AMSER RadPath Case of the Month

58 year-old female with postmenopausal bleeding

Ifeoluwa Obayan, MS4, Drexel University College of Medicine
Dr. Matthew Hartman, Diagnostic Radiology, Allegheny Health Network
Dr. Alyssa Wield, Gynecologic Oncology, Allegheny Health Network
Dr. Sharon Liang, Surgical and GYN Pathology, Allegheny Health Network

AHN

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Patient Presentation

- HPI: This is a 58 yo G2P2 who presented to her OBGYN after acute onset PMP bleeding precipitated by an intense yoga session. The bleeding was light flow with small clots that lasted two days. She denies nausea and vomiting, consistent bloating, early satiety, or unintentional weight loss. She has normal bowel and bladder function. She denies any family hx of breast, colon, uterine, or ovarian cancer.
- Gyn Hx: Menarche at 13 yo, regular periods, menopause at 50 yo, uses vaginal estradiol PRN, used OCPs
- VS: BP 153/88, HR 100, RR 16, T 97.5, O2 sat 99%
- Physical Exam:
  - Abdomen: Thin, soft, mildly distended abdomen with soft, mobile mass from midline to left lower abdomen approximately 16 cm; nontender, no rebound or guarding
  - Pelvic: Normal appearing external genitalia, cervix deviated posteriorly, normal appearing, smooth without lesion or mass. Scant brown blood in vault, uterus is small and mobile, mobile right adnexal mass at least 10-12 cm palpated in posterior cul de sac

Pertinent Labs

- CA 125: 166 ↑↑
- CA 19-9: 493 ↑↑
- CEA: 3.7 ↑
- Inhibin B: 7.8

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Variant: 1 Abnormal uterine bleeding. Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
US duplex Doppler pelvis	Usually Appropriate	O
US pelvis transabdominal	Usually Appropriate	O
US pelvis transvaginal	Usually Appropriate	O
US sonohysterography	May Be Appropriate (Disagreement)	O
MRI pelvis without and with IV contrast	Usually Not Appropriate	O
MRI pelvis without IV contrast	Usually Not Appropriate	O
CT pelvis with IV contrast	Usually Not Appropriate	☢☢☢
CT pelvis without IV contrast	Usually Not Appropriate	☢☢☢
CT pelvis without and with IV contrast	Usually Not Appropriate	☢☢☢☢

