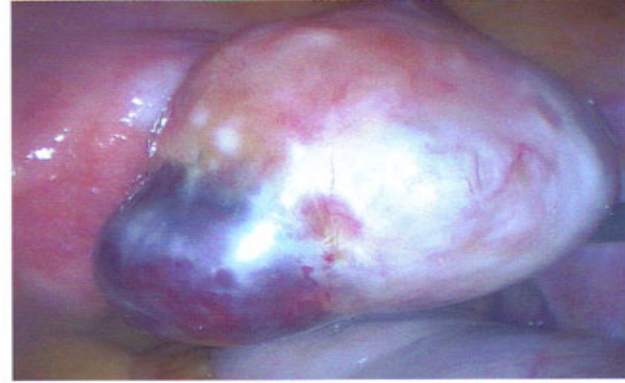


Benign epithelial tumour

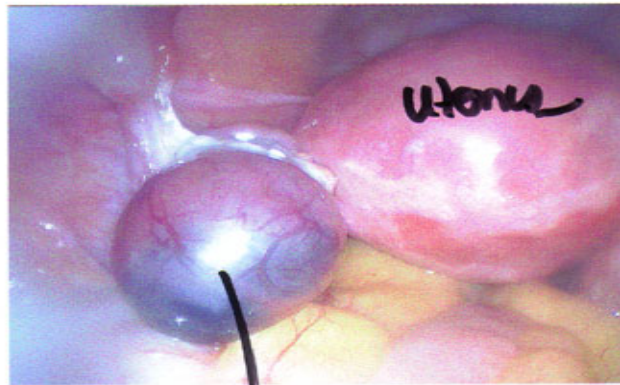
- derived from the coelomic epithelium from which develop Müllerian & Wolffian structures. Therefore this may result in development along endocervical (mucinous cystadenoma), endometrial (endometrioid) or tubal (serous) pathways or uroepithelial (Brenner) lines respectively.



