



# PREMENOPAUSAL ADNEXAL MASS

FLAME LECTURE: 230

RANDALL / BURNS 12.24.15

# Learning Objectives



- ▶ Outline the approach to a patient with an adnexal mass
- ▶ Compare the characteristics of functional cysts, benign ovarian neoplasms and ovarian cancers
- ▶ Prerequisites:
  - ▶ NONE
- ▶ See also – for closely related topics
  - ▶ FLAME LECTURE 231 – Postmenopausal Adnexal Mass
  - ▶ FLAME LECTURE 232 – Ovarian Cancer

# ADNEXAL MASSES OVERVIEW

- ▶ What's the most likely cause?
  - ▶ Premenopausal women: functional cyst
  - ▶ Postmenopausal women: serous cystadenoma
- ▶ What's the most concerning cause? OVARIAN CANCER
  - ▶ < 15 years old: most common ovarian cancer - yolk sac tumor (=endodermal sinus tumor)
  - ▶ 15 – 30 yo: most common ovarian cancer - germ cell tumor
  - ▶ > 55 yo: most common ovarian cancer - epithelial tumor
- ▶ There is NO effective screening method for ovarian cancer at this time
  - ▶ Thus, even though the majority of ovarian masses are benign, we have a low threshold for escalating work up to rule out cancer
  - ▶ Most adnexal masses are discovered incidentally on exam or imaging and investigation must be broadened beyond gynecologic causes



# DIFFERENTIAL DIAGNOSIS

## Gynecologic

### BENIGN

#### Functional Cyst

Leiomyomata

Endometrioma

Tubo-ovarian abscess

Ectopic pregnancy

Mature teratoma

Serous cystadenoma

Hydrosalpinx

Paratubal cyst

### MALIGNANT

#### Germ cell tumor

Sex cord/stromal tumor

Epithelial carcinoma

## Non-Gynecologic

### BENIGN

#### Diverticular abscess

Appendicitis

Nerve sheath tumor

Ureter diverticulum

Pelvic kidney

Bladder diverticulum

### MALIGNANT

#### GI cancers

Retroperitoneal sarcomas

Metastases

# OVARIAN CANCER SYMPTOMS

- ▶ The symptoms of ovarian cancer are very insidious and should always be asked of any patient of any age with a known pelvic mass
  - ▶ Are you experiencing any abdominal or pelvic pain?
  - ▶ Have you been having any abnormal vaginal bleeding?
  - ▶ Have you noticed you get full quickly, have a decreased appetite, or feel bloated?
  - ▶ Have you experienced any weight loss over the past three to six months that you haven't been trying to lose?

# OVARIAN CANCER

- ▶ Woman's lifetime risk: 1 in 70
  - ▶ If diagnosed at Stage I, 5-year survival is 90% BUT:
  - ▶ Most women are diagnosed at an advanced stage 2/2 the insidious nature of their symptoms, and 5-year survival is 30-55%!
- ▶ Risk factors:
  - ▶ Family hx is the strongest risk factor: BRCA 1 carriers have 60-fold increased risk, BRCA 2 carriers have 30-fold increased risk, and Lynch carrier has 13-fold increased risk
  - ▶ Anything that causes increased ovarian epithelium turnover causes more repair and more opportunities for cancer development
    - ▶ Conversely, factors that decrease ovulation, thereby decreasing ovarian epithelium disruption, are considered protective
- ▶ Most ovarian cancers are diagnosed in *postmenopausal* women

## RISK FACTORS

- ★ Familial ovarian cancer syndrome (BRCA, Lynch)
- ★ Ovarian cancer family hx
- Personal hx of breast cancer
- Early menarche / late menopause
- Infertility / nulliparity
- Increasing age

## PROTECTIVE FACTORS

- Oral contraceptives
- Breastfeeding
- Multiparity
- Chronic anovulation (ex PCOS)
- BTL / salpingectomy / hysterectomy

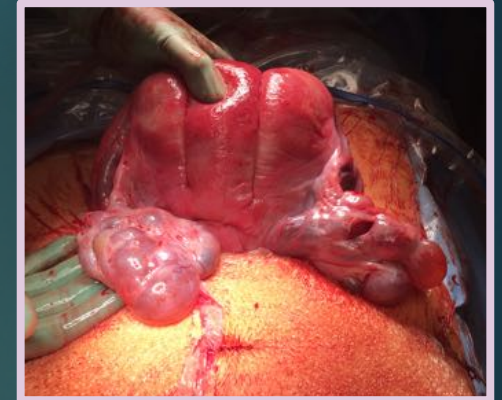


# BENIGN MASSES

- ▶ In premenopausal women, benign gynecologic masses are most commonly functional cysts
  - ▶ **Follicular cyst** – most common
    - ▶ Failure of follicular rupture during follicular phase, usually unilateral (3-8cm)
    - ▶ Resolves in 60-90 days
  - ▶ **Corpus luteum cyst** – CL that is >3cm or hemorrhagic
    - ▶ Over-enlargement of corpus luteum during luteal phase of cycle
    - ▶ Causes delayed menstruation