Imaging modality was ordered by the OBGYN

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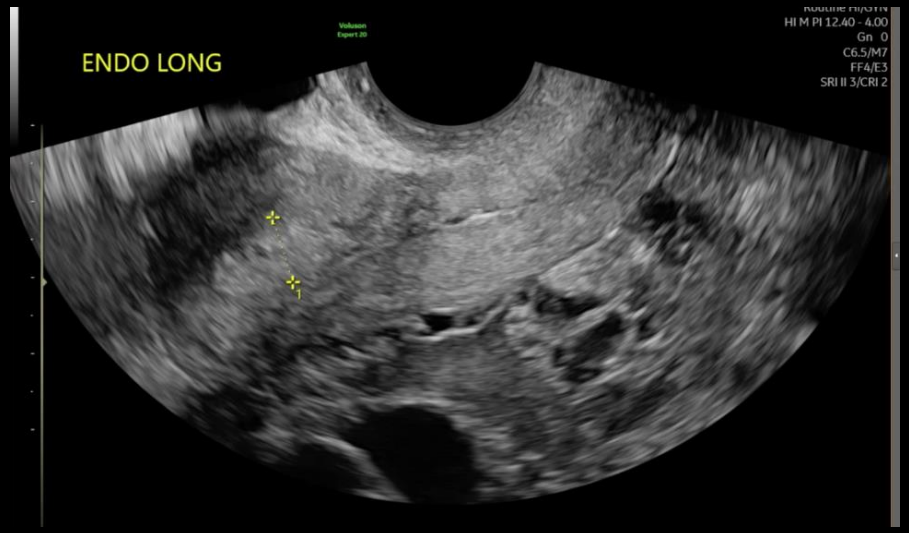
