

OBSTETRICS AND GYNECOLOGY

(31) Benign Ovarian Tumors

Leader: Alanoud Alyousef

Sub-leader: Dana ALdubaib

Done by: Roqaih Aldueb

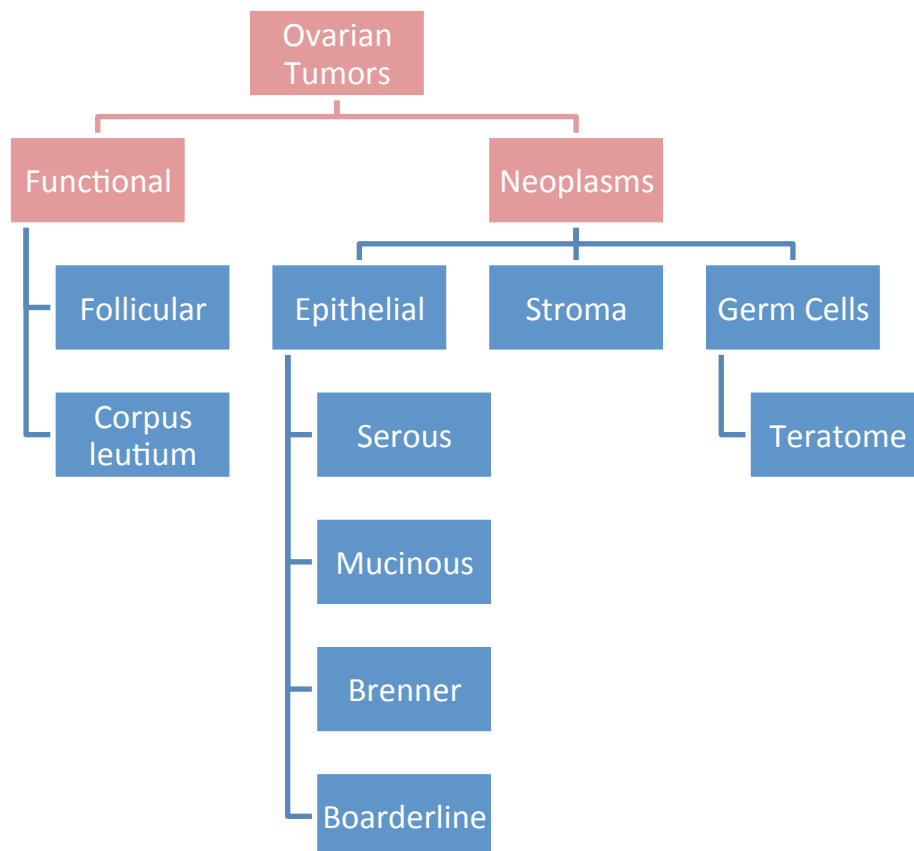
Revised by: Shaden Alfayez

Objectives:

The slides were not given

This teamwork includes 431 teamwork, Hakker and doctor's note

It only includes the topics doctor had mentioned



Ovarian Tumors

- Introduction:

- It is estimated that 5-10% of women will undergo a surgical procedure for a suspected ovarian neoplasm during their lifetime. **1 out of 10 women will undergo a surgical procedure for ovarian lesions.**
- The majority of these neoplasms are benign
- **Age** is the most important factor **for determining the potential for malignant change**

DDx of Adnexal Mass (adnexal tumors = ovaries and fallopian tubes)

ORGAN	CYSTIC	SOLID
Ovary	Functional cyst Neoplastic cyst Benign Malignant Endometriosis	Neoplasm Benign Malignant
Fallopian tube	Tubo-ovarian abscess Hydrosalpinx Parovarian cyst	Tubo-ovarian abscess Ectopic pregnancy Neoplasm
Uterus	Intrauterine pregnancy in a bicornuate uterus	Pedunculated or interligamentous myoma
Bowel	Sigmoid or cecum distended with gas or feces	Diverticulitis Ileitis Appendicitis Colonic cancer
Miscellaneous	Distended bladder Pelvic kidney Urachal cyst	Abdominal wall hematoma or abscess Retroperitoneal neoplasm

