AMSER Rad Path Case of the Month November 2022

30-year-old female with incidental finding of a pelvic mass

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Patient Presentation

- HPI: 30 y/o F presented to the ED with diarrhea that started in the morning, and progression to nausea, vomiting and abdominal pain as the day progressed.
- She denied urinary symptoms, vaginal bleeding, shortness of breath, chest pain, or fevers.
- PE: Obese-appearing woman, in no acute distress, soft abdomen with slight tenderness, no guarding.
- PMH: None
- PSH: None

Pertinent Labs

- Hgb 13.6, Hct 43.3, WBC 13.5
- β-HCG: <1
- Vitals: 152/78, HR 97,RR 16, Temp 37.2 ℃

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Variant 4: **Acute nonlocalized abdominal pain. Not otherwise specified. Initial imaging.**

Procedure	Appropriateness Category	Relative Radiation Level
CT abdomen and pelvis with IV contrast	Usually Appropriate	☢☢☢
CT abdomen and pelvis without IV contrast	Usually Appropriate	☢☢☢
MRI abdomen and pelvis without and with IV contrast	Usually Appropriate	O
US abdomen	May Be Appropriate	O
MRI abdomen and pelvis without IV contrast	May Be Appropriate	O
CT abdomen and pelvis without and with IV contrast	May Be Appropriate	☢☢☢☢
Radiography abdomen	May Be Appropriate	☢☢
FDG-PET/CT skull base to mid-thigh	Usually Not Appropriate	☢☢☢☢
WBC scan abdomen and pelvis	Usually Not Appropriate	☢☢☢☢
Nuclear medicine scan gallbladder	Usually Not Appropriate	☢☢
Fluoroscopy upper GI series with small bowel follow-through	Usually Not Appropriate	☢☢☢
Fluoroscopy contrast enema	Usually Not Appropriate	☢☢☢

This imaging modality was ordered by the ER physician

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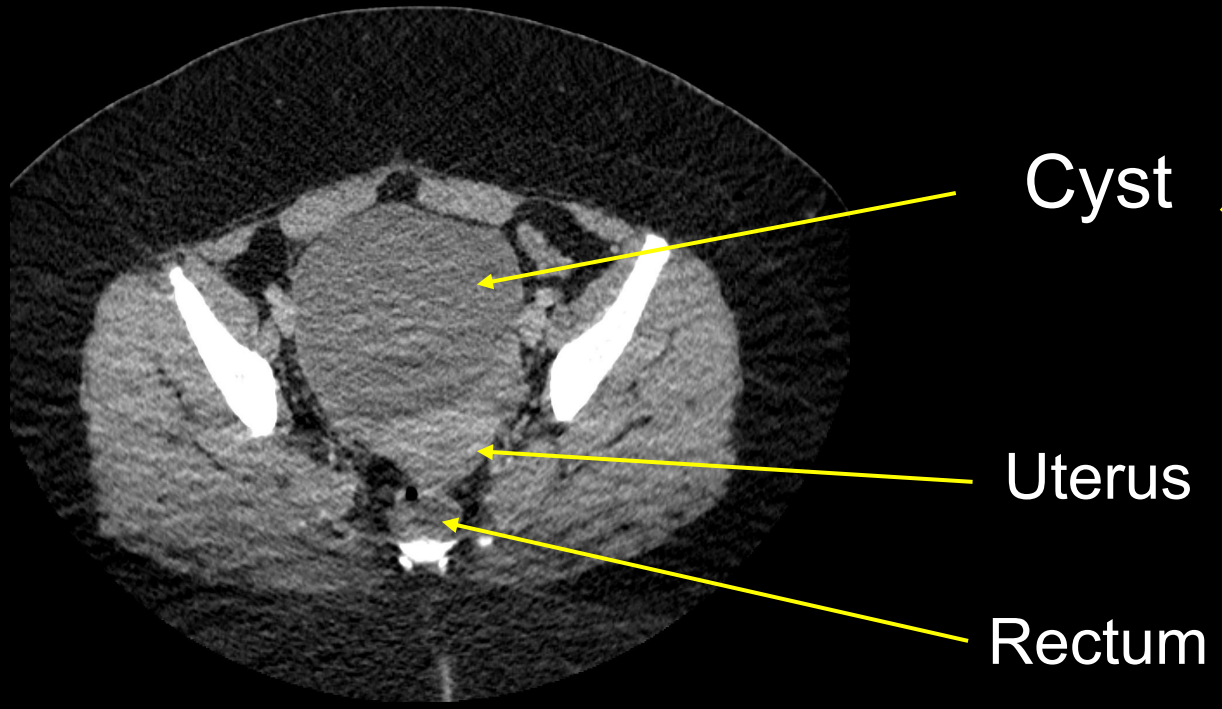
Findings: CT Abdomen and Pelvis with Contrast (unlabeled)