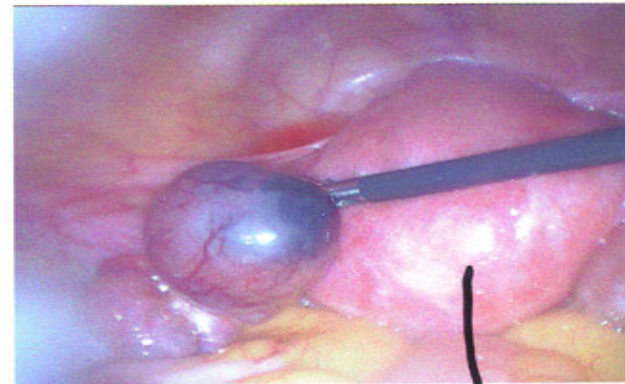
free fluid



R. ovarian cystic mass :
(Cystadenoma)



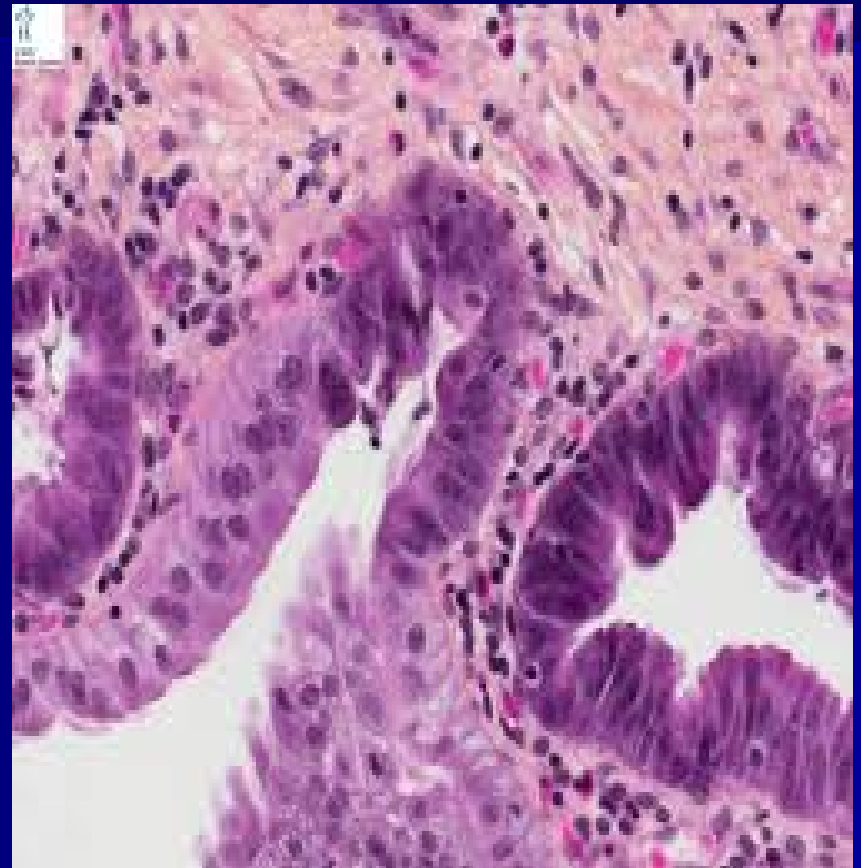
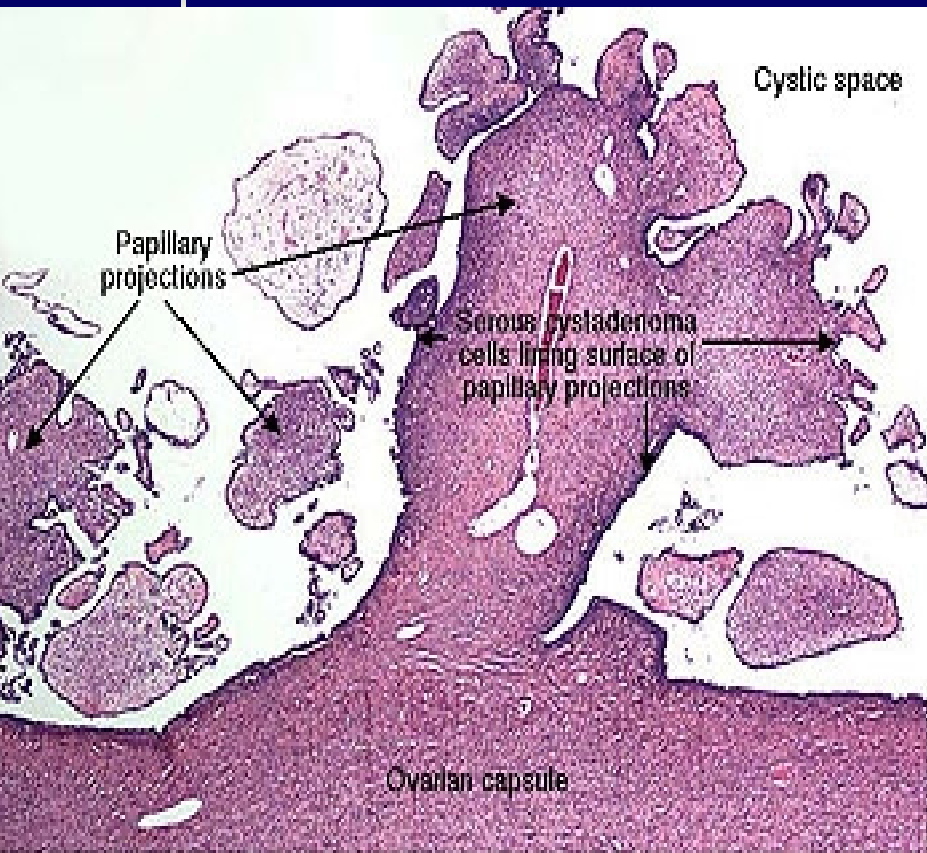
hemorrhagic
L ovarian cystic mass



