Radiology-Pathology Correlation Case

Eric Ott, MS4

2/13/2020

Clinical History

- Patient is a 70-year-old female with past medical history of primary peritoneal carcinoma

- Recent imaging revealed a new cystic mass of increasing size in the pelvis, concerning for recurrence of disease

- She was also noted to have a right-sided hepatic lesion

- She was referred from Gyn-Onc for imaging-guided sampling of the pelvic mass

- If this is unsuccessful, they would consider sampling the liver mass

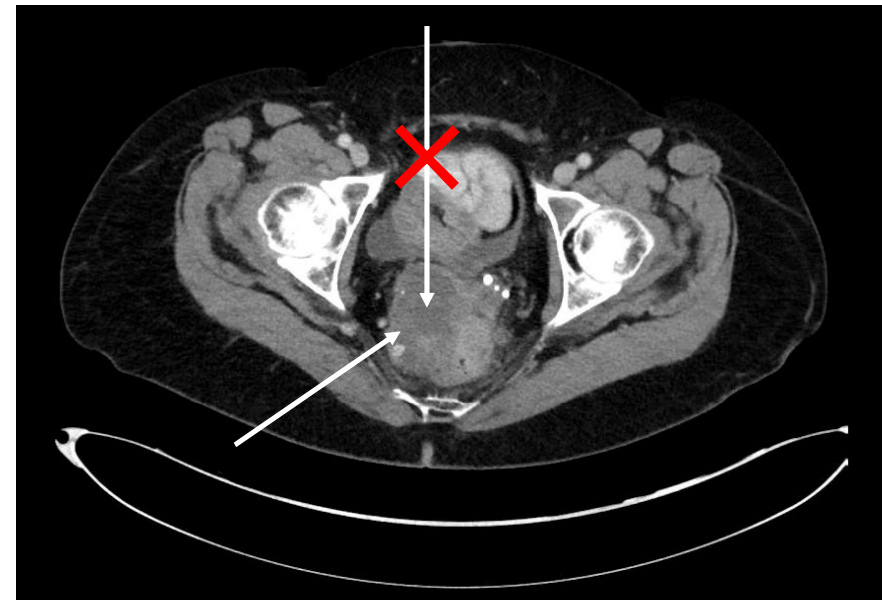# Pre-procedure Imaging

Pre-procedure Imaging

Procedure Planning

- Indication:
  - New lesion in patient with history of cancer
  - Information (i.e. is this recurrence or a new primary) will guide treatment planning
  - Biopsy samples also required for participation in clinical trial
- Imaging Modality:

| Favor CT	Favor US
Depth of lesion	No radiation exposure
Proximity to bowel	Soft tissue mass
Bony structures in path	Real-time visualization of biopsy