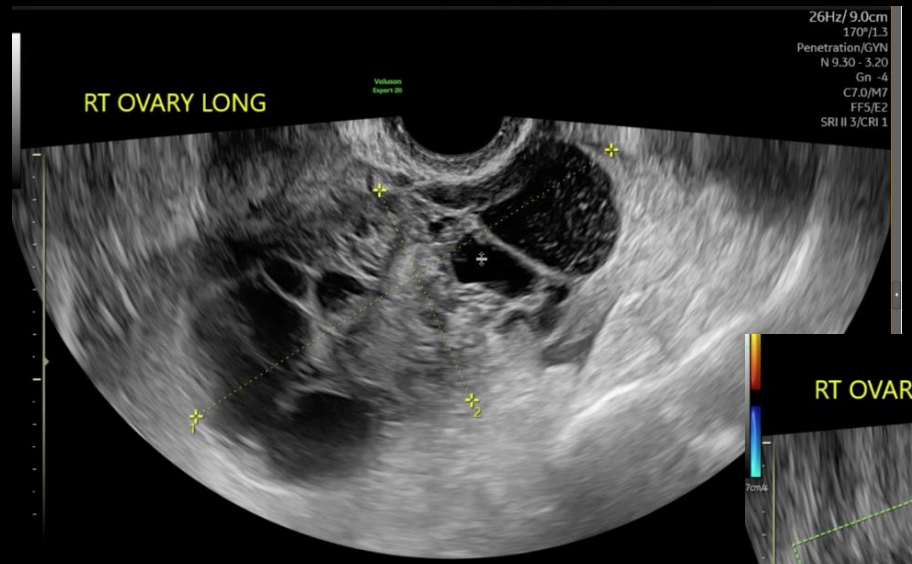
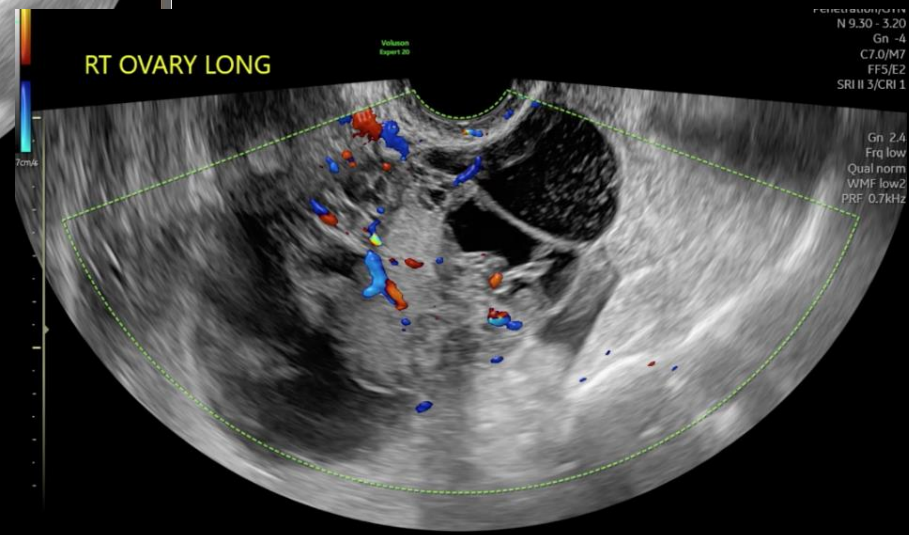
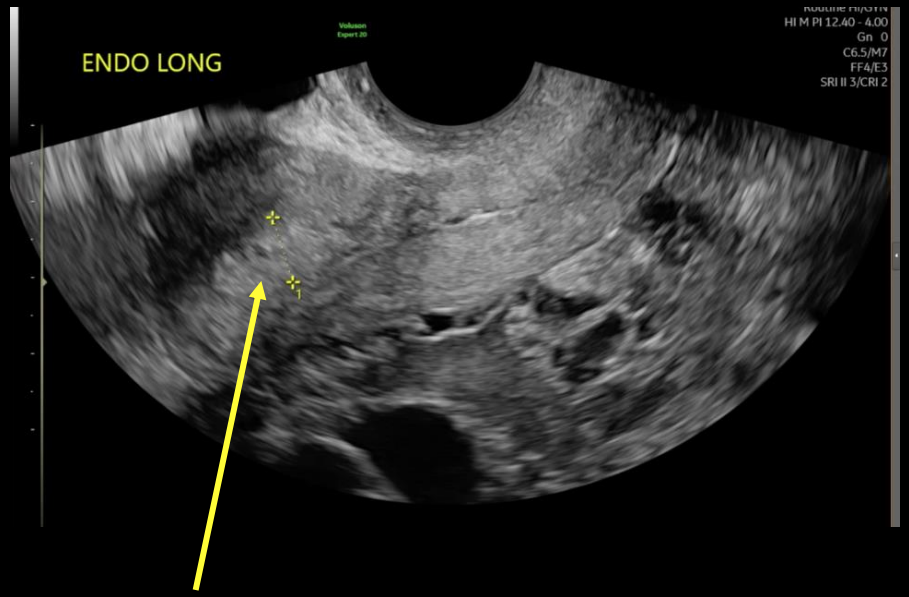
Findings (unlabeled) TVUS w/ Doppler Flow



