Ovarian Mass – Now What? Work-up, observation, or surgery?

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Objectives

1. Identify high risk features of ovarian mass on ultrasound
2. Recognize patients needing further work up
3. Order appropriate tumor markers
4. Further imaging? When and what?
5. Recognize patients requiring operative management: Benign gynecology or gynecologic oncology?

Case 1

22 yo comes to the emergency department with sudden onset left lower quadrant pain. She is hemodynamically stable with normal labs, and mild tenderness in the LLQ on abdominal and pelvic exam. Pelvic ultrasound demonstrates a 5 cm hemorrhagic ovarian cyst.

First line imaging: Ultrasound!

- Malignancy
  - Sensitivity 86-91%
  - Specificity 68-83%
- Endometrioma
  - Sensitivity 92%
  - Specificity 97%
- Dermoid
  - Sensitivity 90%
  - Specificity 98%

High risk features on ultrasound

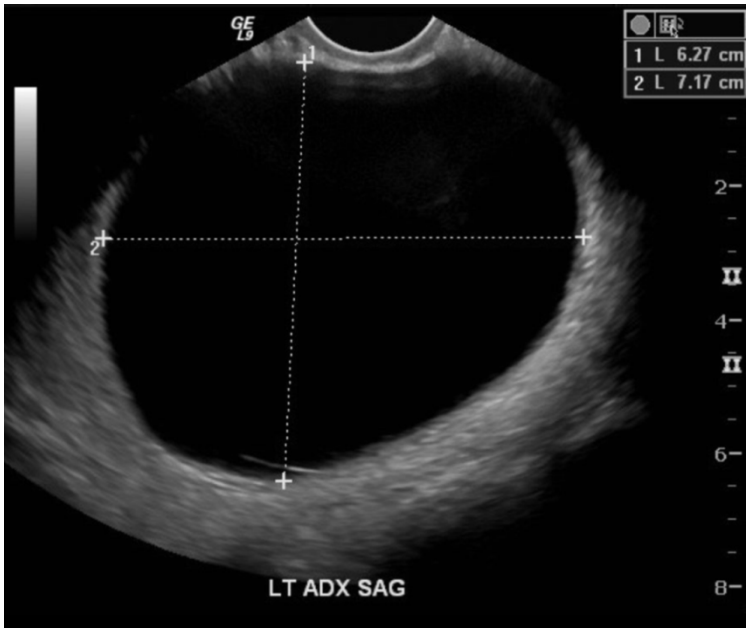
Low Risk

- Unilocular
- Anechoic fluid
- Unilateral
- No solid components
- Size < 6 cm
- Mobile

High Risk

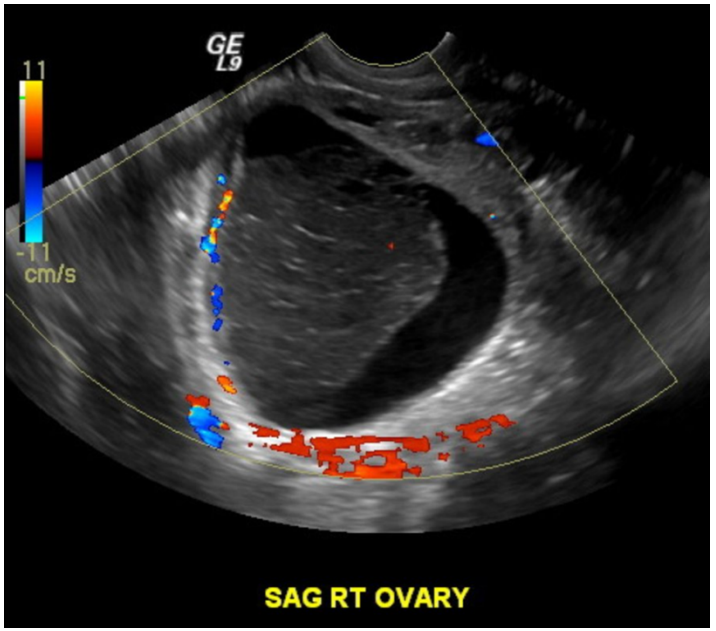
- Thick, irregular septations
- Bilateral
- Solid components (esp >50%)
- Doppler flow in solid areas
- Size >10 cm
- Fixed
- Rapid enlargement