Findings: (labeled)



Note: the bladder (*) can be mistaken for the cystic lesion and is best appreciated on the sagittal image.

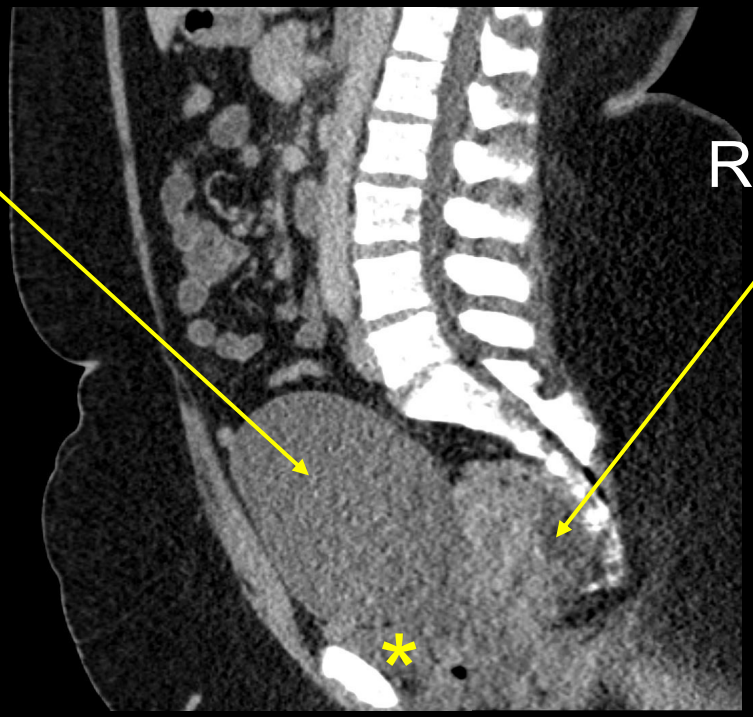
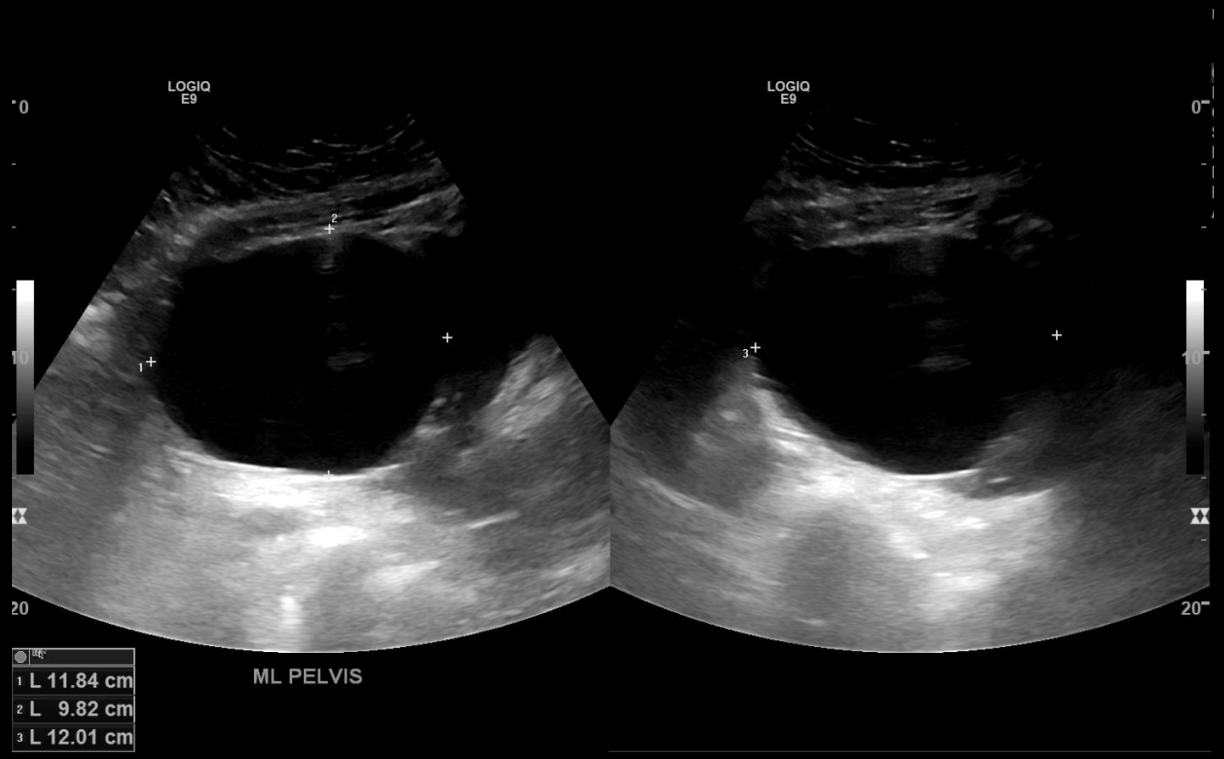
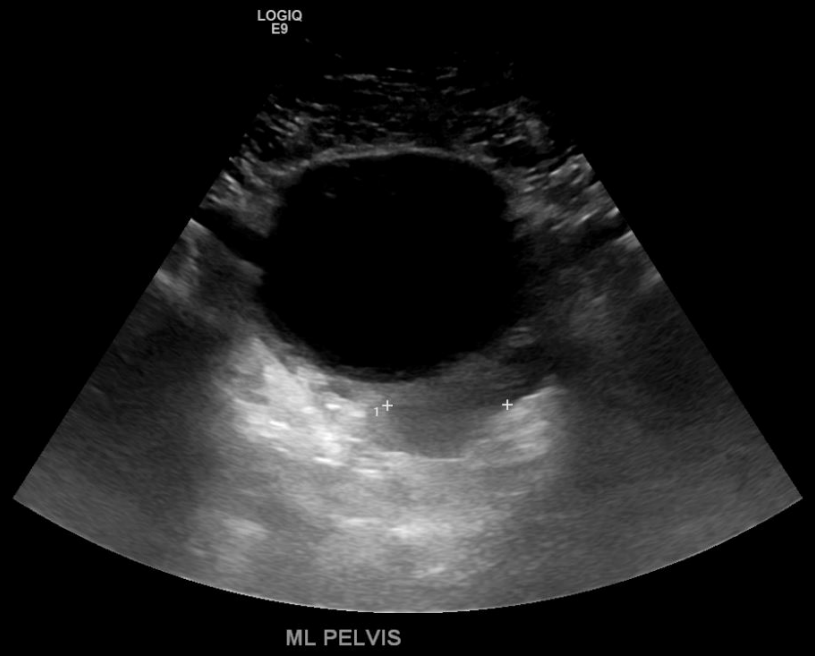