Procedure Planning

- Positioning – prone, right-sided approach
    - Anterior approach blocked by bowel
    - Lesion abuts musculature on the right side
    - No bony structures in the path
- Sedation – conscious with procedural sedation
    - Adult patient
    - Deep biopsy
    - No drains or tubes being placed
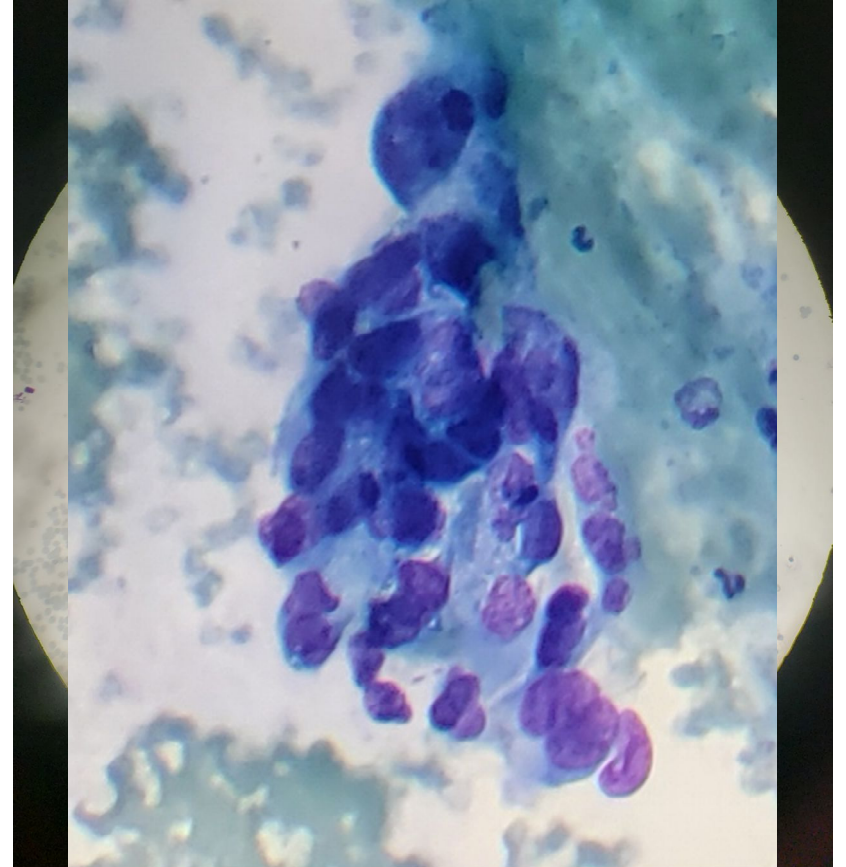   - 100 mcg Fentanyl + 2 mg Versed