small fibroids

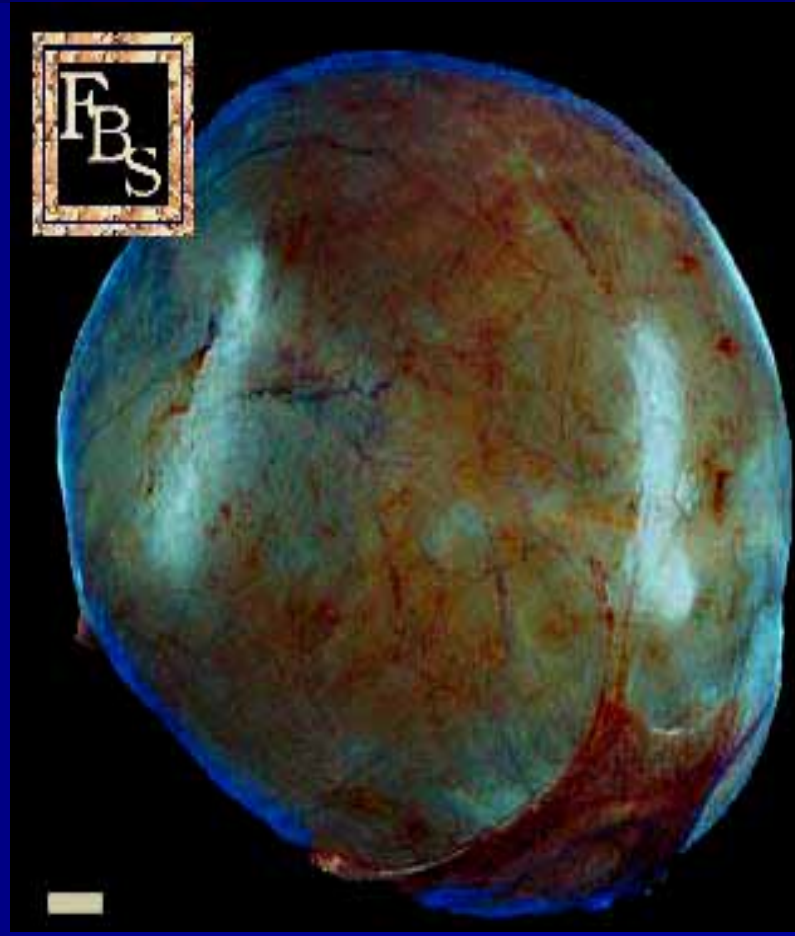
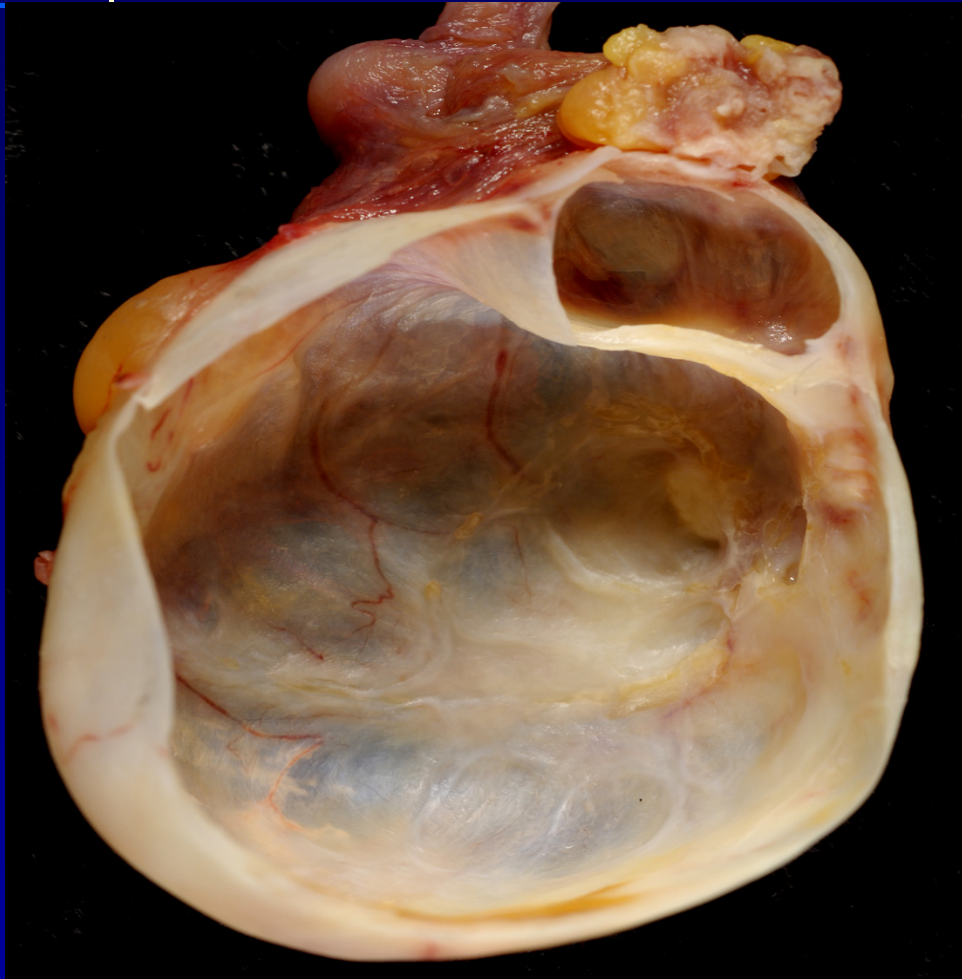
Serous cystadenoma

- The most common benign epithelial tumour
- usually unilocular cyst with papilliferous processes on the inner surface.
- Psammoma bodies are concentric calcified bodies which are more frequent in the malignant counterpart.
- The cyst fluid is thin & serous. They are seldom as large as mucinous tumours.



Mucinous cystadenoma

- Large
- Unilateral
- multilocular cysts
- smooth inner surface.
- lining epithelium consists of columnar mucus-secreting cells.
- The cyst fluid is thick & gelatinous.
- pseudomyxoma peritonei