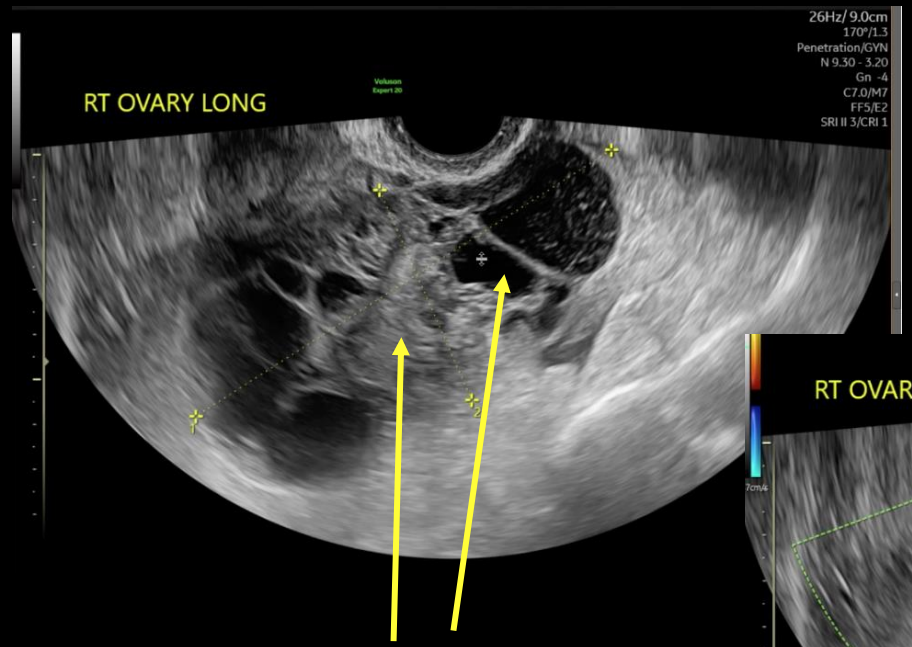




Findings (labeled) TVUS w/ Doppler Flow

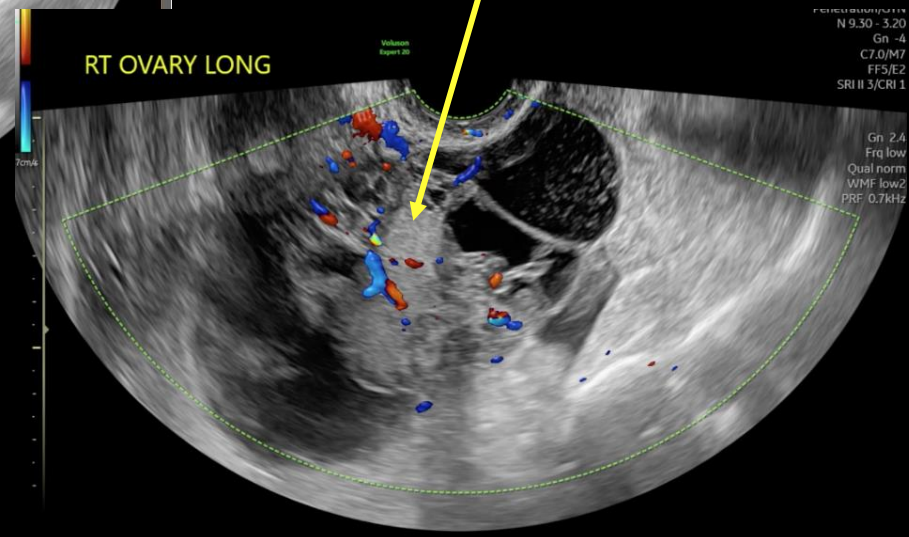


Thickened endometrium, measuring 0.9cm. Heterogeneous in appearance with tiny cystic spaces noted



Enlarged ovary (originally thought to be the right