

Benign tumours of the Ovary

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Objectives of lecture

- Understand the pathophysiology of different types of ovarian mass
- Know the possible presentation & differential diagnosis
- How to deal with such condition
- How to manage in pregnant women with ovarian cyst

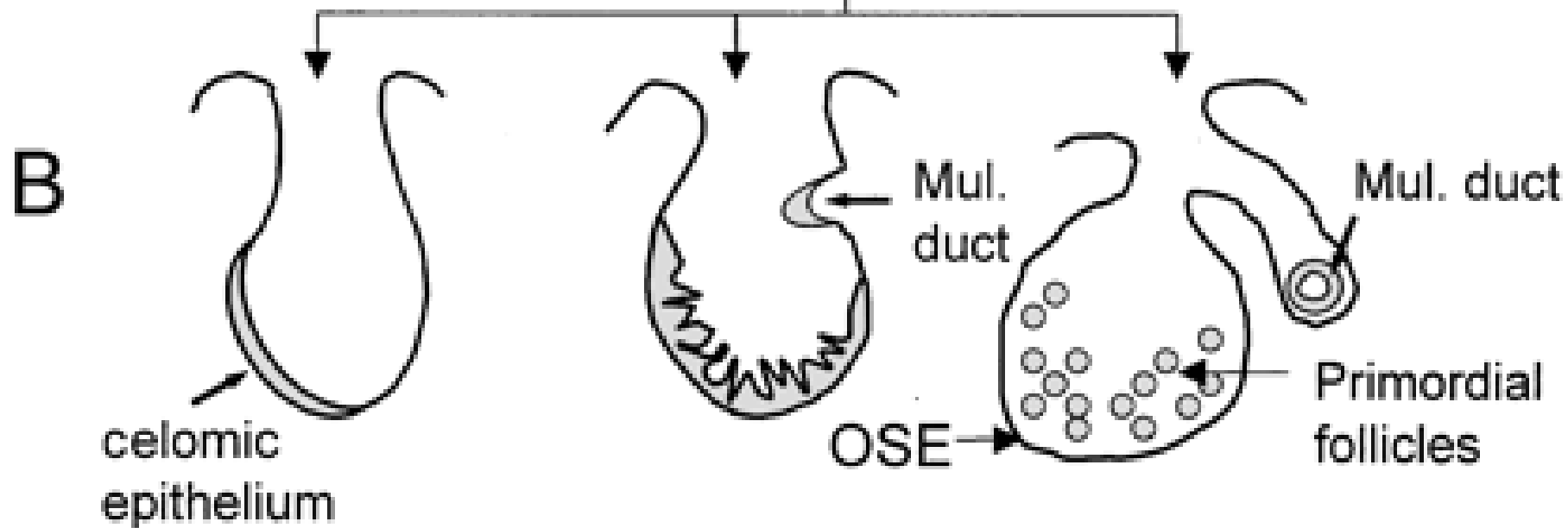
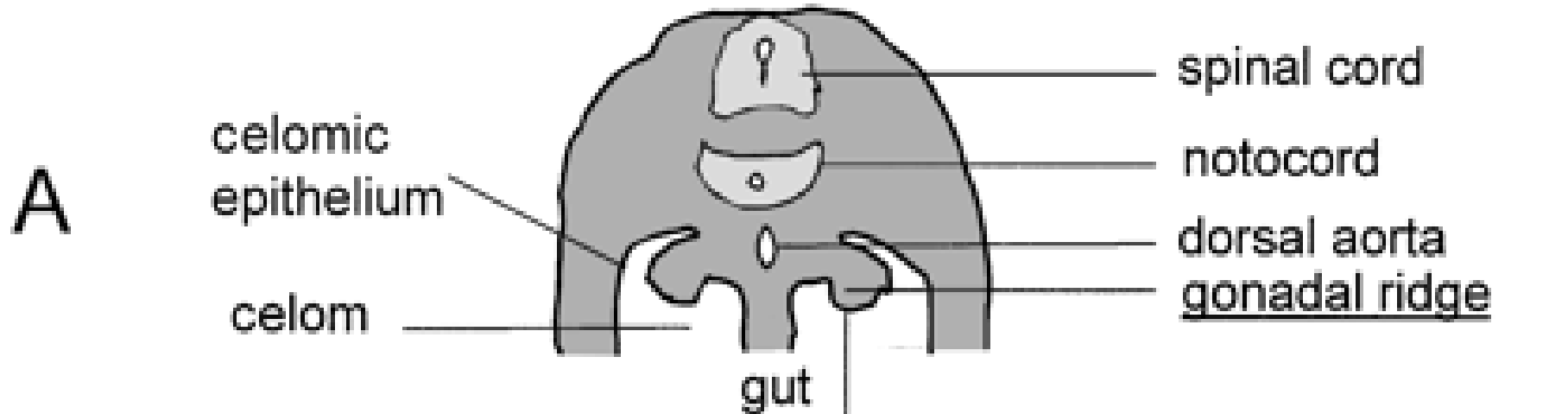


Development of the ovary:

It is of triple origin:

- Coelomic epithelium of the genital ridge.
- the underlying mesoderm
- Primitive germ cells