Figure A. Axial and sagittal view, showing a 11.7 x 12.1 x 9.7 cm midline pelvic mass, measuring 10 HU

Findings: US Pelvis (unlabeled)





Findings (labeled)

Figure B. Pelvic ultrasound showing a midline unilocular, anechoic cyst with a thin, imperceptible wall, maximum dimension of 11.8 cm. Difficult to tell if the lesion was ovarian or extra-ovarian. No normal ovarian parenchyma visualized (challenging study secondary to body habitus).

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Differential Based on Imaging

- Low-grade epithelial neoplasm
- Physiologic cyst
- Para-ovarian cyst
- Epithelial cystadenocarcinoma

Gross Images After Excision

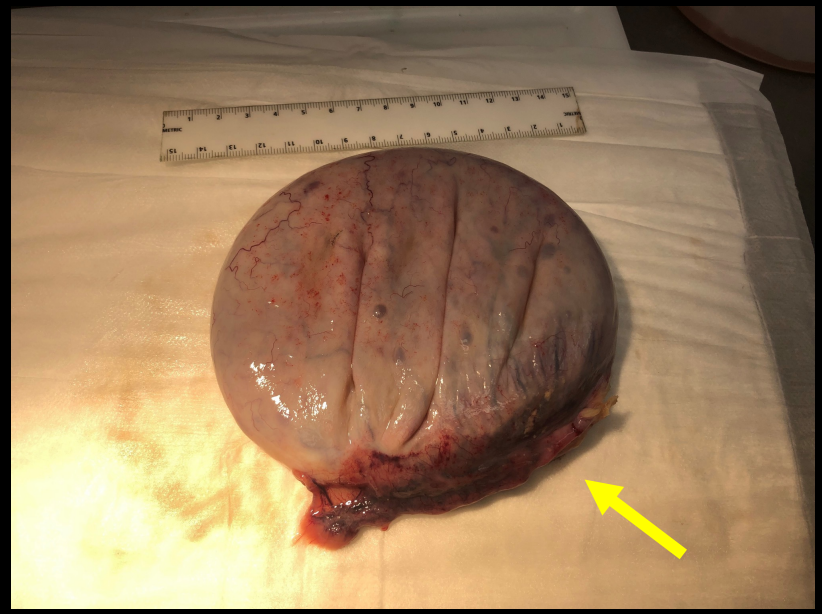

Figure C. Partially disrupted cyst originating from the right ovary, measuring 13.5 x 11.8 x 2.0 cm, tan-pink and smooth outer surface. Fallopian tube (yellow arrow) 6.5 cm in length, 0.5 cm in diameter.

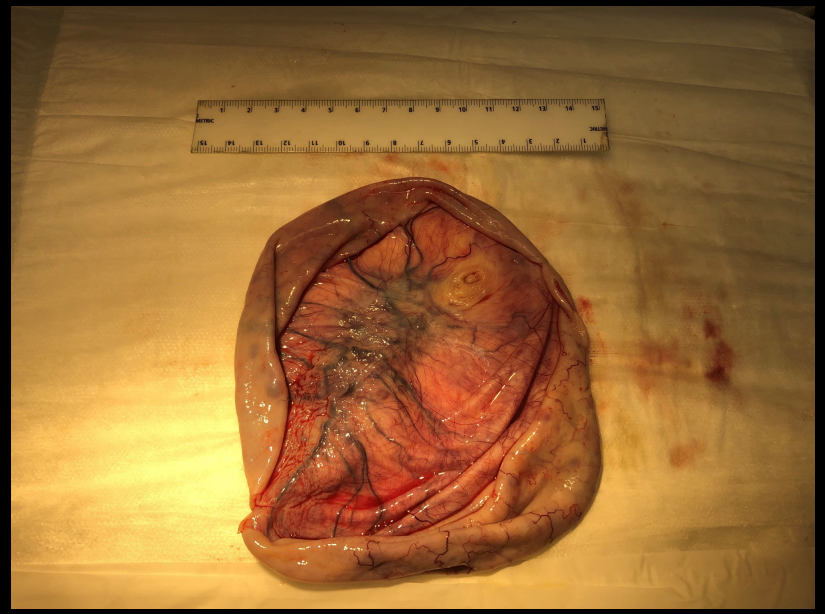

Figure D. Collapsed cyst, with a unilocular, smooth inner surface.

Figure E. Straw-colored fluid from the cyst, measuring about 80 mL.