ovary), measuring 11x5.1x8.3 cm, composed of mixed solid and cystic mass. Left ovary is normal.

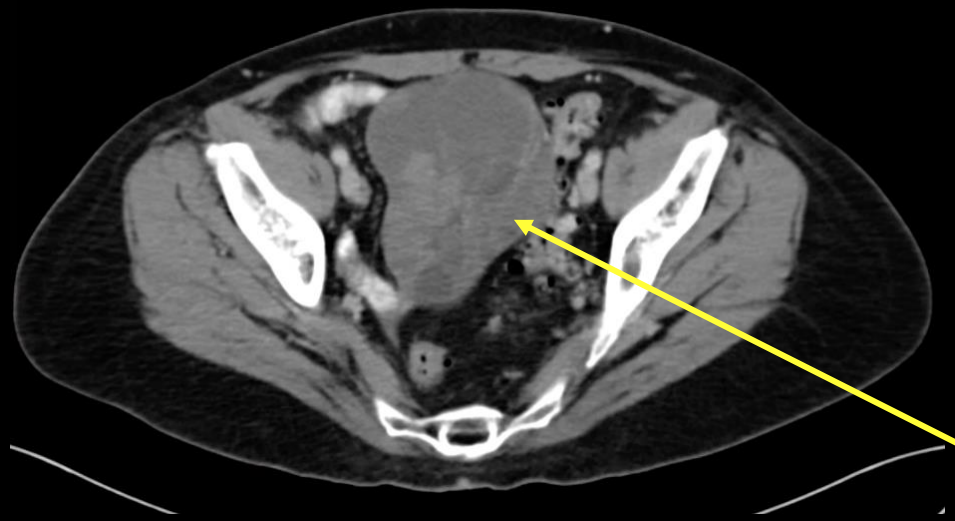
Solid components demonstrate vascularity.



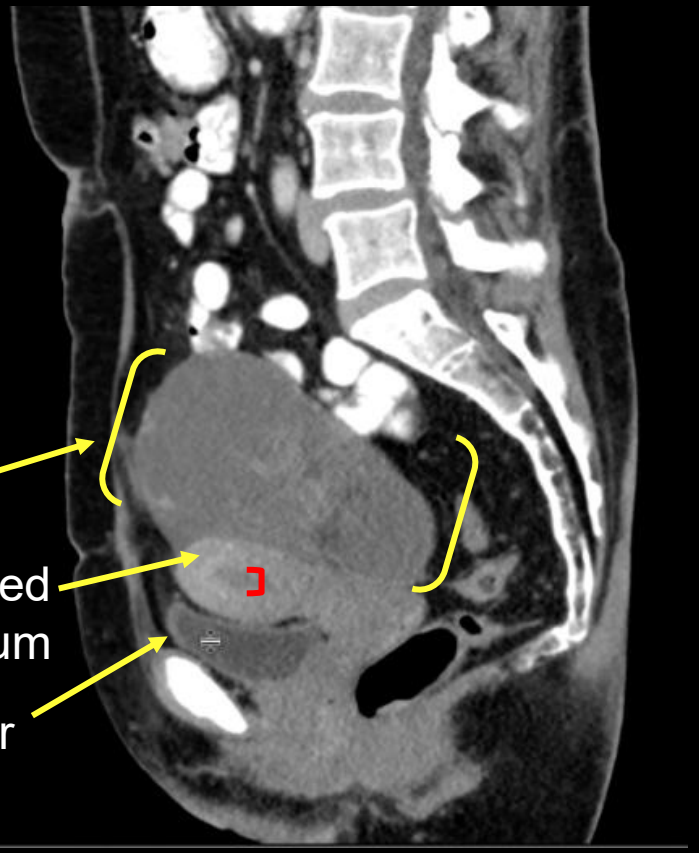
Gyn Onc consultation was recommended for treatment planning