Functional/Physiological Cysts (Anything more than 4 cm is considered a cyst)

- They are related to the process of ovulation. **Normal in every woman**
- These cysts are benign and represent an exaggerated physiologic response of the ovary **when it fails to rupture**
- Corpus luteum, Follicular and Theca-lutein cysts
- **lutein cyst may develop if the corpus luteum becomes cystic, grows to larger than 3 cm, and fails to regress normally after 14 days.**

- lutein cysts may occur with abnormally high serum levels of human chorionic gonadotropin (hCG) or increased ovarian sensitivity to gonadotropins.

Note: Normal cycle: follicular growth (**over growth**) > ovulation > corpus luteum. (Anything can happen during this process)

Risk factor: patients with fertility problems on ovulation induction.

- The cysts usually resolve within a few days to 2 weeks since they are physiological. However, they can persist longer. So it is important to differentiate whether it is a cyst or a tumor because my management would be different. We don't want a 20 years patient to undergo to surgical procedure (and with all complications of the surgery including adhesion and subsequent infertility) and it is only a physiological cyst.

Clinical features

- Asymptomatic and unilocular (simple)
- May cause pelvic pain, a dull sensation, or heaviness in the pelvis.
- Delayed menses (in lutein cyst because it continues to produce progesterone)
- Torsion or rupture, which may produce acute lower abdominal pain and tenderness and significant hemoperitoneum.

Diagnosis:

When a 5- to 8-cm cystic adnexal mass is noted on bimanual examination; it is confirmed when the lesion regresses over the course of the next several cycles. In general, a functional cyst is mobile, unilateral, and not associated with ascites.

Management:

When a reproductive-aged patient who is asymptomatic or experiencing only mild symptoms presents with an adnexal cyst, a pelvic ultrasound and serum CA-125 titer should be obtained and the RMI (Risk for malignancy index) determined. **US → clear outlines + water content.**

If the RMI is low and the cyst is considered to be functional, it is appropriate to wait and reexamine the patient after her next menses. **(Every six months)**

Low-dose contraceptive agents may be given to suppress gonadotropin levels and prevent development of another cyst. **(But doesn't has effect on the already formed cyst)**

Notes from 431:

Morphology of follicular cyst:

- Are thin walled fluid filled structures lined internally by granulosa cells and externally by theca internal cells.
- Occasionally such cysts may reach several centimeters in size and, if they rupture, can cause abdominal pain.

Chocolate/ Endometriotic cyst:

- Chocolate cyst is a blood containing cyst resulting from endometriosis with hemorrhage.

Ovarian Neoplasms (Tumors could arise from **stroma**, **germ cells** or **surface epithelium** (most common))

- Most of the benign tumors are with younger age
- Unrelated to menstrual cycle.
- 20% of all ovarian neoplasms are malignant. 80% benign

Clinical features:

- Most of these neoplasms are **asymptomatic** unless they have subject to rupture (very rare) or torsion (patient presents with severe ischemic pain and vomiting). (Torsion may happened spontaneously or with athletes and most importantly with pregnancy or postpartum)
- It could grow in size and cause pressure symptoms (here it is more indicative to do the surgery unlike asymptomatic benign tumors which sometimes they only need follow up)
- They can be cystic or solid tumors.
- Predictive value of the examination alone improves as the patient ages
- The challenge is how to differentiate between benign and malignant which we start by clinical assessment (onset, tumor growing, symptoms, is she cachectic and any family history of cancer,) and by **examination (malignant will be fixed and more solid, benign tumors usually cystic and freely mobile)**
- If the patient is pregnant, the risk of torsion is higher and the best time to do the surgery is in the second trimester (and during surgery the doctors try to not manipulate the uterus as much as they can) but usually we don't operate on her unless the tumor is big or high suspicion of malignancy or torsion, otherwise we do the surgery 2 months after the delivery.