FBS



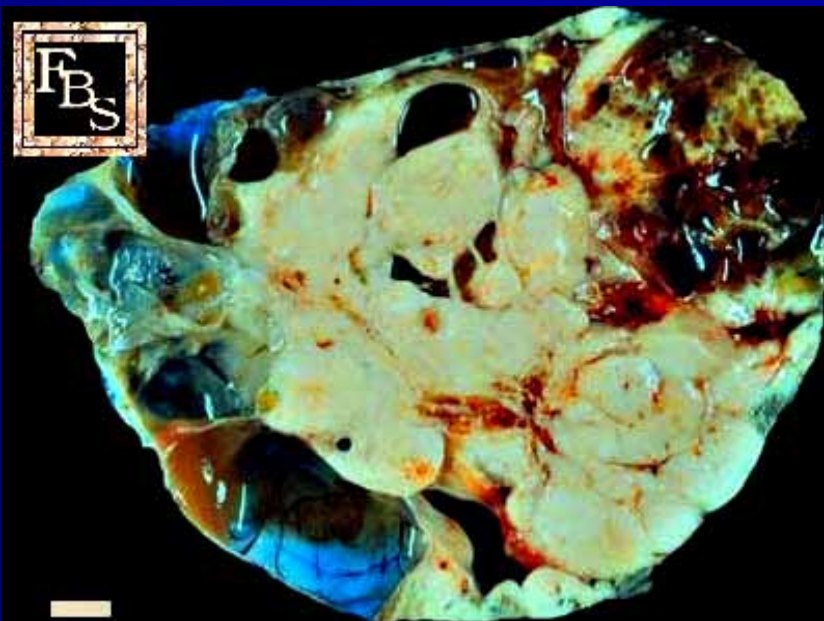
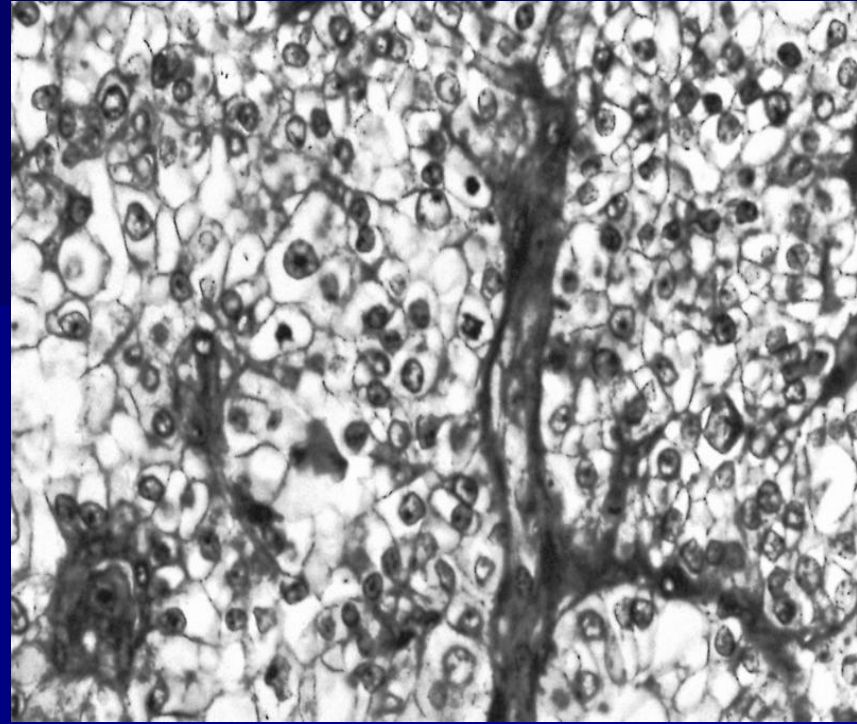
Endometrioid tumours of the ovary



Rashmi Nursing Home

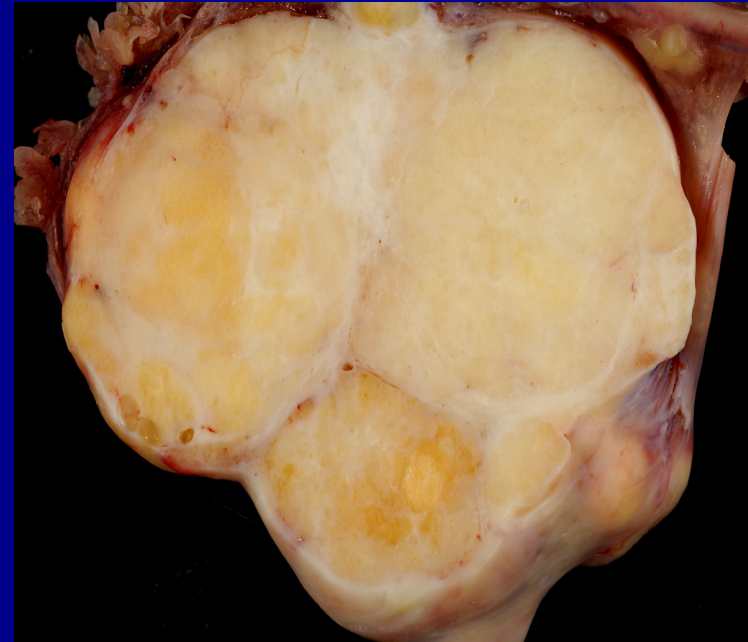
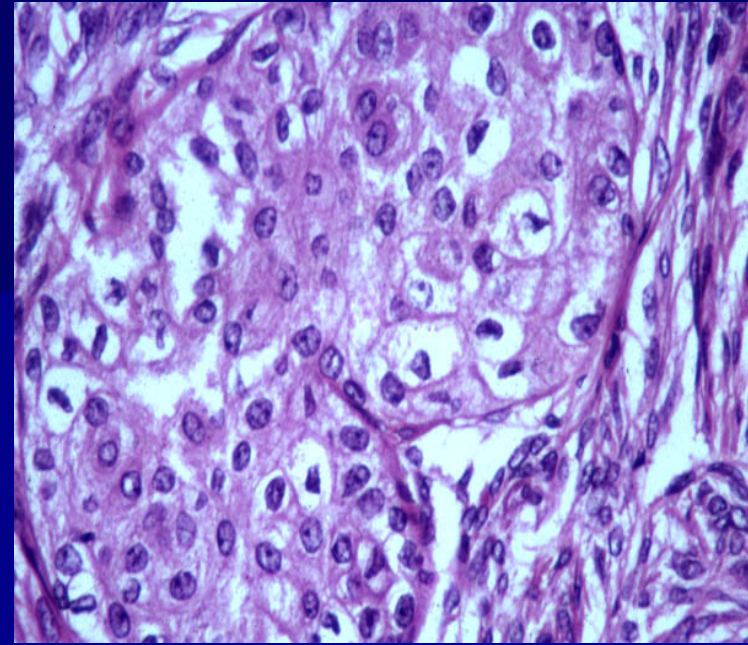
Clear cell tumour