Embryo

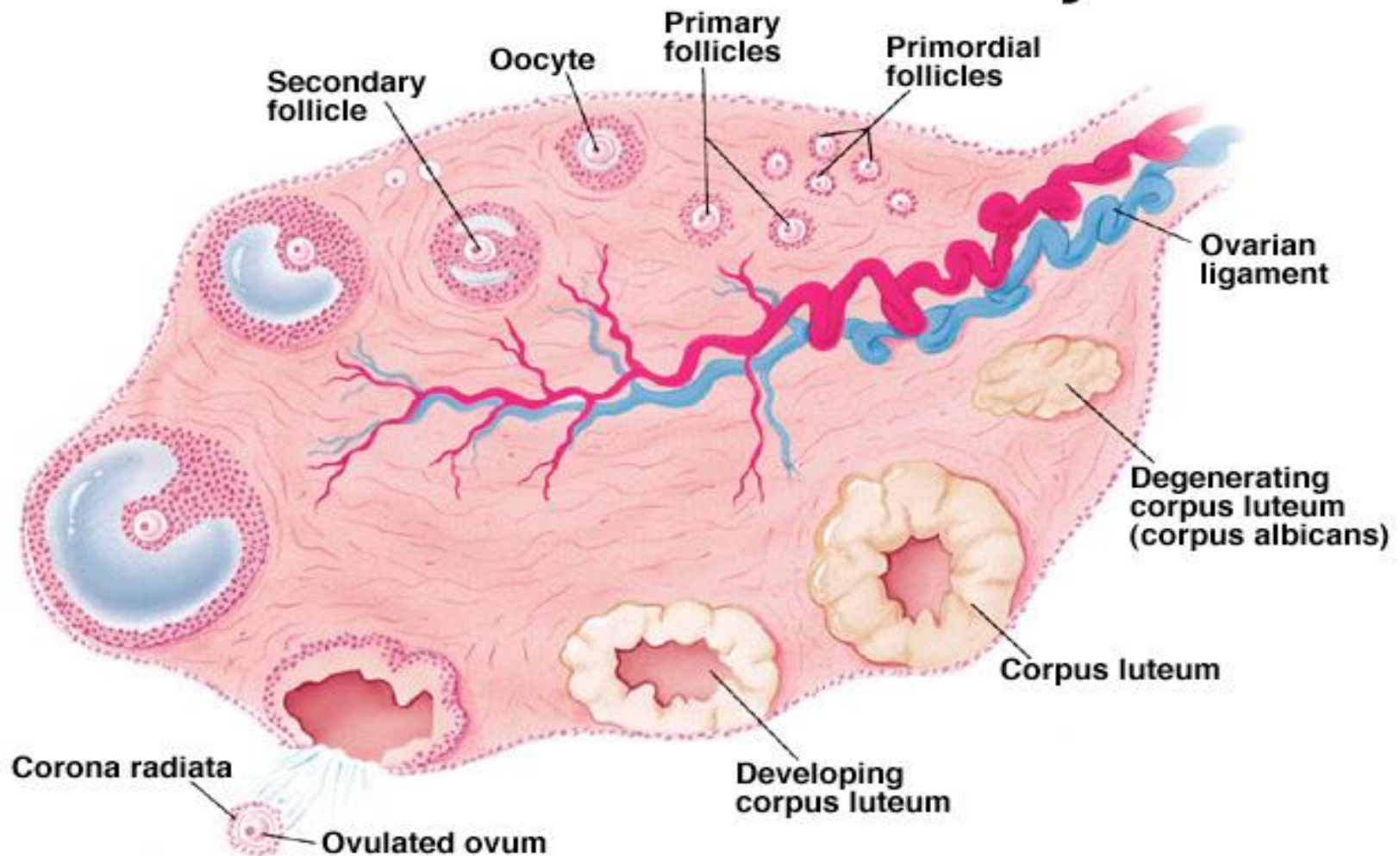
stage: 25 somites

30 somites

14 weeks



Structure of an Ovary



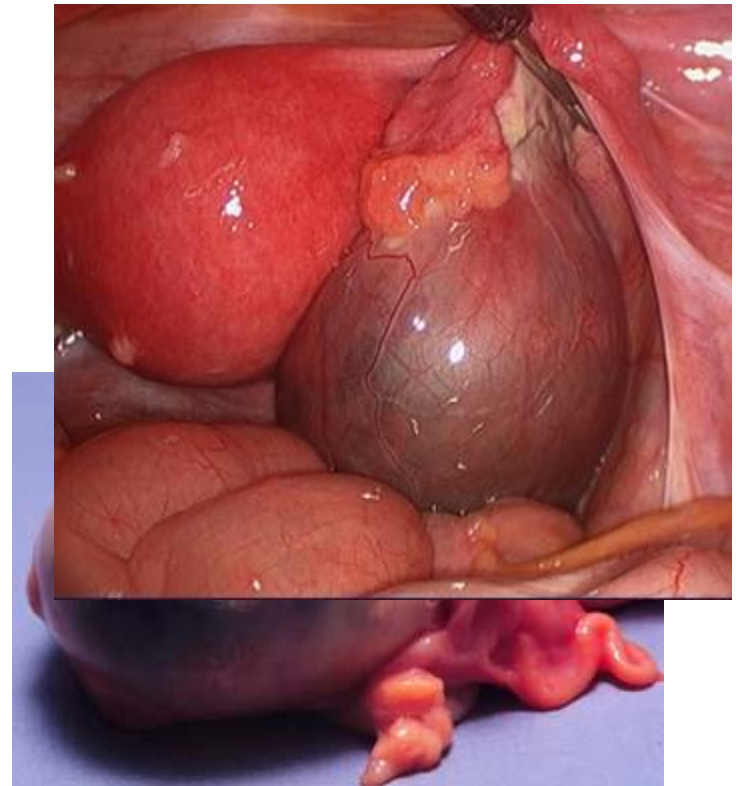
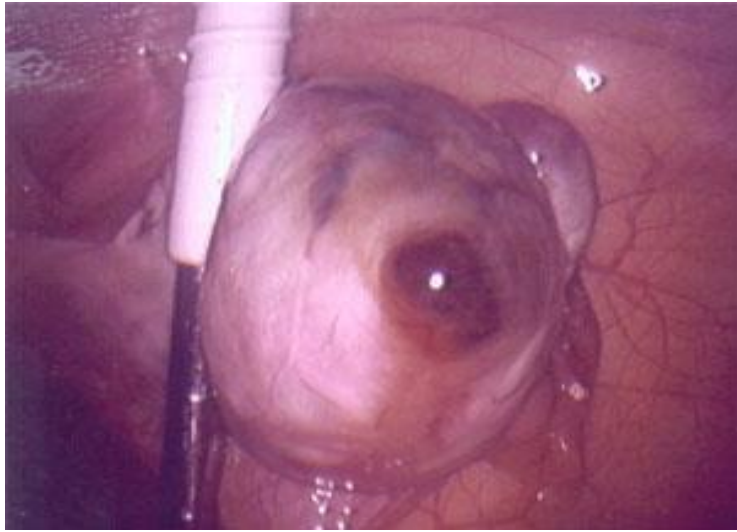
Causes of benign ovarian cysts

Functional	Follicular cyst Corpus luteal cyst Theca luteal cyst
Inflammatory	Tubo-ovarian abscess Endometrioma
Germ cell	Benign teratoma
Epithelial	Serous cystadenoma Mucinous cystadenoma Brenner tumour
Sex cord stromal	Fibroma Thecoma



- **Functional cyst:** The risk of developing these cysts is reduced by the use of the combined oral contraceptive pill.
- **Follicular cyst:** may persist for several menstrual cycles & rarely 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, usually presented with pain due to rupture or haemorrhage.