## BENIGN MASSES – CONT'D

- ▶ **Theca lutein cyst**
  - ▶ Due to abnormally high  $\beta$ -HCg (pregnancy, IVF, complete molar pregnancy)
- ▶ **Endometrioma** – “Chocolate cyst”
  - ▶ Ectopic endometrial tissue + pelvic pain, dysmenorrhea, dyspareunia, infertility
- ▶ **Mature teratoma** – “Dermoid”
- ▶ **Complications:** 4-10cm cyst can cause ovarian torsion
  - ▶ <5cm, twisted ovary would self resolve
  - ▶ >10cm, too large to torse
  - ▶ Dermoid cysts at particularly high risk of torsion





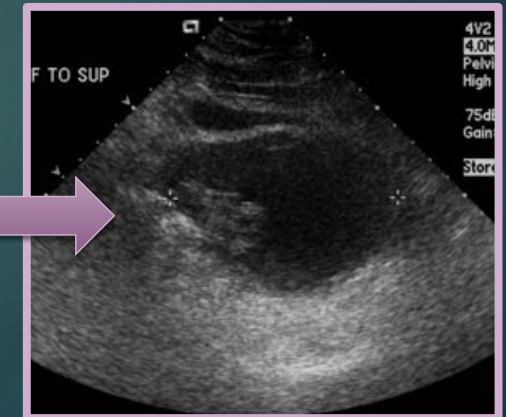
# EVALUATION OF ADNEXAL MASS

## ▶ Physical exam:

- ▶ Is beneficial for discovering masses incidentally, however has low sensitivity and is generally difficult to differentiate between benign and malignant conditions
  - ▶ Has especially limited ability to detect masses in patients with high BMI

## ▶ Transvaginal ultrasound:

- ▶ Pros: highly available and tolerable, cost-effective, most effective routine imaging
- ▶ Cons: lacks specificity and positive predictive value for cancer, especially in premenopausal women
- ▶ Concerning findings: mixed or solid consistency, + septations, mural nodules, **papillary excrescences** (outgrowths), ascites
- ▶ Benign findings:
  - ▶ Benign cysts: Round, unilocular, thin-walled sonolucent cysts with smooth, regular borders
  - ▶ Mature teratoma (dermoid cyst): hypoechoic attenuating component with multiple small homogeneous interfaces



# BENIGN CYST EVALUATION - TVUS

Pre-menarche

< 2cm

Repeat US in  
6-12 weeks

> 2cm

Surgical  
evaluation

*\*While waiting for repeat US,  
provide OCP's (won't resolve  
current cyst but will prevent  
future cysts)*

Pre-menopausal

< 5 cm

No follow-up

5 – 10 cm

Hemorrhagic

Repeat US in  
6-12 weeks

Non-hemorrhagic

Repeat US in  
1 year

> 10 cm

Surgical  
evaluation

Post-menopausal

Hemorrhagic

Repeat US in  
6-12 weeks

Non- hemorrhagic

< 3cm

No follow-up

3 – 5 cm

Repeat US in  
1 year

5 – 10 cm

Repeat US in  
6-12 weeks

> 10 cm

Surgical  
evaluation

# EVALUATION OF ADNEXAL MASS

## ▶ CT, MRI, PET:

- ▶ Not recommended for initial evaluation and don't add significantly to TVUS
  - ▶ CT best used to look for metastases after all other workup suggests possible malignancy
  - ▶ MRI useful for distinguishing origin of non-adnexal masses but not for ovarian tumors

## ▶ Serum CA-125:

- ▶ Low sensitivity because only elevated in 50% of stage I cancers and can also be elevated due to other conditions (fibroids, endometriosis, PID, ascites, pregnancy)
  - ▶ Higher sensitivity in postmenopausal women because less incidence of alternative causes of elevation
- ▶ CA-125 is NOT diagnostic. Usually measured to trend responses to treatment and recurrence
  - ▶ However CA-125 should still be measured in evaluation of adnexal masses because extreme values are still helpful (e.g. Mass in premenopausal woman with CA-125 of 300 is suspicious)