CA 125 and non-malignant gynecologic diseases: (during the cycles or even MI could cause increase in CA 125) (negative predictive value is low, as 50% of cancer stage 1 has normal level of CA125)

Disease	% CA 125 > 35
H mole	60%
Early PG	60%
Fibroids	40%
PID/TOA	35%
Dermoids	20%
Endometriosis	10-80%
Normal Controls	4%

Note: We use CA 125 mainly to monitor response of treatment and follow up for any recurrences.

CA 125 and menopausal status:

- Premenopausal women: approx. 15% with elevated CA 125 and pelvic mass have malignancy
- Postmenopausal women: approx. 80% with elevated CA 125 and pelvic mass have malignancy

Ultrasound criteria:

- Tumor volume
- Wall structure
- Septal structure.

Note:

Test of choice → US

Thick wall and septal formation
solid components are not good signs

Thin wall, clear components,
unilocular (almost always benign)

	OVARIAN VOLUME	WALL STRUCTURE	SEPTAE STRUCTURE
0	< 10 cm ³		
1	10-50 cm ³		
2	> 50-200 cm ³		
3	> 200-500 cm ³		
4	> 500 cm ³		

FIG. 1. Pictorial representation of morphology index for ovarian tumors.

Benign neoplasms:

- The most common benign cystic neoplasms of the ovary are serous and mucinous cystadenomas and cystic teratomas (dermoids)
- Benign solid tumors of the ovary are usually connective tissue origin (Fibromas, Thecomas)
- **Meigs' syndrome** is an uncommon clinical entity in which a benign ovarian fibroma is seen with **ascites and hydrothorax (plural effusion)**, these disappear after resection. Ascites → usually malignant

A. Epithelium Ovarian Neoplasms:

From 431

Type	Gross	Microscope
Benign (Cystadenoma)	Cystic	Fine papillae, single layer covering (no stratification, no nuclear atypia, no stromal invasion).
Borderline	Cystic / solid foci	Papillary complexity, stratification, nuclear atypia, no stromal invasion
Malignant (Cystadenocarcinoma)	Solid & hemorrhage / necrosis	Papillary complexity, stratification, nuclear atypia stromal invasion

1- Serous Cystadenomas resemble the lining of the fallopian tubes

- Of all serous tumors, about 70% are benign, 5% to 10% have borderline malignant potential and 20 % to 25% are malignant, depending largely on the patient's age.
- Serous cystadenomas more common than the mucinous type.
- 10% are bilateral.
- Usually they are smaller in size while mucinous very large
- Usually they are **unilocular**.

2- Mucinous Cystadenomas cytologically resemble the endocervical epithelium

- Less common 25%, very large
- Rarely malignant – 15%
- **Multilocular** (many small cysts)
- Usually large tumor **often filling the entire pelvis and abdomen.**
- Rarely bilateral – 5-20%
- Tall columnar, apical mucin

Pseudomyxoma peritonei

- Ovarian mass associated with large amount of mucin ascites (**gelatinous ascites**)
- It is almost always appendicular in origin (**so if we do surgery for ovarian mass and it was gelatinous we always have to do appendectomy**)
- The treatment is surgical, but recurrence is usual
- **Hard to treat, because the mucinous cells are implanted all over the peritoneal surfaces. They die from malnutrition**

Management of serous and mucinous:

Do cystectomy by laparoscope if the patient is young on her 20s

Do oophorectomy if the patient is old or on her 40s

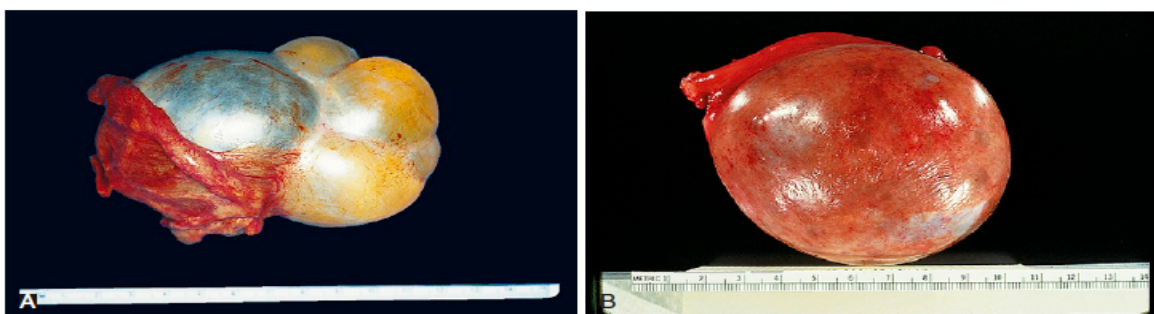


FIGURE 20-3 Gross appearance of a mucinous (A) and serous (B) cystadenoma of the ovary. The mucinous type is generally multilocu-

3- Brenners Epithelial Tumor

- Usually benign can be malignant.
- May coexist mucinous cystadenoma.
- Can be associated with endometrial cancer.
- solid tumor with a large fibrotic component that encases epithelioid cells that resemble transitional cells of the bladder

4- Borderline Malignant Epithelial Ovarian Neoplasms

- Account for 15% of all epithelial ovarian cancers
- They occupy an intermediate position between the benign cystadenomas and the frankly malignant cystadenocarcinomas. (it has a feature of malignancy which is the recurrence but when it comes back it comes as a borderline again it is not pre malignant tumor)
- The 10 year survival rate for stage I is over 95%
- Late recurrence may occur as many as 20 years after initial diagnosis (follow up every 6 months with US)
- The treatment is essentially **surgical** (without chemotherapy because it is slowly growing tumor so it doesn't respond to chemo)

B. Germ Cell tumors (usually malignant except teratoma)

Dermoid Cyst (Benign Cystic Teratoma)

- They are rarely large
- 15% are bilateral
- They are the most common neoplasms **in the reproductive age**
- They contain tissues from: ectoderm, endoderm, and mesoderm
- 1% of these tumors may undergo malignant degeneration
- **Treated by cystectomy**
- the tissues making up the benign (mature) teratoma are all of an adult, well-differentiated form As opposed to similar tissues found in a malignant immature teratoma,



Summery

- If patient present with ovarian mass I have to check if it neoplasm or physiological cyst. Physiological cysts are usually not big but they could be.
- Physiological cysts form by exaggerated follicular growth or corpus luteum could happened if it grow next to blood vessels so the blood will enter and cause hemorrhagic cyst. And usually disappear with time
- I can differentiate between Physiological cyst neoplasm by follow up and ultrasound features.
- Features that make me worried on ultrasound is Solid thick wall septation, papillary projection,
- So management of physiological cyst is follow up
- Benign tumors if the patient is young do cystectomy, old patient do oophorectomy
- Benign tumors originate either from epithelial cells, stroma or germ cells
- Most common is cystadenoma
- Tumor markers help to differentiate between benign and malignant.

MCQ's:

1\ A 25-year-old woman presents to you for routine well-woman examination. She has had two normal vaginal deliveries and is healthy. She smokes one pack of cigarettes per day. She has no gynecologic complaints. Her last menstrual period was 3 weeks ago. During the pelvic examination, you notice that her left ovary is enlarged to 5 cm in diameter. Which of the following is the best recommendation to this patient?

- a . Order CA-125 testing
- b. Schedule outpatient diagnostic laparoscopy
- c. Return to the office in 1 to 2 months to recheck the ovaries
- d. Schedule a CT scan of the pelvis
- e. Admit to the hospital for exploratory laparotomy

2\ A 21-year-old woman presents with lower quadrant pain. Anterior 7cm firm adnexal mass is palpated. Ultrasound confirms a complex left adnexal mass with solid components that appears to contain a tooth. What percentages of these tumors are bilateral?