Examples of benign appearance



Unilocular, simple, small

Simple cyst



Single cyst, layering contents (hyperechoic)

Hemorrhagic cyst

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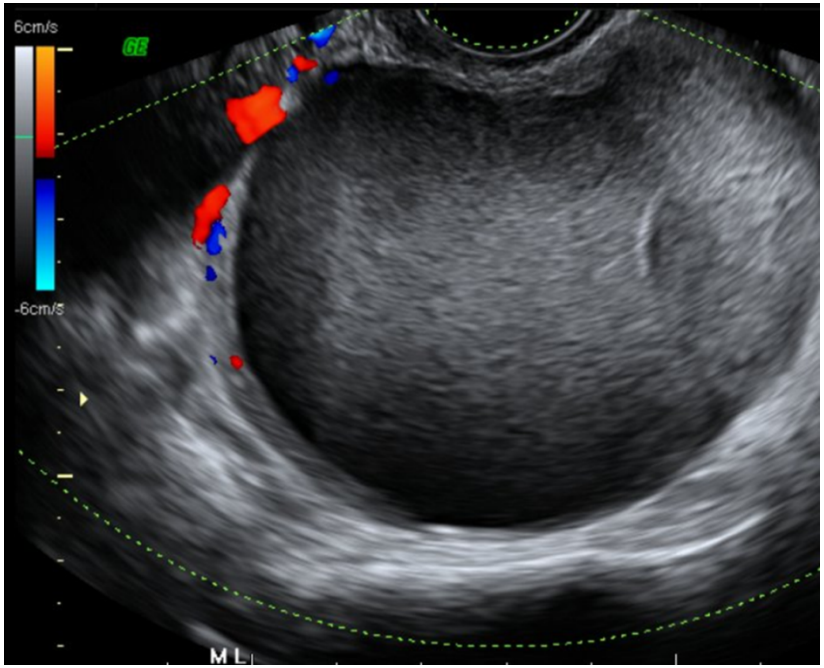
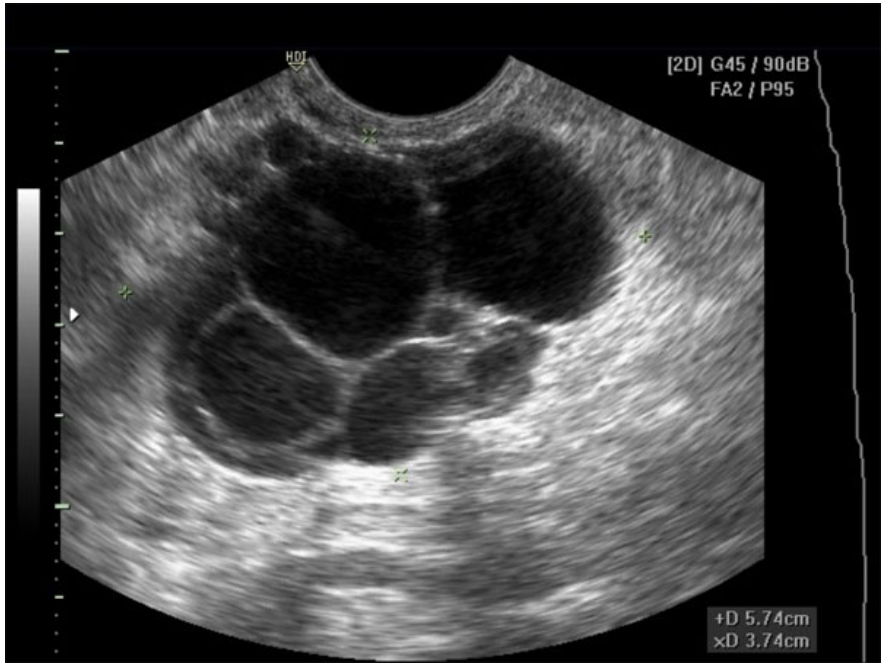
Examples of benign appearance