- arise from serosal cells showing little differentiation. The typical histological appearance is of clear (hobnail) cells arranged in mixed pattern.



Brenner tumour

- arise from Wolffian metaplasia of the surface epithelium.
- consists of islands of transitional epithelium in a dense fibrotic stroma giving a solid appearance.
- The vast majority are benign. < 2 cm in diameter.
- Some secrete oestrogen

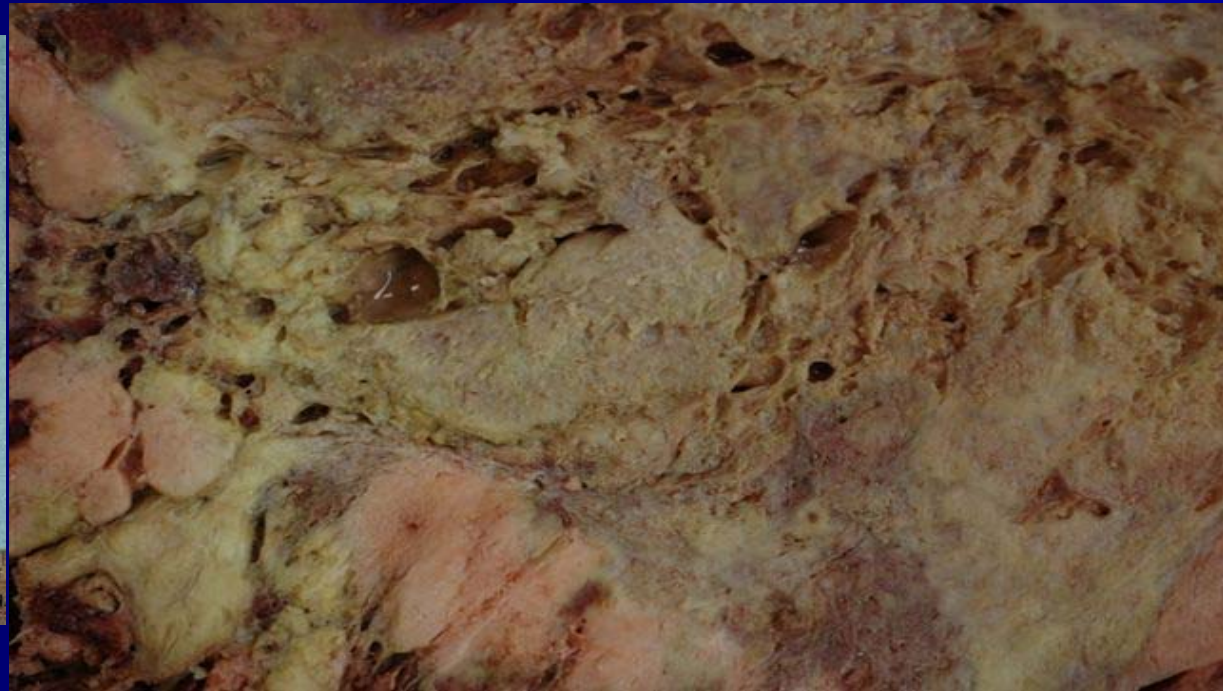


Benign sex cord stromal tumours:

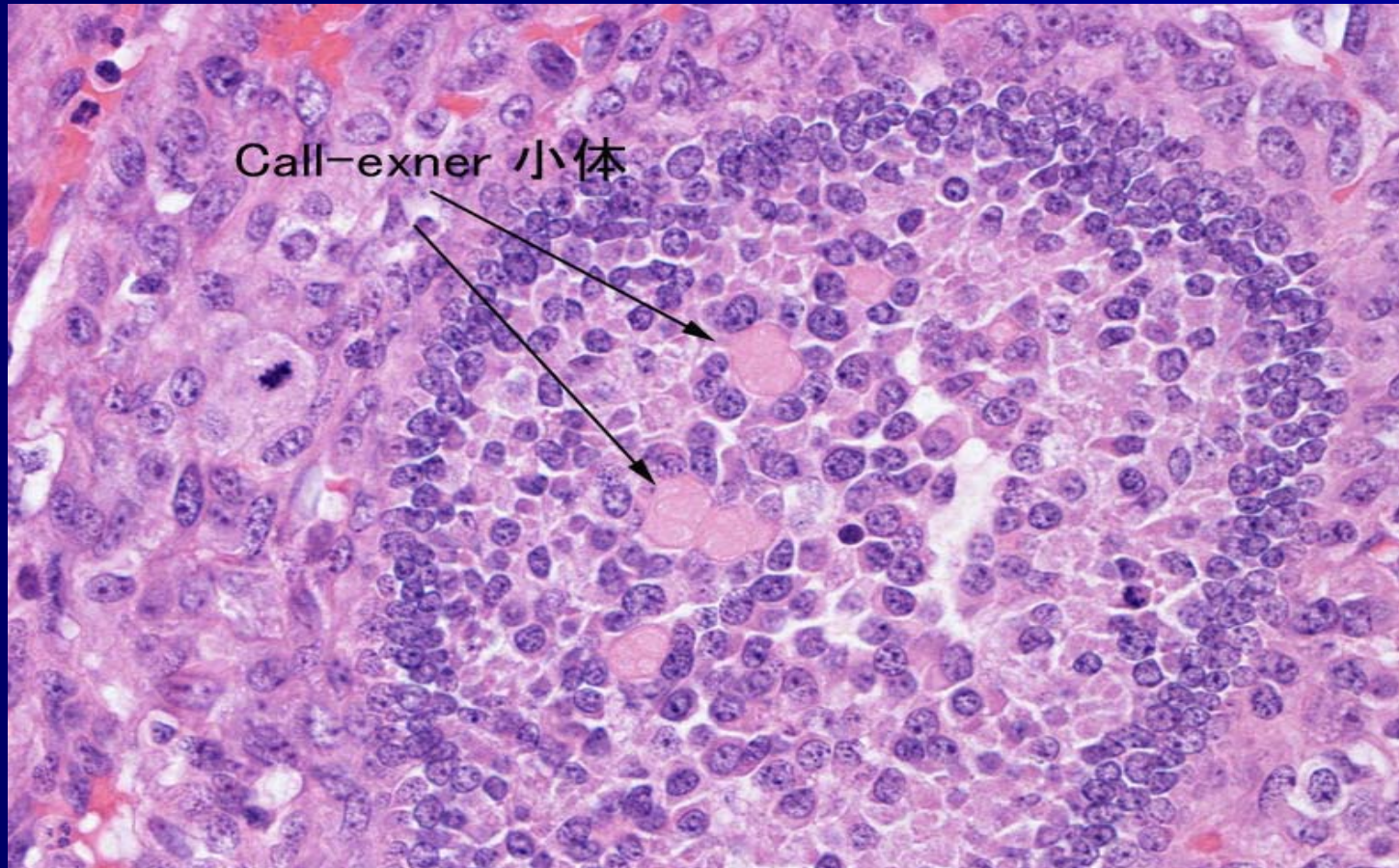
- Constitute a small percentage of benign ovarian tumours.
- They occur at any age from prepubertal children to elderly, postmenopausal women.
- Many secrete hormones & present with symptoms of inappropriate hormone effects

Granulosa cell tumor

- These are malignant tumours but are mentioned here because they are generally confined to the ovary when they present & so have a good prognosis

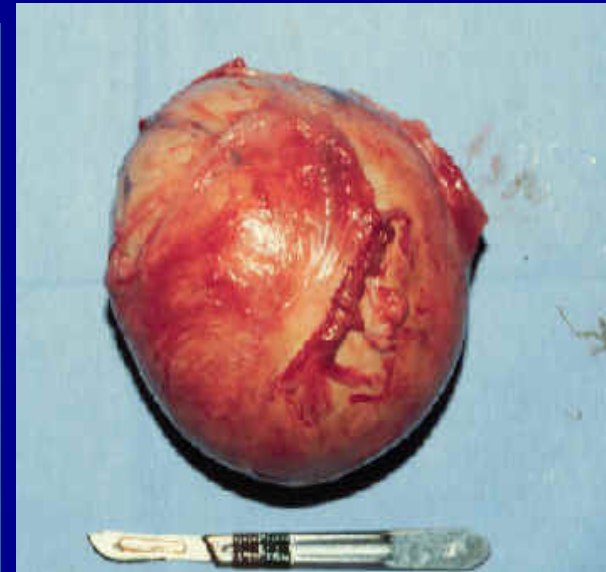


- Call-Exner bodies are pathognomonic but present in less than half of cases.
- Some secrete oestrogen or inhibin.