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- 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



III- Benign sex cord stromal tumours:

- Theca cell tumours
- Fibroma



Benign germ cell tumours:

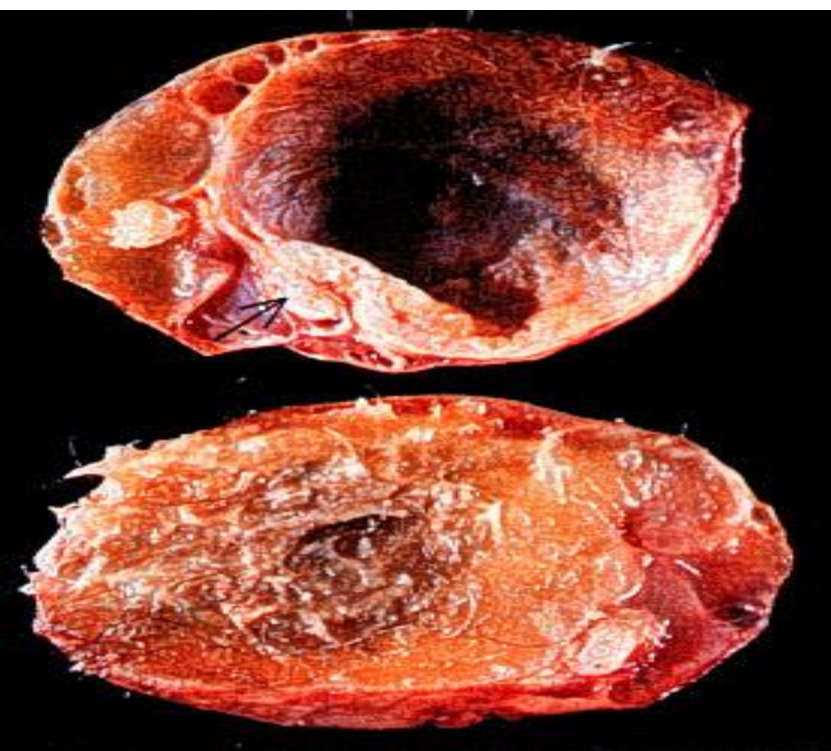
- The commonest ovarian tumours seen in women less than 30 years old.
- arise from totipotent germ cells & may contain elements of all three germ layers (embryonic differentiation).



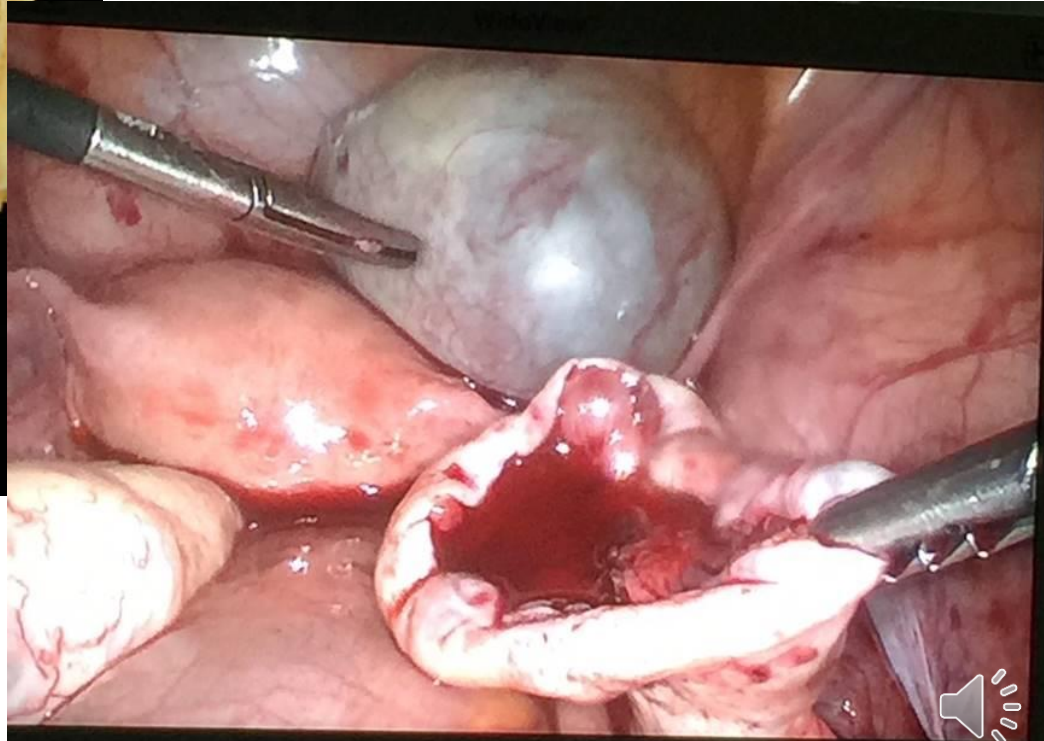
Dermoid cyst (mature cystic teratoma):