# Intra-procedure Imaging
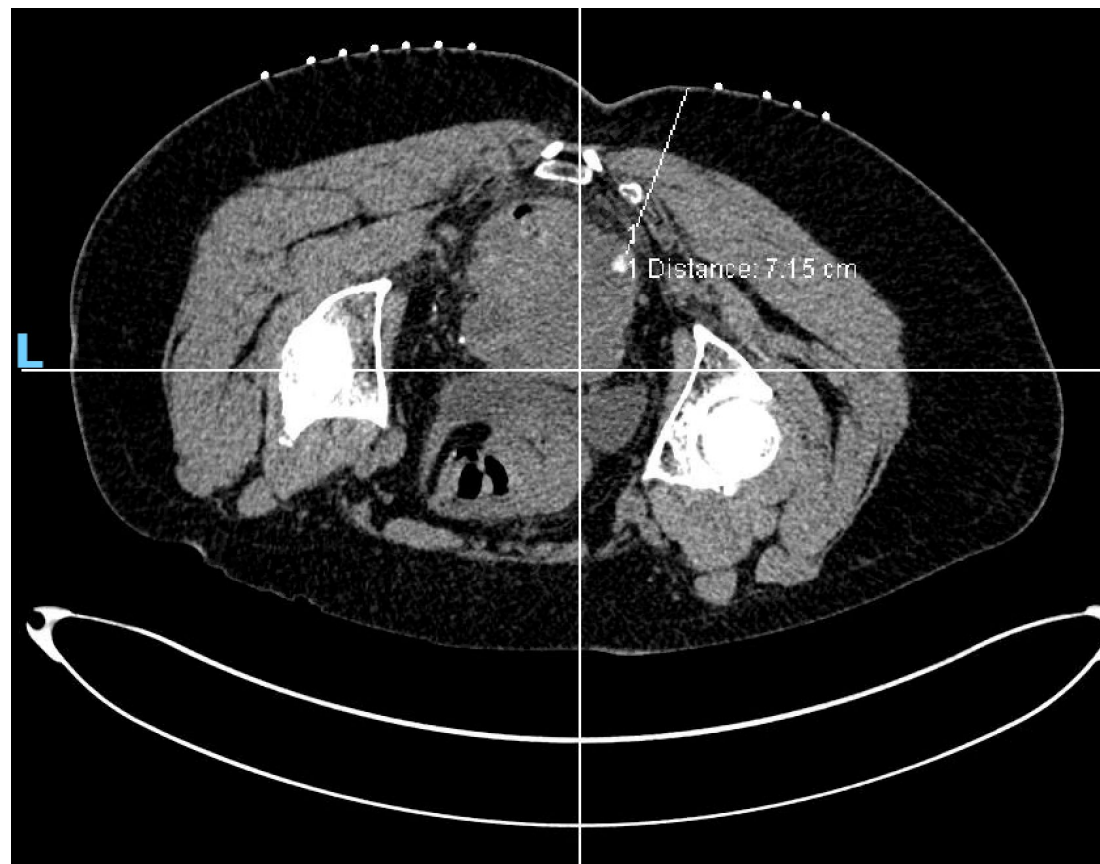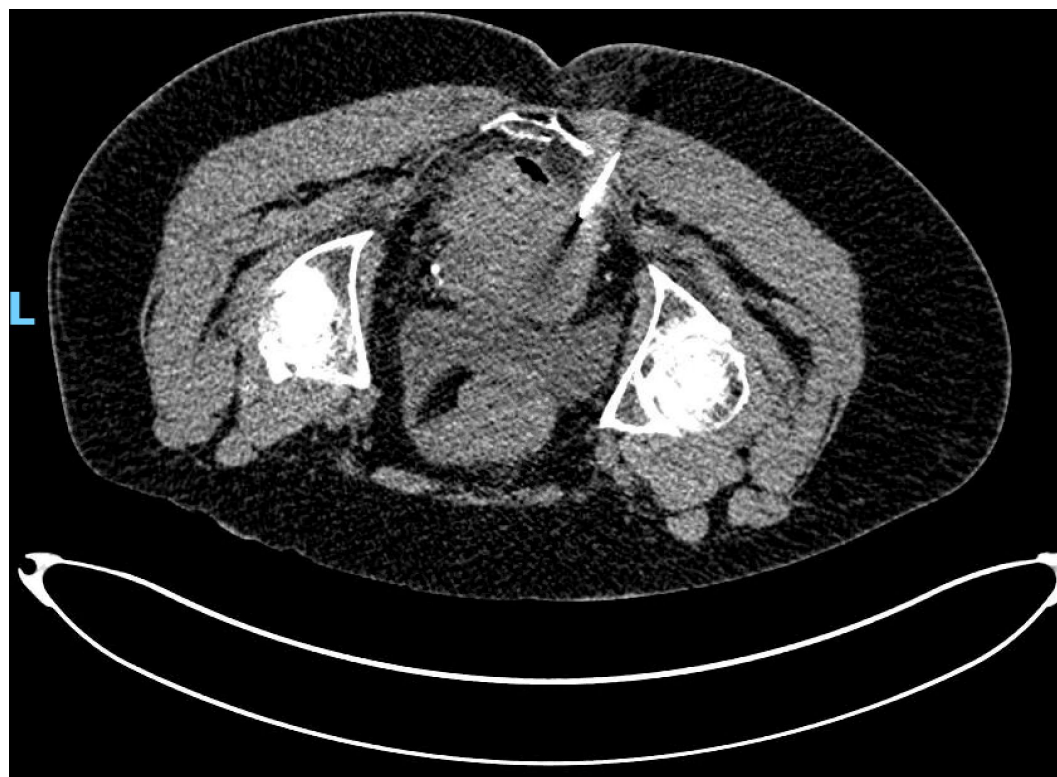
Fine Needle Aspirate

- Cellular features suggestive of malignancy:
    - High cellularity
    - Cytologic atypia
    - Dysplastic growth
- Nuclear features:
    - Irregular margins
    - Binucleate cells
    - Prominent nucleoli

