RADY 401: Case Presentation

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Focused patient history and workup

CC: Ms. Jane Doe, a 55 yo female, presented to her OBGYN for postmenopausal bleeding

HPI: Several months of heavy bleeding with clots

PMH:
- Fibroids
- Pap 04/2020 demonstrated AGUS
- LMP 50 yo
- MG: “years ago” - normal
- Colonoscopy: never

FmHx:
- Mother: (-) cancer
- Sister: (+) breast cancer

SocHx:
- ½ ppd smoker

ROS:
- Constipation (+)

Initial Imaging:
- TVUS demonstrated bilateral adnexal masses and thickened endometrium (10 mm)
- Outside CT demonstrated peritoneal Implants

Labs/Pathology
- Endometrial biopsy demonstrated endometrial hyperplasia w/o atypia
- CA 125 = 222 U/mL (elevated)
- Inhibin A/B = wnl
- CEA = 4.1 (wnl)
List of imaging studies

- Outside interpretation of Abdomen/Pelvis CT with contrast
- CT and US guided percutaneous core biopsy of omental implant
Outside Interpretation of A/P CT with Contrast

Image: Pelvic CT with contrast
Plane: Axial

Findings:
1. Large Anterior Fibroid
   • Uniform
2. Bilateral Adnexal Masses
   • Heterogenous
   • Calcifications
Outside Interpretation of A/P CT with Contrast

Image: Abdominal CT with contrast  
Plane: Axial

Findings:
1. Large Stool Burden
2. Calcified Omental Implants  
   • Arrow demarcates implant biopsied
3. Entrapped contrast in small bowel (*)
CT and US guided percutaneous core biopsy of omental implant

Image: Abdominal US
Plane: Axial/Transverse

Findings:
1. Complex Abdominal mass
2. Hyperechoic
   • Calcification
3. Hypoechoic
   • Fluid
CT and US guided percutaneous core biopsy of omental implant

Image: Abdominal CT w/o contrast
Plane: Axial

Findings:
1. Biopsy Needle
   - Hyperdensity
2. Needle Artifact
   - ”Shadow” below needle due to refracted photons
Pathology and Management

Final Diagnosis
Abdomen, core biopsy and touch preparation
- Involved by carcinoma of gynecologic/primary peritoneal origin, favor low grade serous carcinoma

Comment
Immunohistochemical stains are performed at UNC on block A2 with the following results:
PAX-8: diffusely positive  ER: 2-3+, 95%
WT-1: diffusely positive  PR: 0+, 0%
P53: wild type expression
P16: patchy positivity

Pathology
Epithelial Cancer (60% of Ovarian Cancers)
Ovarian: PAX-8 (+), WT-1 (+), CA-125 (+)
Serous vs Mucinous:
- ER(+) more common in serous carcinoma
- WT-1(+) seen in serous vs mucinous
Stage III – Spread to peritoneal cavity

Treatment
Prognosis: Ovarian cancer is fifth leading cause of cancer death
First line: Surgical cytoreduction + chemotherapy
- IV Taxane (paclitaxel) + Platinum (carboplantin)
- Angiogenesis inhibitors (bevacizumab) in BRACA (-)
Surveillance: CA-125
Recurrence: 80 to 85 percent likelihood for stage III
Findings
- Serous architecture - lakes of epithelial tissue, round uniform nuclei, papillary projections
- Invasive - invasive tissue embedded stromal tissue
- Low grade - uniform nuclei with small number of mitotic features

Pathognomonic Feature of ovarian serous carcinoma
- Psammoma bodies – calcified regions of papillary architecture. Very prominent in low grade variant
Discussion – **Correct** Imaging Performed?

Initial Assessment: TVUS
- Appropriate due to gynecological complaint (AUB)
- Useful for identifying presence of adnexal masses

CT Imaging and US Guided Biopsy
- Useful for identifying omental implants and adnexal masses
- Needle location and avoidance of vasculature
Discussion - Classic imaging Finding

Image: Pelvic CT with contrast
Plane: Coronal

43 yo women with low grade serous carcinoma
  • Bilateral ovarian masses
  • Left ovarian mass: heterogenous, cystic architecture with thick wall (*black arrow*) and calcifications (*white arrow*).
  • Right ovarian mass (*arrowhead*) is solid

Epithelial Ovarian Cancer DDx (Order of decreasing frequency)
  • Serous carcinoma (high grade = cyst adenocarcinoma)
  • Mucinous
  • Endometrioid
  • Clear Cell
  • Transitional cell (Brenner Tumor)
  • Mixed
Discussion – Post Treatment Surveillance

Role of Imaging in post treatment surveillance

- 2013 meta-analysis of women 6 most post surgery demonstrated the following
  1. PET/CT imaging: sensitivity and specificity of 89% and 90%, respectively
  2. positive likelihood ratio and ratio: 6.1 (95% CI 3.9-9.5)
  3. negative likelihood ratio: 0.12 (95% CI 0.08-0.19)
- Asymptomatic routine imaging not recommended
- No data demonstrated increased

When is Imaging best utilized?

- Rising CA-125
Discussion – Cost and Radiation

Cost
- Abdominal and Pelvic CT with contrast: $1,160
- Abdominal and Pelvic CT w/o contrast $751
- Abdominal US: $374
- Other
  - Biopsy: $800
  - OR time, pathology

Radiation
- Abdominal and Pelvic CT: 10 mSv
- US: none (sound waves)

* Annual background radiation = 3 mSv
Wrap up

1. Most common ovarian cancer is epithelial in origin
   • Pathologists are critical in identifying type and grade of tumor
2. CT is first line to assess for tumor burden and omental seeding
   • TVUS also useful in women with gynecologic complaints
3. Surveillance imaging utilized in symptomatic patient
   • PET or CT can be utilized
References