- 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



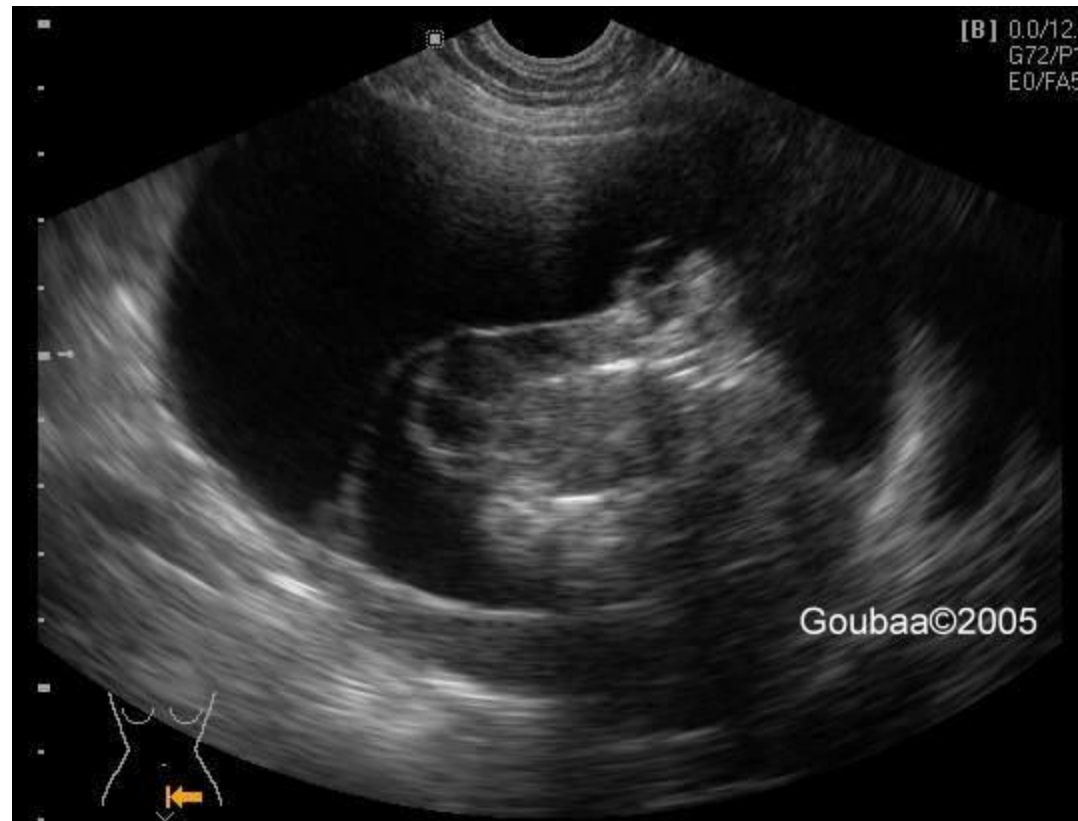


Mature cystic teratoma



- monodermal teratoma: The classic example is struma ovarii which contains hormonally active thyroid tissue.
- majority 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





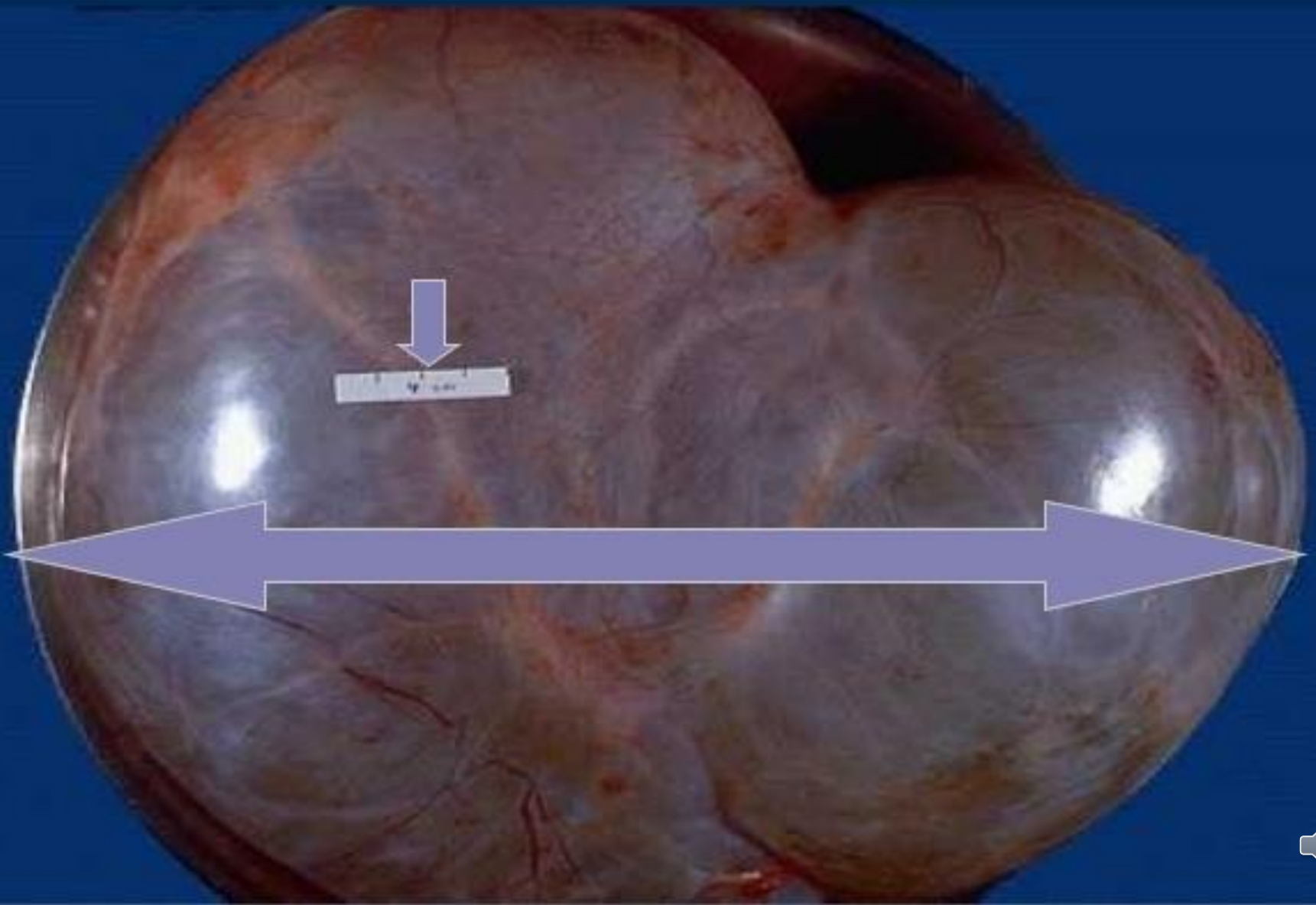
Benign Epithelial tumours:

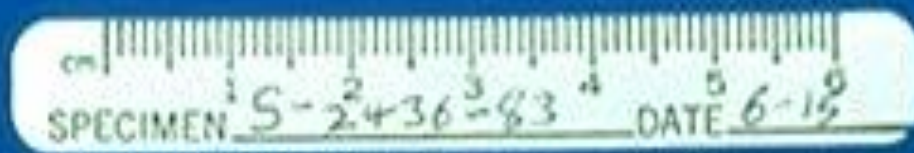
Serous cystadenoma

- The most common benign epithelial tumour
- usually unilocular cyst with papilliferous processes on the inner surface.
- The cyst fluid is thin & serous. They are seldom as large as mucinous tumours.



Serous Cystadenoma





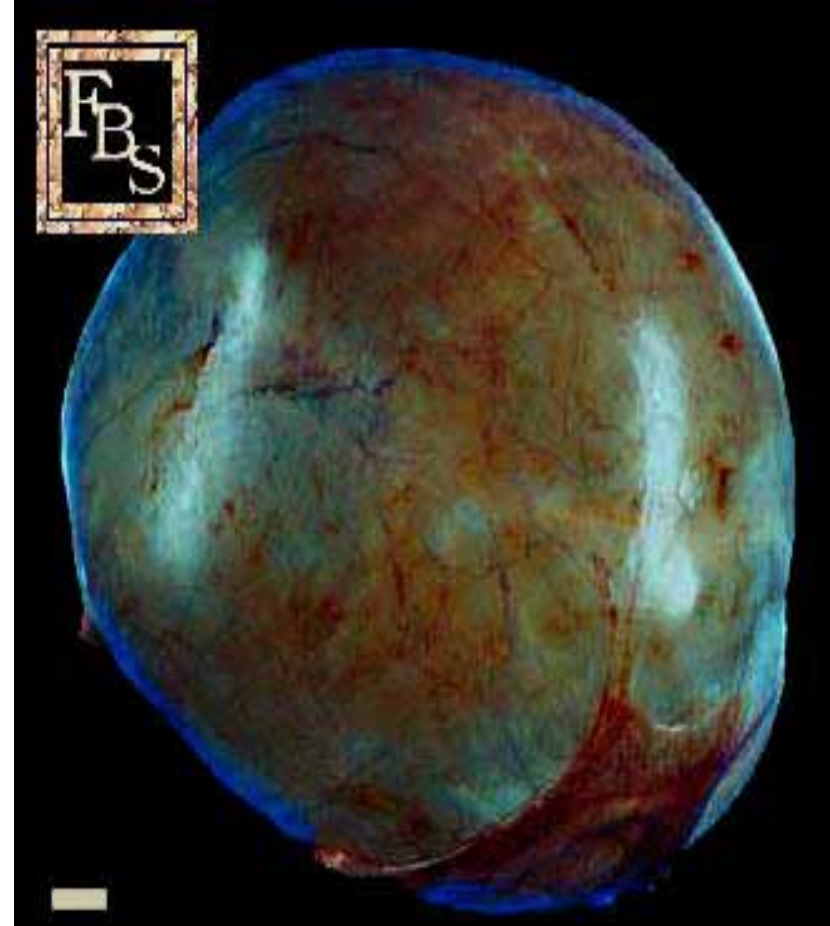
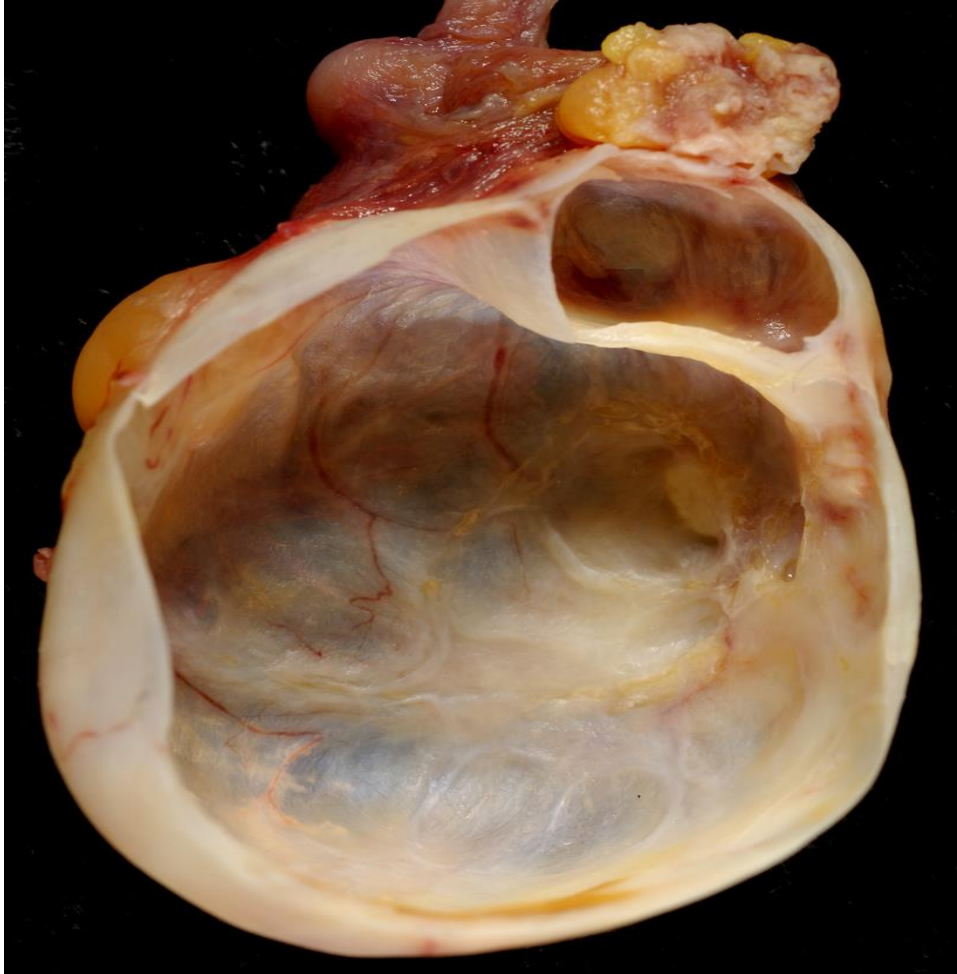