Findings (unlabeled) - CT

Findings (labeled) - CT



Known mixed cystic and solid lesion now thought to be arising from the left ovary based on venous drainage. Endometrial stripe is thickened and heterogenous with the greatest cross section of 1.2 cm. No signs of disseminated malignancy (lymphadenopathy or omental caking).

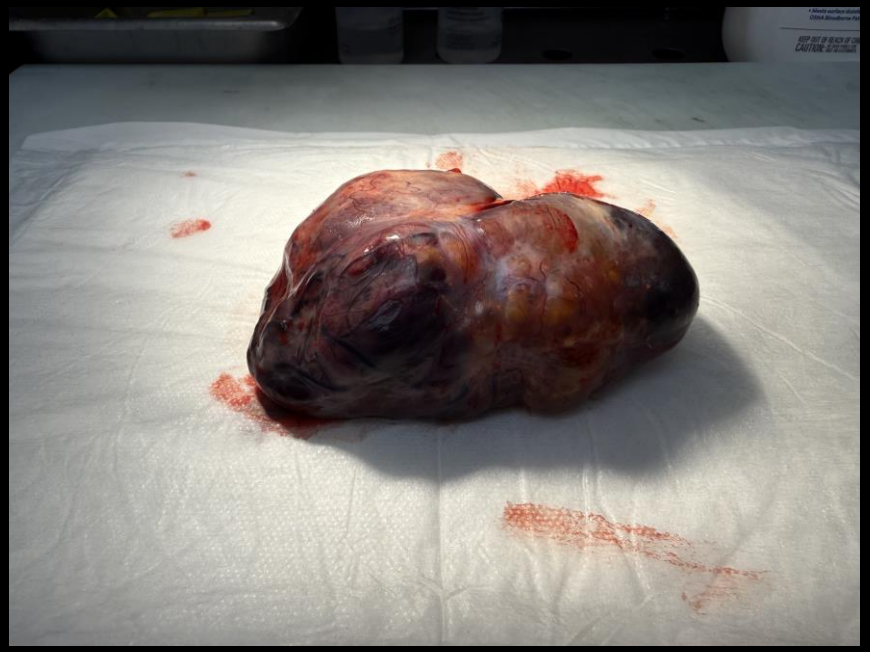


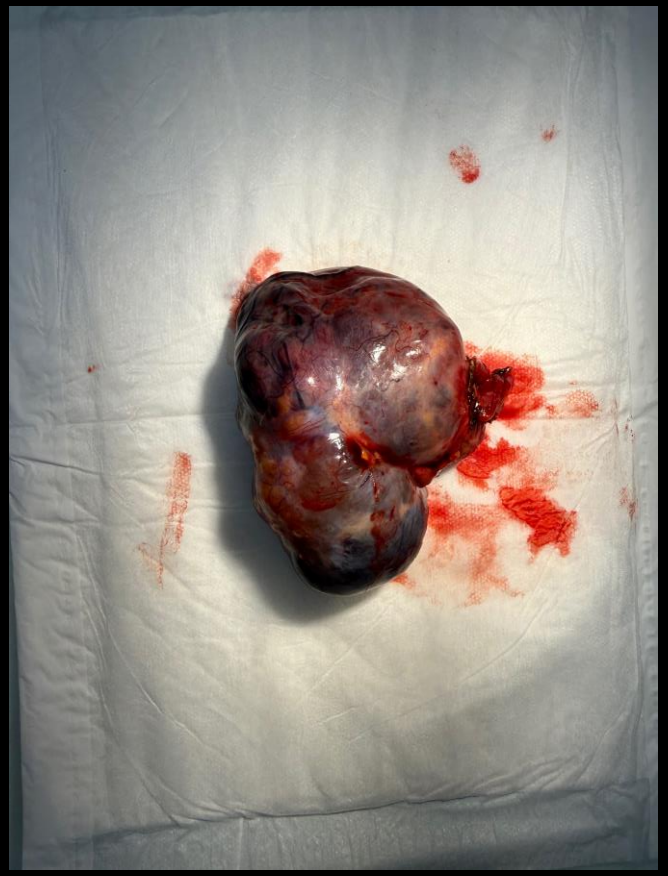
Differential Diagnosis Based on Imaging

- Cystoadenocarcinoma
- Dermoid cyst
- Metastases

Patient taken to OR for exploratory laparotomy, total abdominal hysterectomy, bilateral salpingo-oophorectomy