Unilocular, homogeneous, internal echos

Endometrioma



Multilocular, simple fluid, low echos

Benign mucinous cystadenoma

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When to just watch

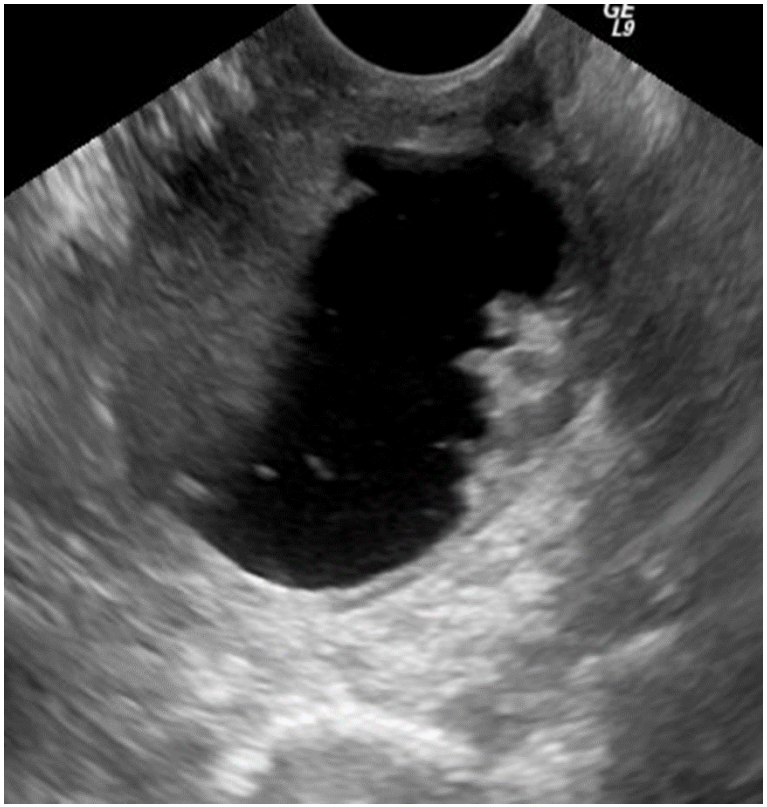
When?

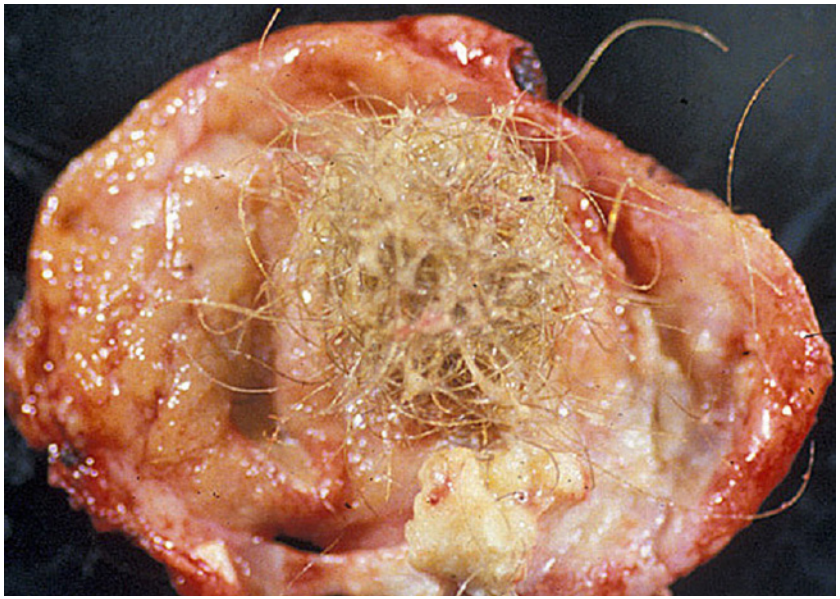
- < 6 cm
- Unilocular
- Simple fluid
- Hemorrhagic cyst in premenopausal woman

How?

- Repeat ultrasound in 3 months
- Return visit in 3 months to discuss symptoms
- If premenopausal, and recurrent bothersome cysts, consider OCPs

Complex mass, benign





Complex, cystic mass, mural nodularity, 4 cm

Dermoid

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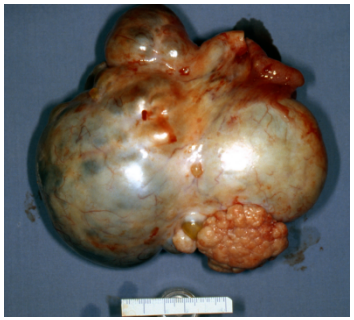
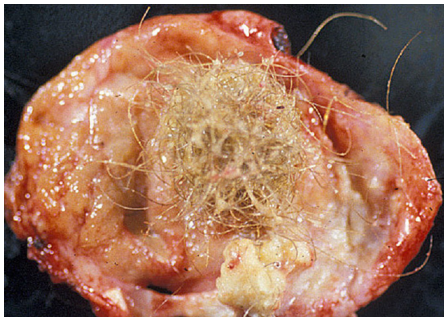
Benign but better off removed