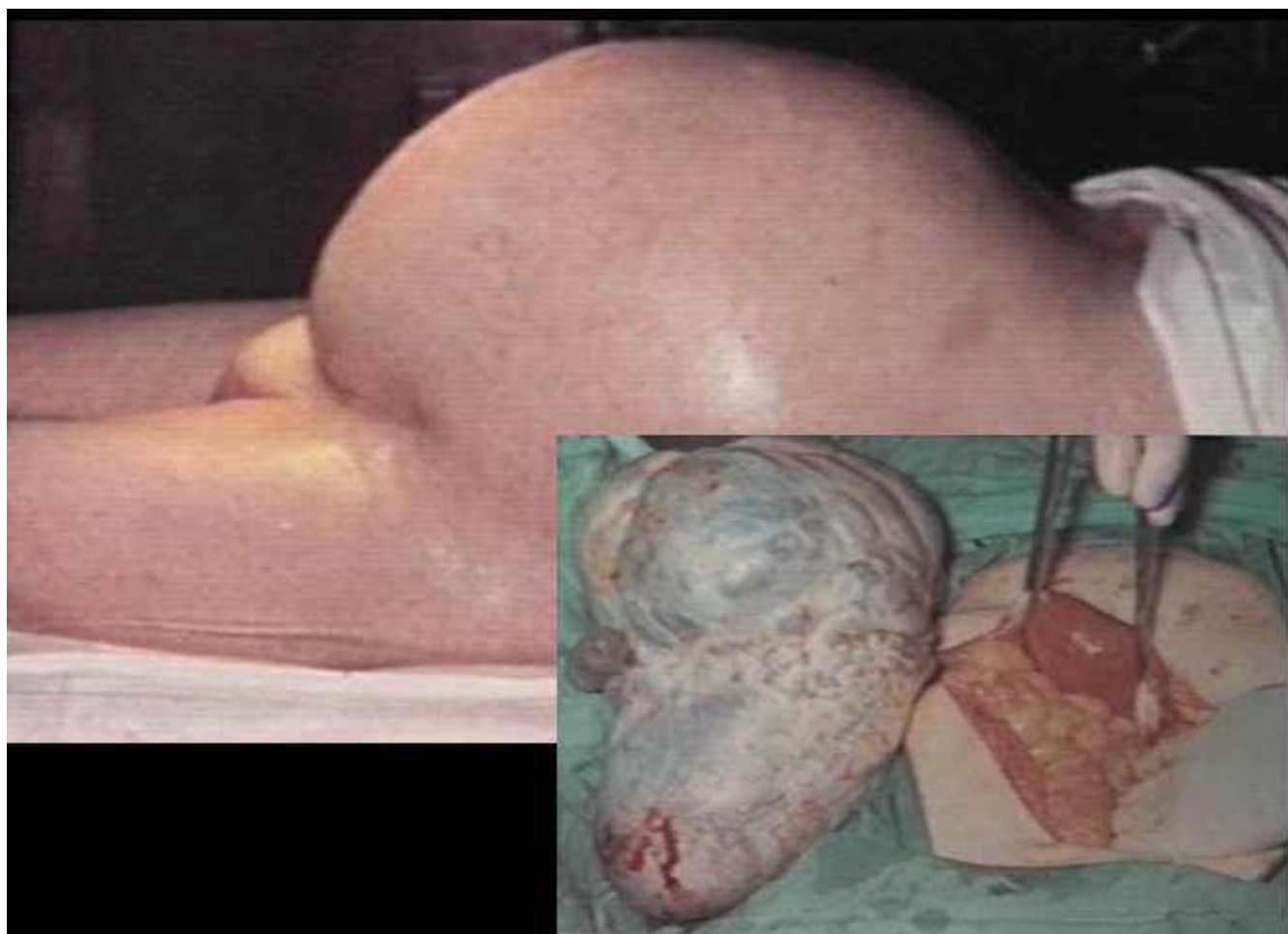


Mucinous cystadenoma

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







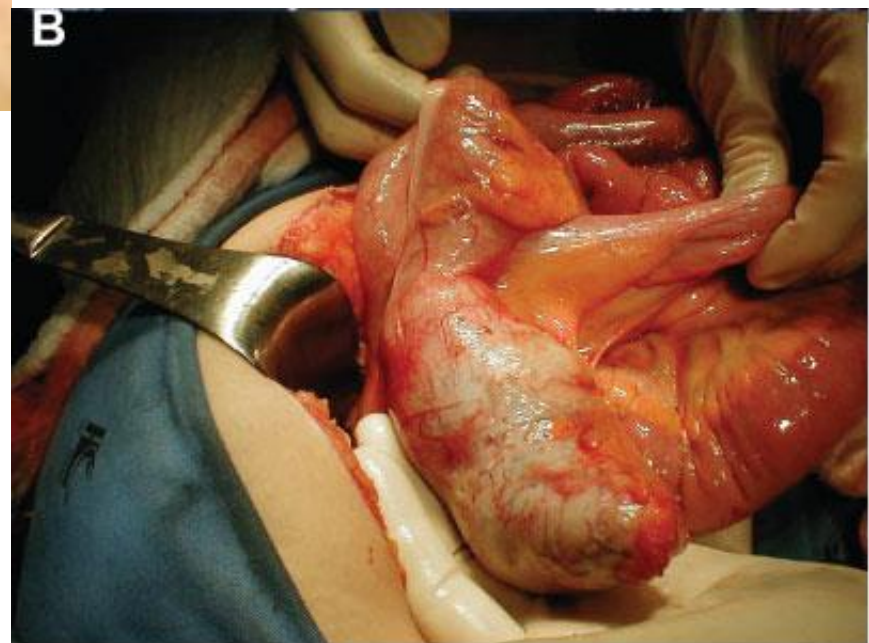


Figure 1 - A) CT scan showing a well-encapsulated cystic mass in the right lower quadrant (arrow); B) Mucocoele of the appendix.