Core Biopsy

- Papillary growth pattern

- Psamomma bodies

- Areas of necrosis

- Multinucleated giant cells

- Mitotic figures

- Diagnosis:
  - High-grade serous carcinoma
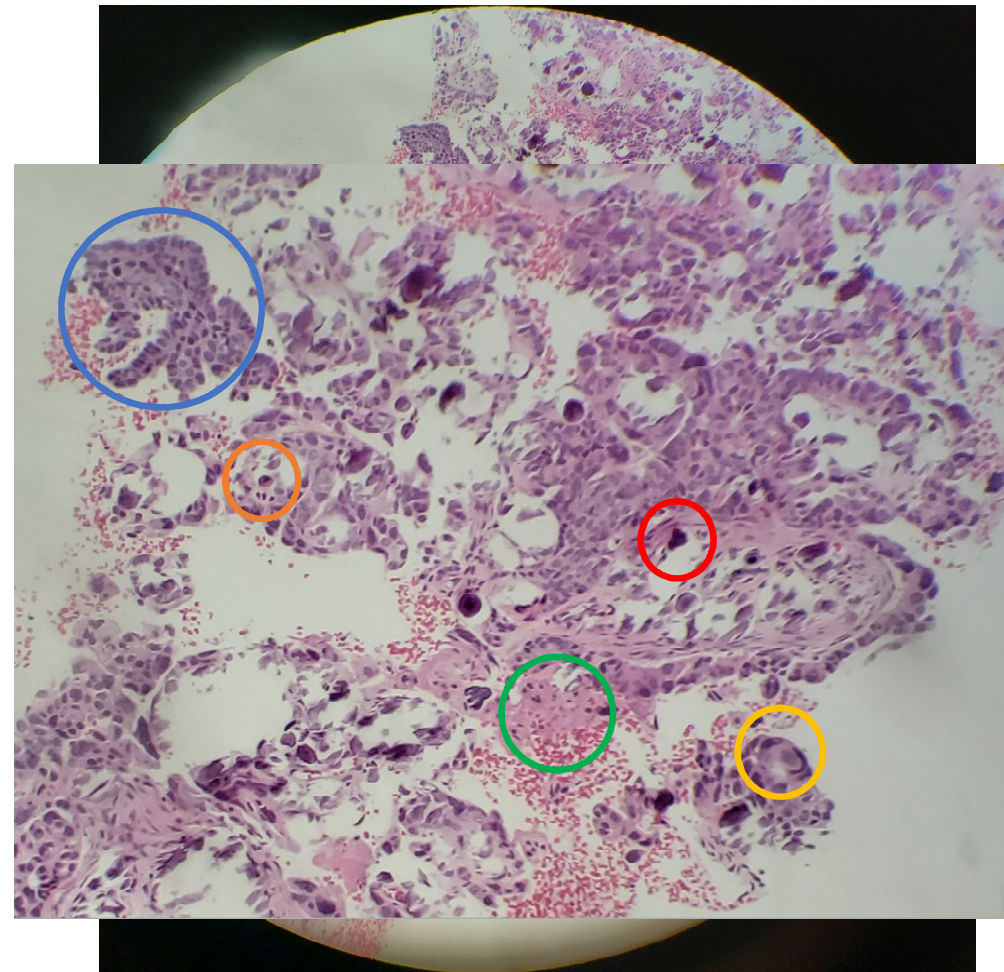
Ancillary Testing