Gross Images

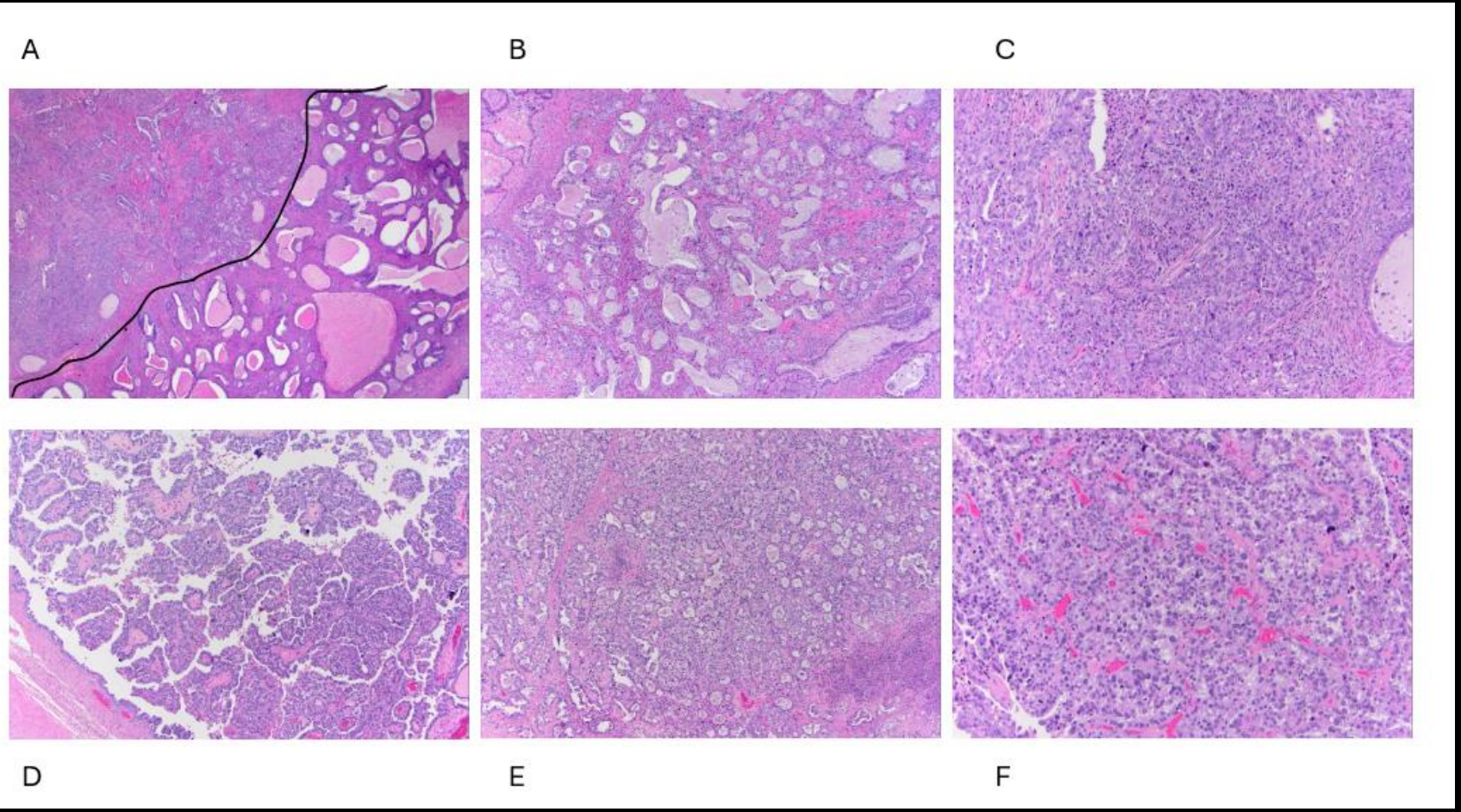




Left fallopian tube and ovary with mass

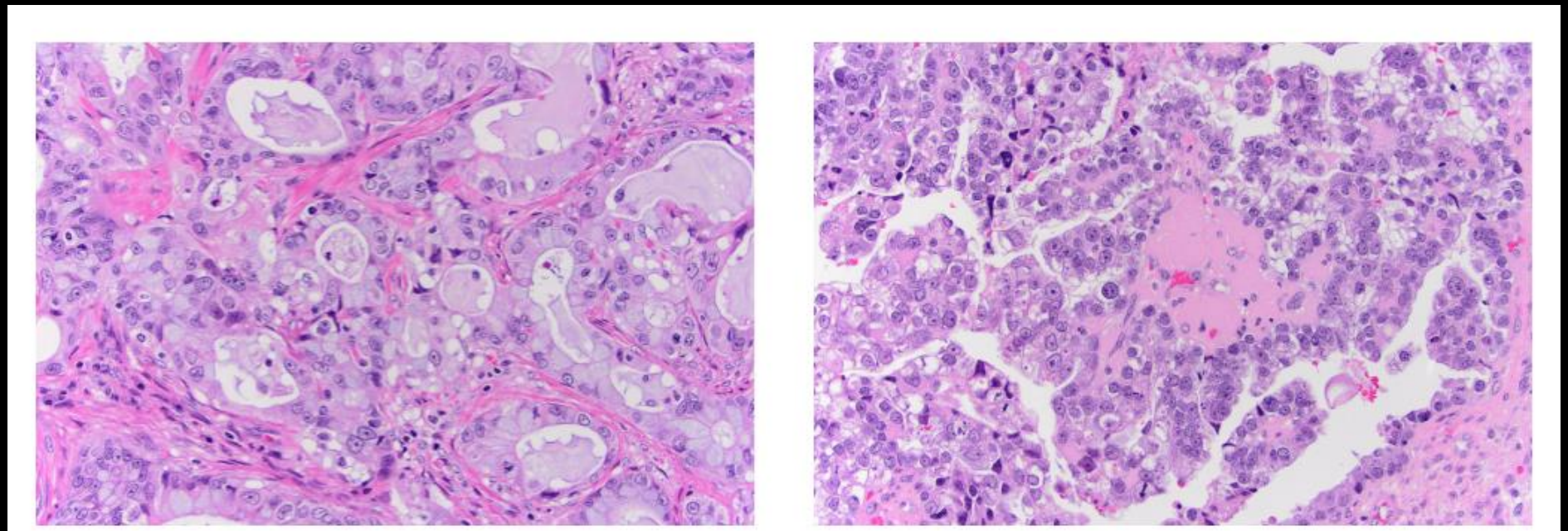
Photos courtesy of Delayna Evans, MS4 and Tori Goch, Pathologist's Assistant

Histology



Low power view show variety pattern of carcinoma including cribriform pattern, glandular pattern, papillary pattern and solid pattern
A-C. Endometrioid carcinoma. Right lower portion in A is endometrioid adenofibroma (benign)
D-F. Clear cell carcinoma.