Benign sex cord stromal tumours:

- Constitute a small percentage of benign ovarian tumours.
- They occur at any age
- Theca cell tumour secrete hormones & present with symptoms of inappropriate hormone effects



Fibroma:

- Solid, composed of stromal cells, present in older women.
- Meig's syndrome: ascites & pleural effusion in association with fibroma of the ovary, seen in only 1% of cases.



Presentation of Benign Ovarian Tumours:

- Asymptomatic
- Pain (cyst accident)
- 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

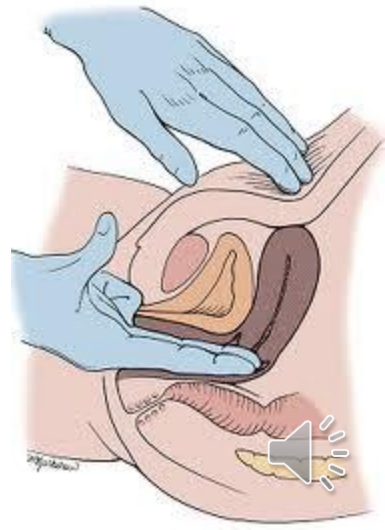
- Urinary tract infection

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



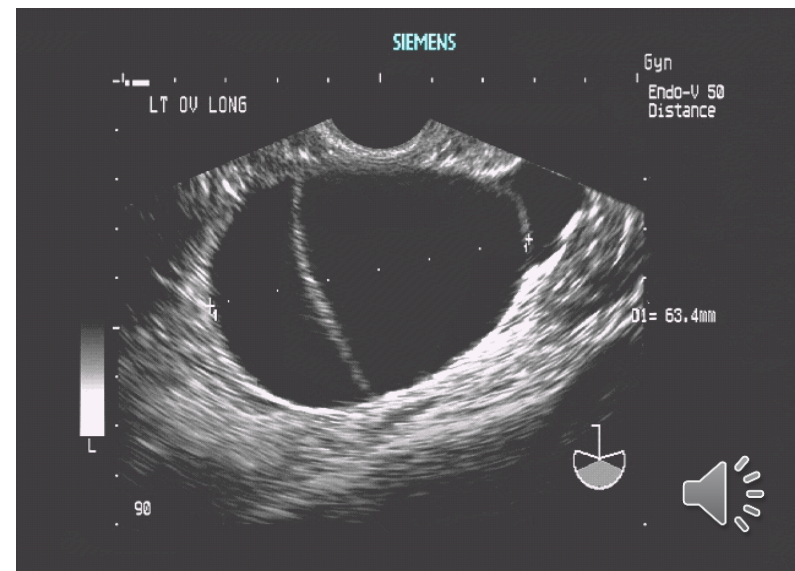
Diagnosis:

- **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 . Hard, irregular, fixed mass is likely to be invasive.



Investigations:

- **Ultrasound:** TVUS may need abdominal US, mass size, consistency, and internal architecture. Bilaterality, ascites
- Doppler ultrasonographies to evaluate the resistive index of the mass vessels, which, when low, may indicate a malignancy.
- if in doubt → MRI



Blood test & serum markers: some times needed:

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



- A serum CA-125 assay does not need to be undertaken in all premenopausal women when an ultrasonographic diagnosis of a simple ovarian cyst has been made.
- Lactate dehydrogenase (LDH), α -FP and hCG should be measured in all women under age 40 with a complex ovarian mass because of the possibility of germ cell tumours.



The underlying management rationale is to minimise patient morbidity by:

- conservative management where possible
- use of laparoscopic techniques where appropriate, thus avoiding laparotomy where possible
- referral to a gynaecological oncologist where appropriate.



problems

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



In Perimenopausal Women: What is the best way to estimate the risk of malignancy?

By:

Risk of Malignancy Index: The RMI is a product of the ultrasound scan score, the menopausal status and the serum CA-125 level (IU/ml) as follows:

$$\text{RMI} = \text{U} \times \text{M} \times \text{CA-125}.$$

If ≥ 200 high suspicion of malignancy



Management of Ovarian cyst:

Criteria for observation of asymptomatic ovarian cyst:

- Unilateral
- Unilocular cyst without solid components
- Premenopausal women tumour 3-7 cm in diameter
- Normal CA 125 ($<35\text{mIU/mL}$)
- No free fluid or masses suggesting omental cake or matted bowel loops.



- Women with small (less than 50 mm diameter) simple ovarian cysts generally **do not require follow-up** as these cysts are very likely to be physiological and resolve within 3 menstrual cycles.
- Women with simple ovarian cysts of 50–70 mm in diameter should have yearly ultrasound follow-up
- those with larger simple cysts should be considered for either further imaging (MRI) or surgical intervention.
- Ovarian cysts that persist or increase in size are unlikely to be functional and may warrant surgical management.