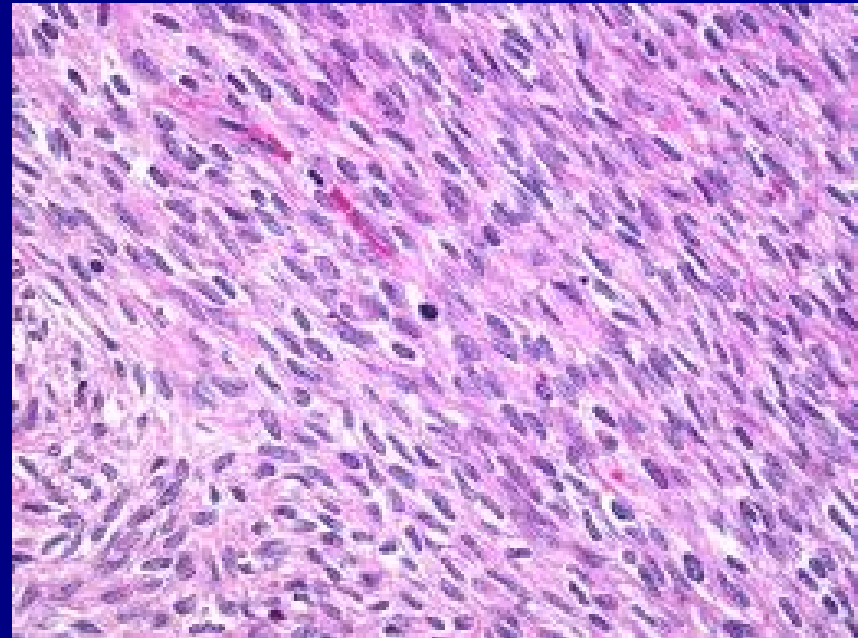
Theca cell tumour

- benign, solid & unilateral
- Oestrogen secreted, cause systemic effects such as precocious puberty, postmenopausal bleeding, endometrial hyperplasia & endometrial cancer
- rarely cause ascites or pleural effusion.



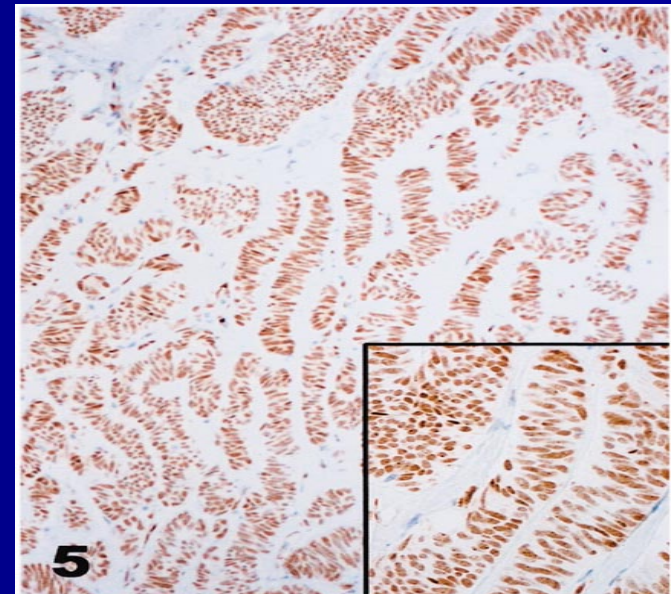
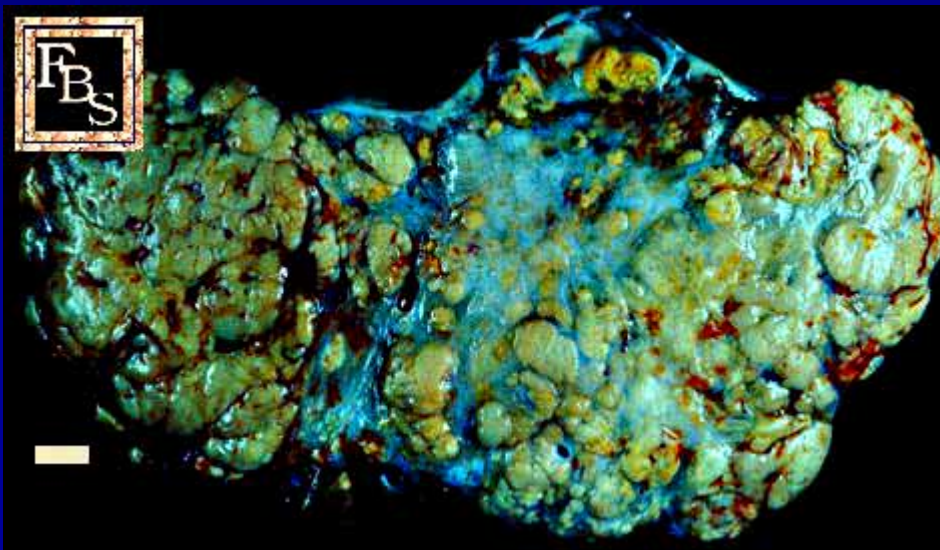
Fibroma:

- these are hard, mobile & lobulated with a glistening white surface.
- While ascites occur with many of the larger fibromas, Meig's syndrome – ascites & pleural effusion in association with fibroma of the ovary- is seen in only 1% of cases.



Sertoli-Leydig cell tumor

- usually of low-grade malignancy, they are rare.
- Many produce androgens, & signs of virilization are seen in three quarters of patients. Some secrete oestrogen



Presentation:

- Asymptomatic
- pain
- Abdominal swelling: noticed only when the tumour is very large.
- Pressure effects
- Menstrual disturbance
- Hormonal effects
- Abnormal cervical smear

Differential diagnosis of benign ovarian tumours:

Pain

- Ectopic pregnancy
- Spontaneous abortion
- Pelvic inflammatory disease
- Appendicitis
- Meckel's diverticulum
- Diverticulitis

Abdominal swelling

- Pregnant uterus
- Fibroid
- Full bladder
- Ovarian malignancy
- Colorectal carcinoma

Pressure effects

- Urinary tract infection

All other causes of menstrual irregularities, precocious puberty & postmenopausal bleeding.

Diagnosis:

- **History:**

- **Examination:**

- peritonism is an ominous sign.

- Bimanual examination is essential for palpating the mass between the vaginal & abdominal hands, its mobility, texture & consistency, presence of palpable lymph nodes in the pouch of Douglas. Hard, irregular, fixed mass is likely to be invasive.

Investigations:

- **Ultrasound:** mass size, consistency, and internal architecture. Bilaterality, ascites
- Doppler ultrasonographies to evaluate the resistive index of the mass vessels, which, when low, indicate a malignancy.
- **Radiological investigations**

■ Blood test & serum markers:

1. serum CA 125
2. beta-human chorionic gonadotrophin (β -hCG)
3. Oestradiol
4. Androgen
5. alpha-fetoprotein levels

problem

The following masses pose the greatest concern:

- Those that have a complex internal structure
- Those that have solid components
- associated with pain
- Masses in prepubescent or postmenopausal women
- Large cysts (cysts up to 10 cm have been followed conservatively)

Management:

Criteria for observation of asymptomatic ovarian tumour:

- Unilateral
- Unilocular cyst without solid components
- Premenopausal women tumour 3-10 cm in diameter
- Postmenopausal women tumour 2-6 cm in diameter
- Normal CA 125 ($<35\text{mU/mL}$)
- No free fluid or masses suggesting omental cake or matted bowel loops.

Observation include follow up with US after 3 months, if the cyst is the same follow up with US & CA 125 level will be safe.

Patient with symptoms:

- The pregnant patient:
- If the patient presents with acute pain due to torsion or hemorrhage into an ovarian tumor, undertake a laparotomy regardless of the stage of pregnancy.
- If an asymptomatic cyst is discovered, wait until after 14 weeks gestation before removing it. This avoids the risk of removing a corpus luteal cyst upon which the pregnancy might still be dependant

- In the second & third trimesters. Cysts less than 10 cm in diameter that have a simple appearance on ultrasound may be followed ultrasonographically. If the cyst is unresolved 6 weeks postpartum, surgery undertaken.
- a cyst with features suggestive of malignancy on ultrasound or one that is growing should be removed surgically. Management may include a Caesarian hysterectomy, bilateral salpingo-oophorectomy & omentectomy.

Treatment:

Laparoscopic procedures:

- Indications of laparoscopy:
- Uncertainty about the nature of the mass.
- Tumour suitable for laparoscopic surgery:
 - age <35 years.
 - ultrasound show no solid component.
 - simple ovarian cyst.
 - endometrioma.

- Laparotomy:
- If there is any possibility of invasive disease, a longitudinal skin incision.
- A sample of ascitic fluid or peritoneal washings should be sent for cytological examination at the beginning of the operation.
- explore the whole abdomen thoroughly & inspect both ovaries.

- Age < 35 years old ovarian cystectomy
- Age > 44 years with a unilateral ovarian mass, total abdominal hysterectomy, bilateral salpingo-oophorectomy & infracolic omentectomy.
- Age 35-44 years treatment should be individualized. If conservative surgery is planned, preliminary hysteroscopy & curettage of the uterus are essential to exclude a concomitant endometrial tumour