Histology



Left: Endometrioid carcinoma (intracytoplasmic mucin is common)
Right: Clear cell carcinoma (clear cytoplasm, high nuclear grade, pink hyalinized stroma)

Final Dx:

Mixed Clear Cell Carcinoma and Grade 2 Endometroid Adenocarcinoma

(arises in background of Mullerian cystadenoma and endometriosis)

Case Discussion

- Ovarian cancer is the second most common gynecologic malignancy in the nation, following endometrial cancer, but it is the most lethal due to its often late stage diagnosis

- While this patient had a unique presentation of acute postmenopausal bleeding, women with ovarian cancer usually endorse abdominopelvic pain, bloating, gastrointestinal, urinary and other nonspecific symptoms

Case Discussion cont..

- Epithelial ovarian carcinoma (EOC) account for up to 95% of primary ovarian malignancy
  - Subtypes include serous, endometrioid (20-25% of cases), clear cell (5-10% of cases) and mucinous
- Of note, serous, clear cell and endometrioid ovarian carcinomas usually originate from extra-ovarian tissues such as the fallopian tube, endometriosis, Mullerian inclusion cysts, and endosalpingiosis.
- Though endometriosis is not considered a premalignant condition, there is an association with EOCs, the highest risk being found in those patients with deeply infiltrating endometriosis and endometriomas
  - Mullerian cystadenomas are benign ovarian neoplasms with Mullerian-type epithelium associated with endometriosis

Case Discussion – Risk Factors

- Risk Factors associated with EOC include
  - Increasing age
  - Infertility
  - PCOS
  - Endometriosis
  - Cigarette smoking
- Previous pregnancy, history of breastfeeding, and oral contraceptives are protective factors

Case Discussion – Management and Prognosis

- Epithelial ovarian carcinoma is surgically and pathologically staged, which includes total hysterectomy, bilateral salpingo-oophorectomy, and pelvic and paraaortic lymphadenectomy
  - Once malignancy is detected on frozen section, omentectomy and pelvic washings would also be indicated intraoperatively as well as any additional needed cytoreduction
  - Patients are also offered adjuvant chemotherapy when clear cell histology is present
- Endometriosis-associated EOC has been shown to develop in younger women (age 49-59) and have a better prognosis

References:

- Abnormal uterine bleeding. ACR Appropriateness Criteria. Accessed January 28, 2026. https://acsearch.acr.org/docs/69458/Narrative/.
- Chen L, Berek J. Overview of epithelial carcinoma of the ovary, fallopian tube, and peritoneum. UpToDate. Accessed January 28, 2026. https://www.uptodate.com/contents/overview-of-epithelial-carcinoma-of-the-ovary-fallopian-tube-and-peritoneum?source=history#H6099395.
- Rendi M. Epithelial carcinoma of the ovary, fallopian tube, and peritoneum: Histopathology. UpToDate. Accessed January 28, 2026. https://www.uptodate.com/contents/epithelial-carcinoma-of-the-ovary-fallopian-tube-and-peritoneum-histopathology?search=mullerian+cystadenoma&source=search_result&selectedTitle=2~142&usage_type=default&display_rank=2.
- Schenken R. Endometriosis in adults: Pathogenesis, epidemiology, and clinical impact. UpToDate. Accessed January 28, 2026. https://www.uptodate.com/contents/endometriosis-in-adults-pathogenesis-epidemiology-and-clinical-impact?sectionName=Ovarian+cancer&topicRef=83397&anchor=H2625026494&source=see_link#H2625026494.
- Müllerian mucinous cystadenomas of the ovary: A report of... : International Journal of Gynecological Pathology. Accessed January 28, 2026. https://journals.lww.com/intjgynpathology/abstract/2022/01000/m_llerian_mucinous_cystadenomas_of_the_ovary__a.10.aspx.
- Susanto JD, Hendrieta Nelwan PS, Gultom FL, Sirait BI, Effendi IK. Mixed ovarian carcinoma comprising clear cell carcinoma and endometrioid carcinoma: A case report. Cureus. November 11, 2024. Accessed January 28, 2026. https://pmc.ncbi.nlm.nih.gov/articles/PMC11638022/.
- Taylor EC, Irshaid L, Mathur M. Multimodality imaging approach to ovarian neoplasms with pathologic correlation. RadioGraphics. 2021;41(1):289-315. doi:10.1148/rg.2021200086