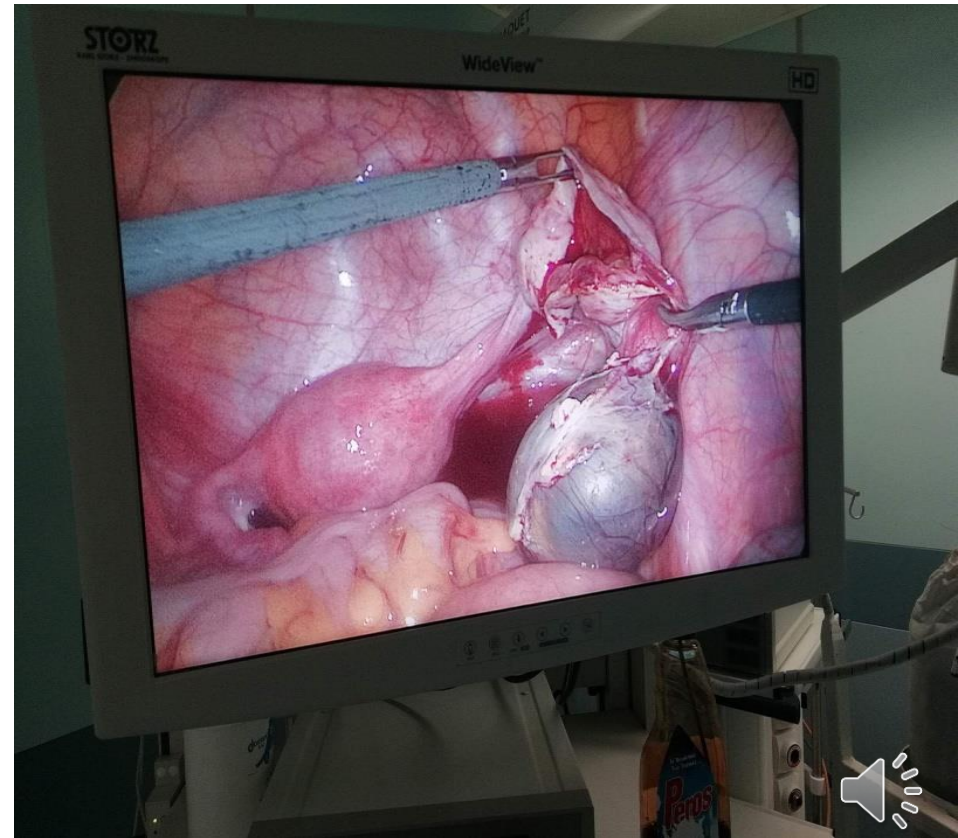


- Patient with symptoms:
- severe, acute pain or signs of intraperitoneal bleeding  an emergency laparoscopy or laparotomy will be required.

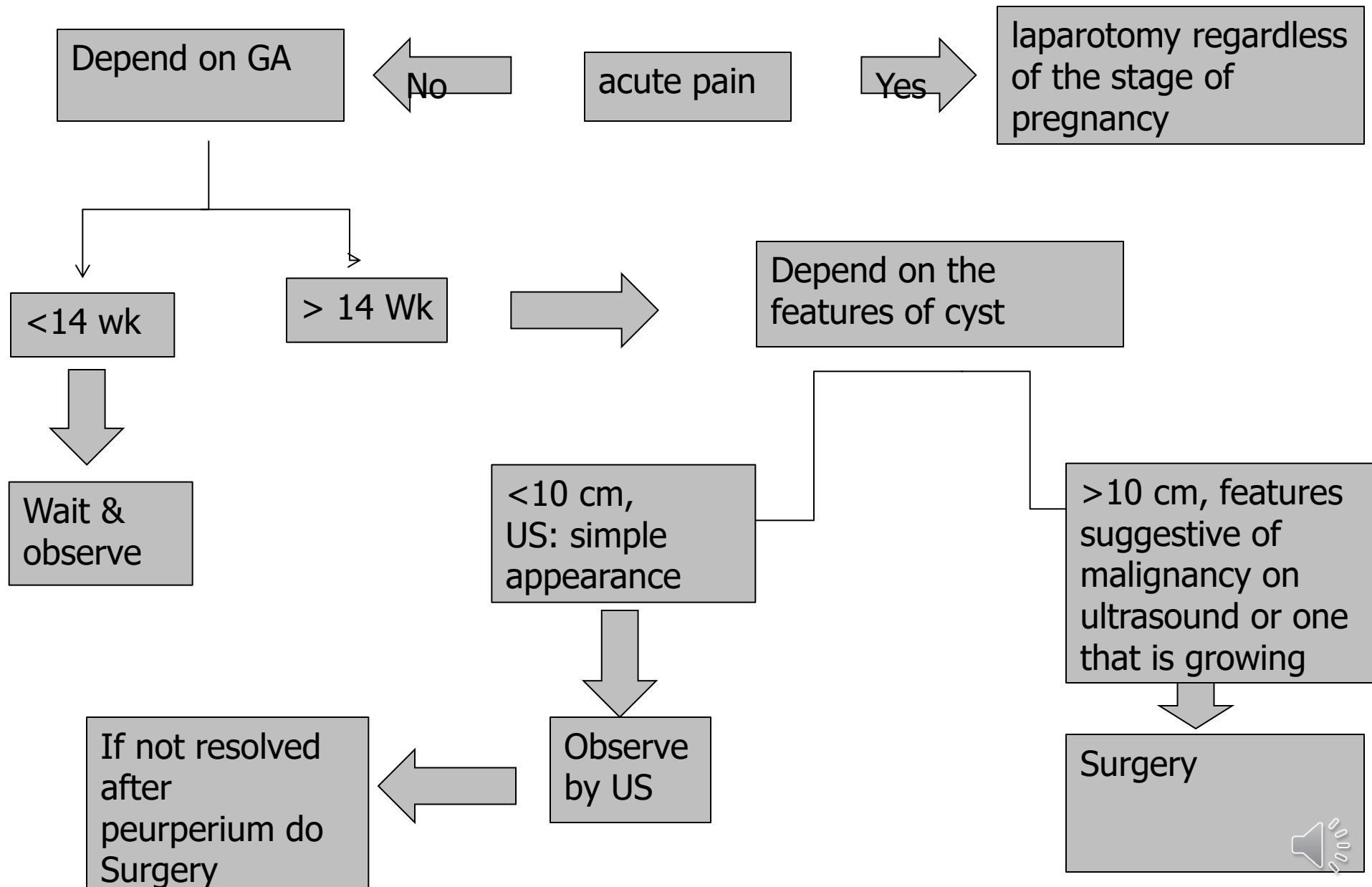


Laparoscopic procedures:

- The laparoscopic approach is associated with :
 - Less adhesion formation
 - lower postoperative morbidity
 - shorter recovery time.
 - cost-effective



pregnant patient with Ovarian cyst



Thank You