- a. Less than 1%
- b. 2% to 3%
- c. 10%
- d. 50%
- e. Greater than 75%

3\ A 54-year-old woman presents for well-woman examination. On pelvic examination you palpate an enlarged, tender right adnexal mass. You order pelvic ultrasound as the next step in this patient's evaluation. Which of the following sonographic characteristics of the cyst in this patient would warrant further evaluation for possible ovarian malignancy?

- a. Lack of pelvic ascites
- b. The presence of a unilocular cyst in one ovary
- c. Papillary vegetation within a cystic ovary
- d. Demonstration of arterial and venous flow by Doppler imaging

4\ A 17-year-old girl is seen by her primary care physician for the evaluation of lower quadrant pain. The physician felt a pelvic mass on physical examination and ordered a pelvic ultrasound. You are consulted because an ovarian neoplasm is identified by ultrasound. Which of the following is the most common ovarian tumor in this type of patient?

- a. Germ cell
- b. Papillary serous epithelial
- c. Fibrosarcoma
- d. Brenner tumor
- e. Sarcoma botryoides

Question 1\ The answer is C.

In young, menstruating women the most common reason for an enlargement of one ovary is the presence of a functional ovarian cyst. Functional cysts are physiologic, forming during the normal functioning of the ovaries. Follicular cysts are usually asymptomatic, unilateral, thin walled, and filled with a watery, straw-colored fluid. Corpus luteum cysts are less common than follicular cysts. They are usually unilateral, but often appear complex, as they maybe hemorrhagic. Patients with a corpus luteum cyst may complain of dull pain on the side of the affected ovary. Theca luein cysts are the least common of the three types of functional ovarian cysts. They are almost always bilateral and are associated with pregnancy. Since the most common cause of a unilateral, asymptomatic ovarian cyst in young, menstruating woman is functional cyst, it is most reasonable to follow the patient conservatively and have her return after 1 to 2 months to recheck her ovary. More aggressive primary management with surgery is not indicated in a young, asymptomatic patient, CT scanning or pelvic ultrasound maybe indicated if the cyst is persistent. CA125 is a cancer antigen expressed by approximately 80% of the ovarian epithelial carcinomas. CA125 is not specific in women of childbearing age and is not useful for primary evaluation of an ovarian cyst in a young, asymptomatic patient CA125 testing is valuable in evaluation postmenopausal women with pelvic masses and in assessing treatment response for CA125 producing ovarian cancers.

Question 2\ The answer is C

Benign cystic teratomas (dermoids) are the most common germ cell tumors and account for about 20% to 25% of all ovarian neoplasms. They occur primarily during the reproductive years, but may also account in postmenopausal women and in children. Dermoids are usually unilateral, but 10% are bilateral. Usually the tumors are asymptomatic, but they can cause sever pain if there is torsion or the the sebaceous material perforates, spills, and creates a reactive peritonitis.

Question 3\ The answer is C

Most ovarian malignancies are not found until significant spread has occurred; therefore it is not unreasonable to further evaluate patients as soon as there is a suspicion of an ovarian neoplasm. Pelvic ultrasonography, tumor markers and even surgical exploration may be part of the evaluation of a patient with an ovarian mass. Pelvic ultrasound findings of internal ovarian papillary vegetation, ovarian size greater than 10 cm, the presence of ascites, possible ovarian torsion, or solid ovarian lesions are indications for exploratory laparotomy in the postmenopausal patient. In a younger woman, a cyst can be followed past one menstrual cycle to determine if it is a follicular cyst, since a follicular cyst should regress after onset of the next menstrual period. If regression doesn't occur, then surgery is appropriate. Doppler ultrasound imaging allows visualization of arterial and venous flow patterns, superimposed on the image of the structure, benign examined arterial and venous flow are expected in a normal ovary

Question 4\ The answer is a

The most common ovarian neoplasms in young women in their teens and early twenties are of germ cell origin. Epithelial tumors of the ovary, which are quite rare in prepubertal girls, are benign in approximately 90% of all cases.

For mistakes or feedback

Obgynteam432@gmail.com