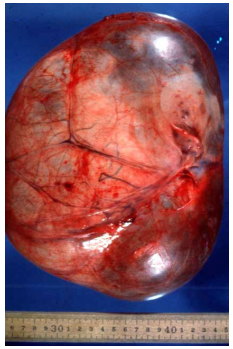
- Dermoid
- Endometrioma
- > 10 cm
- Serous/Mucinous cystadenoma
- Cystadenofibromas



Serous cystadenofibroma



Dermoid



Serous cystadenoma

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Tumor Markers

Any concerning mass:

- CA125
- CA19-9 (mucinous, pancreatic)
- CEA (colon)

Premenopausal:

- He4
- AFP, LDH, β-HCG (if solid mass)

Other:

- Inhibin A/B (granulosa cell tumor)
- Estrogen

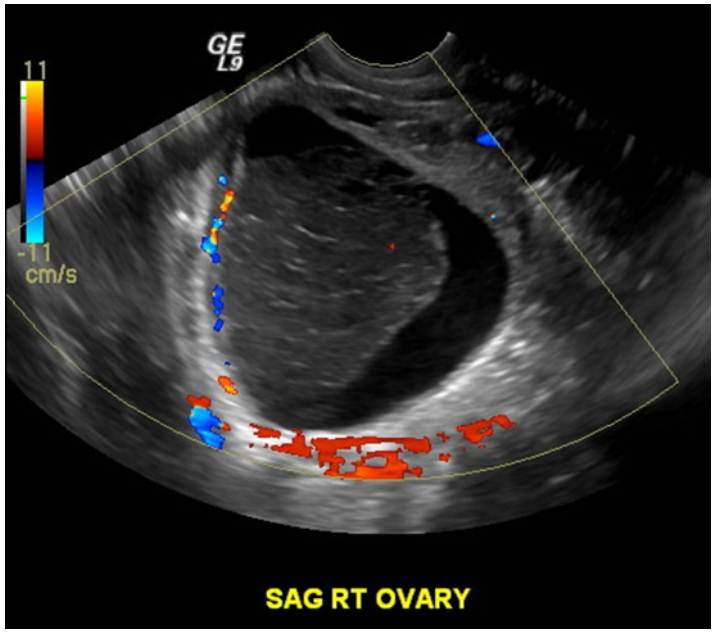
He4

- Use for pre-menopausal patients
- Can help differentiate cancer from endometriomas and endometriosis

	Ovarian Cancer	Endometriosis
CA125	HIGH	HIGH
HE4	HIGH	LOW

Case 1 – follow up

- Diagnosis: Hemorrhagic cyst
- No tumor markers needed
- Urine pregnancy test negative (pre-menopausal)
- Repeat U/S in 3 months – cyst resolved
- Symptoms resolved, patient elected to start OCPs



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Case 2

27 yo with a 2 year history of pelvic pain and a known ovarian cyst which was being “watched.” Presents to Michigan Medicine GYN for second opinion. Exam: a large mobile mass noted extending to the umbilicus, unable to differentiate adnexa and uterus separately. BMI 20.