- Diagnostic challenge is differentiating high-grade from low-grade serous carcinoma
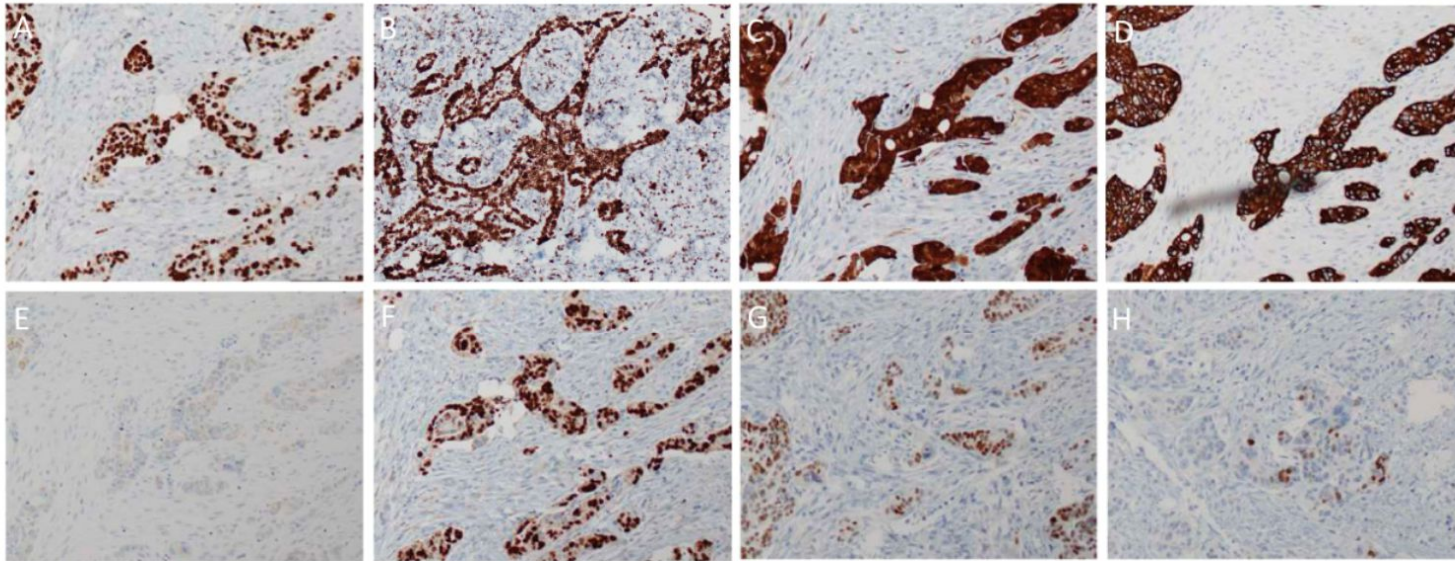

Figure 3. Immunological markers typically seen in high-grade serous ovarian cancer. (**A**): p53; (**B**): WT-1; (**C**): p16; (**D**): CK7; (**E**): CK20; (**F**): PAX8; (**G**): ER; (**H**): PR. All original magnifications × 10.

Follow-Up

- Patient was discharged in stable condition from Radiology
- Big question: is this recurrence, or a new primary?

"Primary peritoneal" high-grade serous carcinoma is very likely metastatic from serous tubal intraepithelial carcinoma: Assessing the new paradigm of ovarian and pelvic serous carcinogenesis and its implications for screening for ovarian cancer

Jeffrey D. Seidman [a],*, Po Zhao [b], Anna Yemelyanova [c]

- Implies her previous diagnosis and current diagnosis may be related
- Patient is beginning a new chemotherapy regimen, focused on improving quality of life

References

- Hatano, Y., Hatano, K., Tamada, M., Morishige, K., Tomita, H., Yanai, H., & Hara, A. (2019). A comprehensive review of ovarian serous carcinoma. *Advances In Anatomic Pathology*, *26*(5), 329-339. doi:10.1097/pap.0000000000000243

- Kumar, V., Abbas, A. K., & Aster, J. C. (2012). *Robbins Basic Pathology*. St. Louis, MO: Elsevier Health Sciences.

- Lisio, M., Fu, L., Goyeneche, A., Gao, Z., & Telleria, C. (2019). High-grade serous ovarian cancer: Basic sciences, clinical, and therapeutic standpoints. *International Journal of Molecular Sciences*, *20*(4), 952. doi:10.3390/ijms20040952

- Mescher, A. (2013). *Junqueira's Basic Histology: Text and Atlas, Thirteenth Edition*. New York, NY: McGraw Hill Professional.

- Seidman, J. D., Zhao, P., & Yemelyanova, A. (2011). "Primary peritoneal" high-grade serous carcinoma is very likely metastatic from serous tubal intraepithelial carcinoma: Assessing the new paradigm of ovarian and pelvic serous carcinogenesis and its implications for screening for ovarian cancer. *Gynecologic Oncology*, *120*(3), 470-473. doi:10.1016/j.ygyno.2010.11.020