Histology Findings

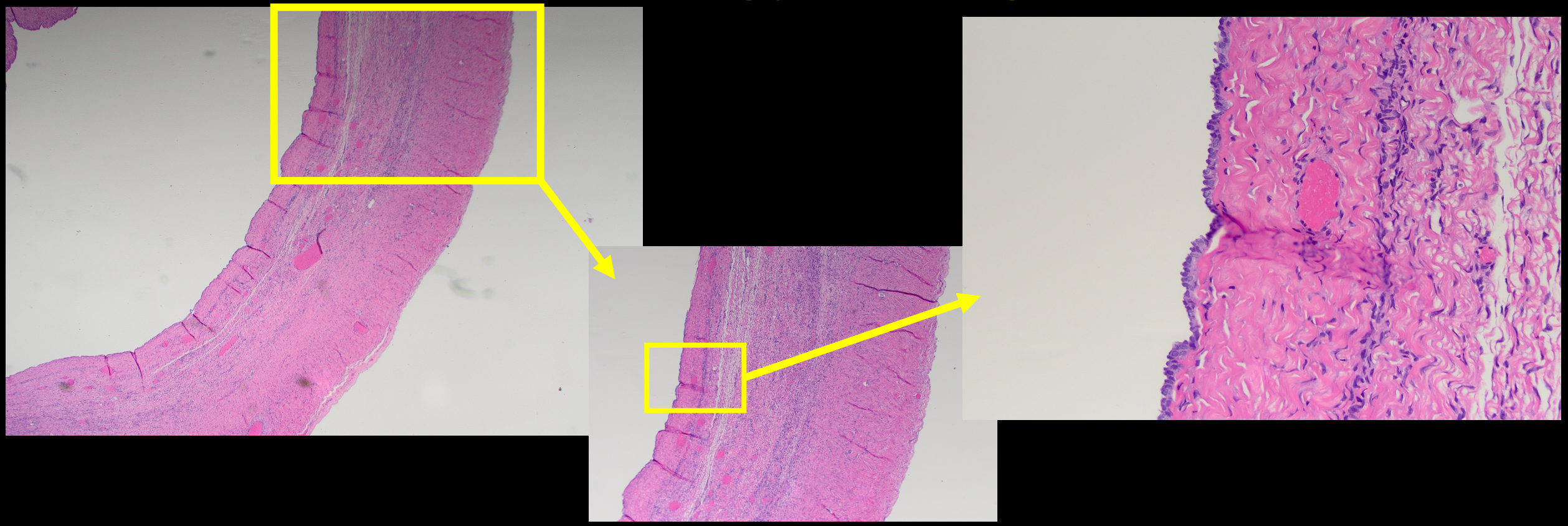

Figure F. Histology showing a uniloculated cyst wall, with monostratified serous epithelium

Final Dx:

Ovarian serous cystadenoma

About Ovarian Neoplasms

- Categorized on a histopathological basis into three categories: epithelial, germ cell/stromal, and sex cord.
  - Epithelial – most common
  - 16% of ovarian epithelial neoplasms are benign serous tumors
- Assessment of an ovarian-based mass will look for malignant features on imaging, pathology, or gross, and include:
    - Multilocular
    - Papillary projections
    - Irregular inner wall/septa
    - Solid components

Ovarian Serous Cystadenoma

- Epidemiology: Mean age from 40 to 60 years, bilateral in 10-20% of cases
- Clinical Presentation: Range from asymptomatic to pelvic pressure and pain, or change in urinary or bowel habits due to secondary pressure
- Differential Diagnoses: Serous borderline tumor, endometriosis, hydrosalpinx, cystic struma ovarii, rete cystadenoma

Ovarian Serous Cystadenoma

- Imaging: Ultrasound – unilocular, anechoic adnexal lesion, no papillary projections
- Macroscopic Findings: Mean size 8-9 cm, unilocular, clear to straw colored fluid, smooth inner and outer surfaces
- Microscopic Findings: Varying amounts of cysts, glands or papillae lined by single layer of serous-type epithelium

Ovarian Serous Cystadenoma

- Treatment and Follow-Up: Depends on many factors, such as:
  - Symptoms, size, age of the patient, pre- or post-menopausal
  - Treatment includes surgical resection –unilateral salpingo-oophorectomy
    - A sample should be examined on histology to assess for any malignant features
  - Clinical recurrence is uncommon, but can occur with incomplete resection

References:

1. Georgescu, T. A., Bohiltea, R., Munteanu, O., Grigoriu, C., Paunica, I., & Sajin, M. (2021). A mini-review regarding the carcinogenesis and morphology of serous tumors of the ovary, fallopian tube and peritoneum. *Journal of Mind and Medical Sciences*, *8*(1), 44-52.
2. Limaiem F, Lekkala MR, Mlika M. (2019). Ovarian Cystadenoma. *StatPearls,* PMID: 30725635.
3. Taylor, E. C., Irshaid, L., & Mathur, M. (2021). Multimodality imaging approach to ovarian neoplasms with pathologic correlation. *Radiographics*, 41(1), 289-315.
4. Jeong, Y. Y., Outwater, E. K., & Kang, H. K. (2000). Imaging evaluation of ovarian masses. *Radiographics*, *20*(5), 1445-1470.

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