AMSER Case of the Month:
Ovarian Mass in a 47 Year-old Female

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Patient Presentation

- The Patient is a 47yo WF who presented to her PCP at OSH c/o a pulling sensation in her RLQ. She was found to have a R-sided adnexal mass on CT, negative for lymphadenopathy or met’s. She was scheduled for an exploratory laparotomy on 8/26.


Pertinent Labs

• Physical exam: Palpable mass/fullness in RLQ to midline, mild generalized tenderness to palpation, no distention or ascites, no hepatosplenomegaly, no lymphadenopathy

• Labs: CA-125 elevated
What Imaging Should We Order?
## ACR Appropriateness Criteria

**Variant 2:** Clinically suspected adnexal mass, no acute symptoms. Postmenopausal. Initial imaging.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness Category</th>
<th>Relative Radiation Level</th>
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<tbody>
<tr>
<td>US duplex Doppler pelvis</td>
<td>Usually Appropriate</td>
<td>O</td>
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<tr>
<td>US pelvis transvaginal</td>
<td>Usually Appropriate</td>
<td>O</td>
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<tr>
<td>US pelvis transabdominal</td>
<td>Usually Appropriate</td>
<td>O</td>
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<td>MRI pelvis without and with IV contrast</td>
<td>May Be Appropriate</td>
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<tr>
<td>CT pelvis with IV contrast</td>
<td>Usually Not Appropriate</td>
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<tr>
<td>FDG-PET/CT skull base to mid-thigh</td>
<td>Usually Not Appropriate</td>
<td>📌-bold</td>
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Scout abdominal x-ray (unlabeled)
Scout abdominal x-ray (labeled)

Intestines displaced around the R-sided pelvic mass
CT abdomen/pelvis (axial view, unlabeled)
CT abdomen/pelvis (axial view, labeled)

- Pelvic mass
- Thickened nodular septations
- Cystic components
CT abdomen/pelvis (sagittal view, unlabeled)
CT abdomen/pelvis (sagittal view, labeled)

Pelvic Mass
Differential Diagnosis Based On Imaging:

- Ovarian cystic neoplasm (cystadenoma vs. cystcarcinoma)
- Simple adnexal cyst
- Endometrioma
- Teratoma
Gross Surgical Specimen: R ovary

- Size: 15.0 x 14.0 x 8.0cm
- Smooth, tan-pink and glistening external surface
Specimen is immediately evaluated by the pathologist in the frozen room

- The internal surface is tan-pink with diffuse tan papillary-like projections occupying approximately 95% of the overall internal lining
- The specimen consists of a uniloculated cyst containing a mucinous, bloody fluid
Specimen is immediately evaluated by the pathologist in the frozen room

- Within 20 min of resection, the pathologist performs a rapid microscopic analysis of the specimen
- The sample is placed on a metal tissue disk and is rapidly frozen to -20 to -30°C
- Specimen is embedded in a gel-like medium
- Small slices are made with a microtome (pictured to the right) and evaluated on a glass slide
- Initial impression of frozen section: borderline ovarian tumor (image not shown)
• Numerous delicate micropapillae with no fibrovascular cores (100x amplification)
• Micropapillae radiate in “medusa” nonhierarchical branching pattern from thick fibrous stalks
• Micropapillae are covered by cuboidal / columnar cells with relatively uniform mildly atypical nuclei (200x amplification)
Final Dx:

Serous borderline ovarian tumor, micropapillary type
Case Discussion

• Borderline tumors of the ovary are tumors of low-malignant potential
• They are defined histologically by an atypical epithelial proliferation without stromal invasion
• Borderline ovarian tumors account for 14-15% of all primary ovarian tumors
• A diagnosis of borderline ovarian tumor on frozen-section implies the need for comprehensive surgical staging; however, no postoperative treatment is typically warranted and the tumors have an excellent prognosis
Case Discussion

• Borderline ovarian tumors behave intermediately between benign cystadenomas and invasive carcinomas

• Serous borderline tumors with a micropapillary pattern behavior more similarly to low-grade invasive carcinomas, when compared to typical serous borderline tumors

• Management of borderline ovarian tumors includes resection and frozen-section examination, whenever possible
References:


• Trimble C.L., Trimble E.L. Ovarian tumors of low malignant potential. Oncology (Williston Park) 2003; 17: 1563