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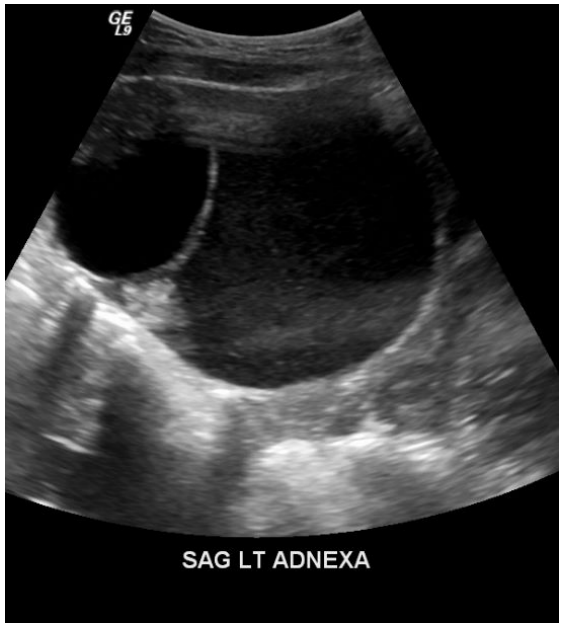
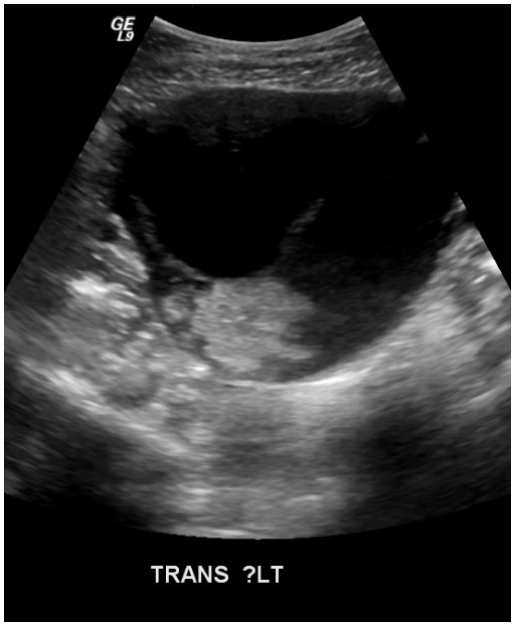
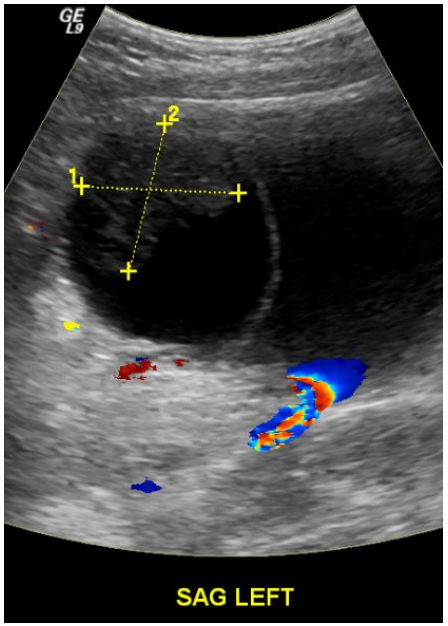
Pelvic Ultrasound







16 cm, multiloculated, complex, septations
The left ovary is not visualized separate

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Case 2 - Tumor Markers

- CA125: 51
- CA19-9: 131 (elevated)
- CEA<1
- HE4: 65

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Case 2 – Follow up

- Referred to Gynecologic Oncology
- Underwent left salpingo-oophorectomy
- Intra-operative findings: 20 centimeter complex left ovarian cyst with filled with thick mucus and thick septation. 3cm cauliflower lesion at base of this ovarian cyst
- Diagnosis: Borderline mucinous cystadenoma

When to order more imaging

- High risk features
- Concern for metastatic disease (Order CT)
- Fibroids vs adnexal mass (Order MRI)
- Desire for fertility preservation
- Poor quality imaging on ultrasound

When to order more imaging

CT (Abdomen/Pelvis)

- Pros:
  - Lower cost
  - Quick scheduling
  - Better for metastatic disease
  - Determine resectability
- Cons:
  - Less detail of pelvic organs

MRI (Pelvis)

- Pros:
  - Fine detail of pelvic organs (mass vs fibroid)
- Cons:
  - Expensive
  - Scheduling times
  - Need to protocol abdomen and pelvis separately

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Who needs surgery?

Post-menopausal

- Complex mass
- > 6 cm
- Hemorrhagic cyst
- Elevated CA125
- Rapidly enlarging
- Symptomatic

Premenopausal

- Complex
- Rapidly enlarging
- > 6-10 cm and persistent
- Symptomatic
- Elevated tumor markers

Surgical management: Cystectomy vs unilateral salpingo-oophorectomy

Pre-menopausal

- Cystectomy acceptable if small, benign appearance, and desires fertility
- Remove entire cyst wall
- If torsion, need to assess ovary for viability
- Large masses may not be safe for cystectomy 2/2 bleeding

Post-menopausal

- Always unilateral salpingo-oophorectomy

A word about "Salpingectomy for Ovarian Cancer Prevention"

- For BRCA mutation carriers who choose not to undergo risk-reducing salpingo-oophorectomy or elect to delay this surgery, physicians should counsel these women regarding the option of salpingectomy after childbearing followed by oophorectomy at a later date.