# BENIGN CYST EVALUATION - LABS

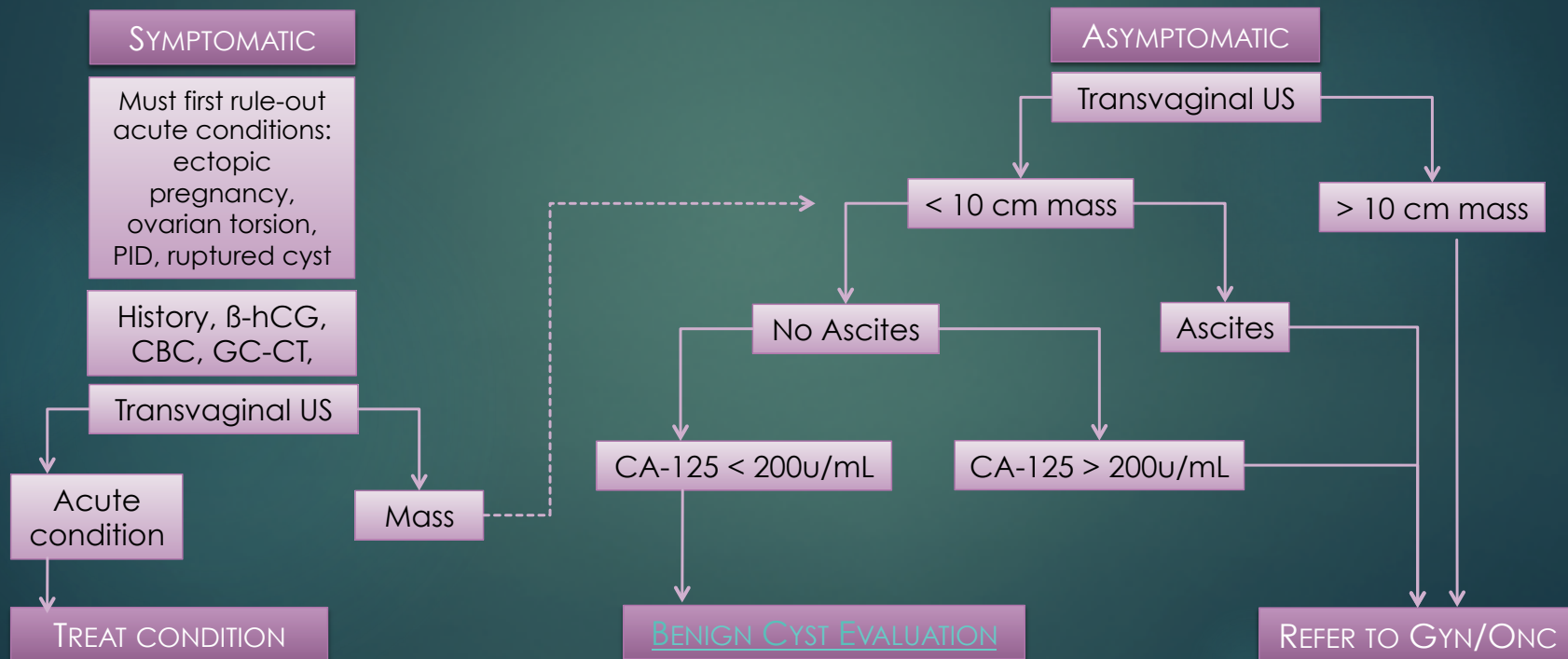
In the premenopausal patient, laboratory evaluation is generally reserved for **complex** masses > 5 cm and/or associated symptoms (AUB, virulization, hirsutism).

Tumor marker:	Typically elevated in:
CA-125	Epithelial ovarian cancer
Inhibin A	Granulosa cell tumor
Anti-mullerian hormone	Granulosa cell tumor
LDH	Dysgerminoma, endodermal sinus
AFP	Endodermal sinus, Embryonal
HCG	Choriocarcinoma
Testosterone/DHEA	Sertoli-Leydig cell tumor

\*\* Mixed cell-type tumors, such as gonadoblastomas or mixed germ-cell tumors, display a range and mix of tumor markers.

# SUMMARY OF WORK-UP

## ADNEXAL MASS IN PREMENOPAUSAL FEMALE



# ADNEXAL MASSES IN PREGNANCY

- ▶ Up to 3% of pregnant women have an identified adnexal mass at the time of delivery
- ▶ Most common pathologic causes include: mature teratomas, theca lutein cysts, corpus luteum cysts. Malignancies are very rare.
- ▶ Changes to evaluation process:
  - ▶ TVUS is still preferred but may need to add abdominal ultrasound if at high gestational age
  - ▶ MRI is preferred to CT for additional imaging to avoid fetal radiation
  - ▶ CA-125 levels are elevated in pregnancy, peaking in the first trimester
- ▶ **Complications:** adnexal masses do not pose risk to the pregnancy, however masses >5 cm are at risk for torsion following delivery because the space created by the shrinking uterus allows more opportunity for twisting
  - ▶ Treatment: expectant management with close postpartum follow-up
  - ▶ If symptomatic then can safely perform surgery during pregnancy



## IMPORTANT LINKS / REFERENCES

- ▶ [ACOG Practice Bulletin 83](#), July 2007  
("Management of Adnexal Masses")
  1. UpToDate.com
  2. Callahan & Caughey *Blueprints: Obstetrics & Gynecology* 6<sup>th</sup> ed. 2013