- For women at average risk for ovarian cancer, salpingectomy should be considered (after completion of childbearing) at the time of hysterectomy, in lieu of tubal ligation, and also at the time of other pelvic surgery.

SGO Clinical Practice Statement, November 2013

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Referral to Gynecologic Oncology

Pre-menopausal

- Elevated CA 125 >200
- Ascites
- Evidence of abdominal or distant metastasis
- A family history of one or more first degree relatives with ovarian or breast cancer

Post-menopausal

- Elevated CA125 >35
- Complex mass
- A nodular or fixed mass
- Ascites
- Evidence of abdominal or distant metastasis
- A family history of one or more first degree relatives with ovarian or breast cancer

ACOG Practice Bulletin #83, Obstetrics and Gynecology.

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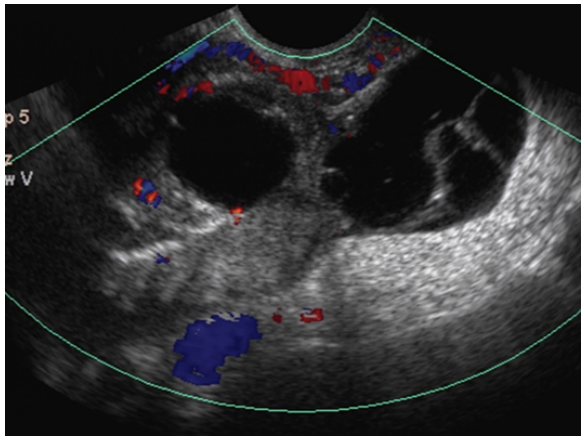
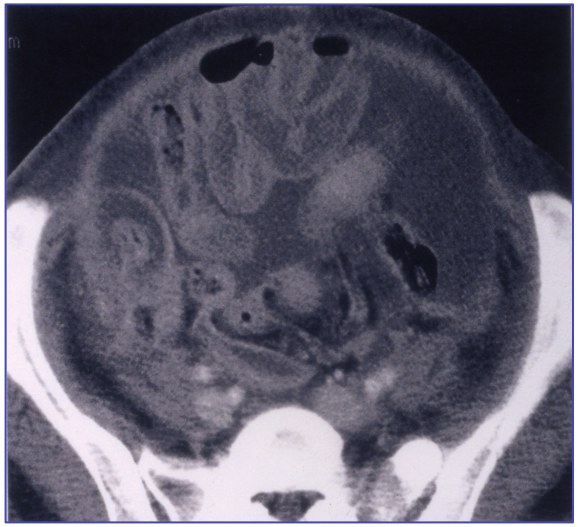
Case 3

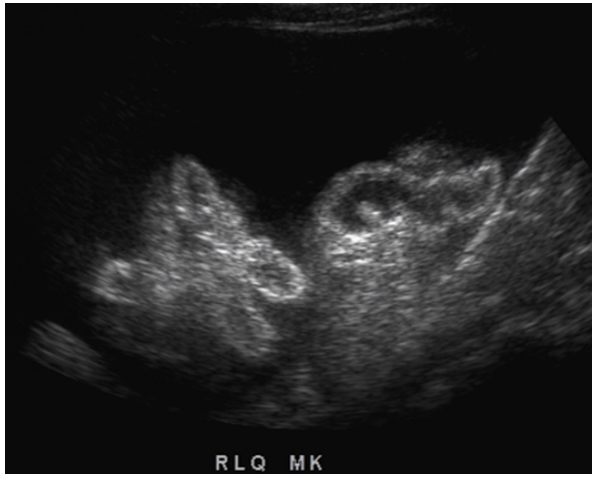
A 53 year old perimenopausal woman presents with abdominal fullness and bloating for 3 months. On abdominal exam she is slightly distended with possible fluid wave suggesting ascites. Bimanual exam reveals irregular, nodular bilateral adnexal masses. No family history of cancer

Case 3 - Tumor Markers and Imaging

- CA125: 5160 (elevated)
- CA19-9: 13
- CEA: <1







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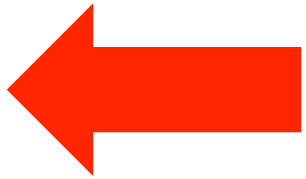
Ovarian Cancer is NOT silent

Symptomatic, advanced stage	97%
Symptomatic, early stage	89%
Most common symptoms	GI
Least common	Gyn
Duration before seeking care	3 mo.



Most disease is NOT asymptomatic!

Goff BA, Cancer 2000; 89:2068

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Ovarian Cancer is NOT silent

Women with daily symptoms for more than a few weeks should see their doctor

- Bloating
- Pelvic or abdominal pain
- Difficulty eating or feeling full quickly
- Urinary urgency or frequency

SGO, ACS, GCF consensus statement - June 2007

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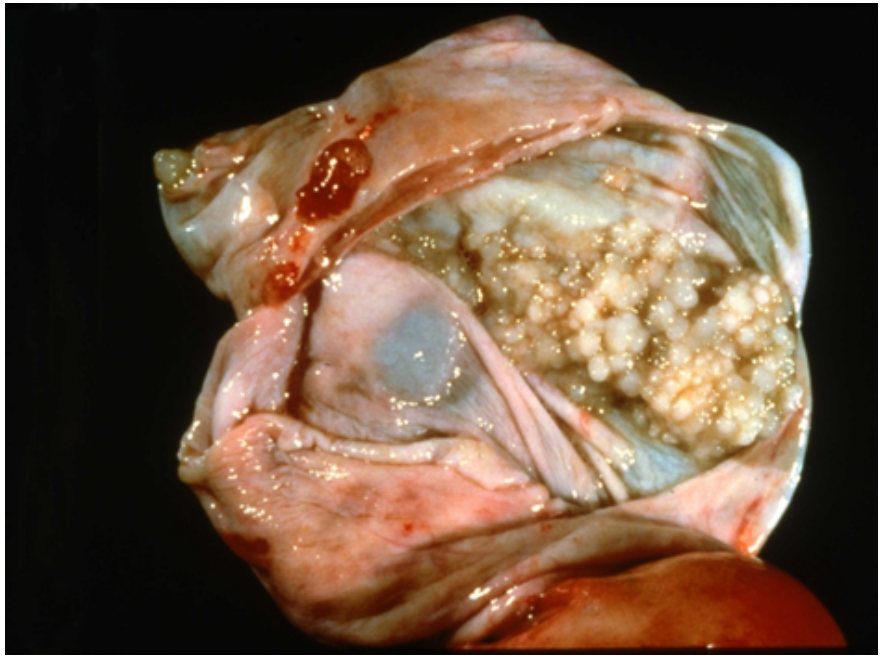
Case 3 – Follow up

- Referred to Gynecologic Oncology
- Exploratory laparotomy, total abdominal hysterectomy, bilateral salpingo-oophorectomy, and surgical staging
- 2 liters ascites
- Bulky omental disease
- Diagnosis: Stage IIIC high grade serous ovarian cancer



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Ovarian Cancer Risk: Five Important Factors

- Age
- Family history
- Physical exam
- Imaging
- Tumor Markers

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Objectives

1. Identify high risk features of an ovarian mass on ultrasound
   a) Thick, irregular septations
   b) Solid components (esp >50%)
   c) Doppler flow in solid areas
   d) Size >10 cm; rapid growth

2. Recognize patients that need further work up for an ovarian mass
   a) Postmenopausal
   b) Complex mass
   c) Ascites
   d) Concern for metastases

Objectives

3. Order appropriate tumor markers
   a) For all concerning masses: CA125, CA19-9, CEA
   b) Premenopausal: add HE4
   c) Sometimes: LDH, inhibins, AFP, bhcg (particularly pre-menopausal with solid mass)

4. Further imaging?
   a) CT – for metastatic work up
   b) MRI – only in specific circumstances

5. Recognize patients requiring operative management
   a) Benign gynecology
   b) Gynecologic oncology

Resources

- Gostout and Brewer MA. Guidelines for referral of the patient with an adnexal mass. Clin Obstet Gynecol. 2006 Sep;49(3):448-58.
- ACOG practice bulletin 83: Management of Adnexal Masses

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