Cervical Cancer: Staging and Surveillance

Kiwita Phillips-Arnold
Gillian Lieberman, MD
HMS IV
Agenda

- Patient Presentation
- Introduction to Cervical Cancer
- Pertinent Anatomy
- Imaging
- Conclusion
- Reference
- Acknowledgements
Index Patient: Liver Lesion on CT Scan

DDX of Liver Lesion:
1. Abscess
2. Cyst
3. Focal Steatosis
4. Focal Nodular hyperplasia
5. Hemangioma
6. HCC
7. Hematoma
8. Lymphoma
9. Metastasis
Index Patient: History

- IS is a 60 y.o. G1P1 woman who presents to ED with heavy postmenopausal bleeding x 2 days

- Past GYN Hx:
  - Abnl pap smear 1970 w/cone biopsy
  - D&C for menorrhagia while on OCP’s
  - vaginal bleeding 7 years ago; colposcopy done; hysterectomy recommended

- Pt lost to follow-up until now

- High Suspicion of Malignancy – US and CT done

**DDX of abnormal uterine bleeding:**

1. atrophic changes
2. hormonal status
3. carcinoma
4. foreign body
5. trauma
6. infection
7. polyps
Cervical Cancer

- 2\textsuperscript{nd} most common cause of cancer related morbidity and mortality in the developing world
- 4\textsuperscript{th} most common malignancy in women in U.S.
- In U.S. mean age of occurrence is 47 y.o.
- Signs/Sx:
  - abnormal vaginal bleeding
  - Post coital bleeding
  - Vaginal discharge that is watery, purulent, or malodorous
- Staging: clinical
- Diagnosis: abnl Pap Smear, biopsy
- Imaging may be used for further staging and surveillance for metastasis or recurrence
Menu of Tests Used for Staging

FIGO Recommended Testing
- Hysteroscopy - to inspect endocervical/endometrial canal
- Cystoscopy – bladder involvement
- Proctoscopy - bowel involvement
- IVP -
- CXR + AXR – to look for metastasis and spine involvement

Optional Tests
- CT – assess abdomen for mets and pelvis for spread
- MRI – gives more information about tumor size, degree of stromal penetration, nodal metastasis and local tissue extension
- PET – may provide better assessment of extrapelvic metastasis esp. lymph nodes; but expensive and not widely available
- Lymphangiography – older modality used to assess for lymph node infiltration
- Ultrasonography
Anatomy

Cervical Cancer Staging

FIGO Staging System:

Stage 0: Carcinoma in situ

Stage I: Confined to Uterus

Stage II: Invades beyond Uterus but not to pelvic side wall or lower third of vagina

Stage III: Extends to pelvic wall, and/or involves lower third of vagina, and/or causes hydronephrosis or non-functioning kidney

Stage IV: Extends beyond pelvis or has involved the bladder mucosa or rectal mucosa

my.webmd.com/hw/health_guide_atoz/zm2768.asp
Index Patient’s Imaging
Index Patient: Ultrasound Diagnosis

Enlarged endometrial circumference in postmenopausal woman. Normal premenopausal endometrium measures: 8 x 4 x 4 cm

Thickened endometrial lining noted; > 10mm abnl

Widened cervical diameter + heterogeneity and indistinct margins consistent with neoplastic infiltration
Index Patient: Ultrasound Diagnosis

Transvaginal US shows enlarged uterus

PACS, BIDMC
Index Patient: Ultrasound Diagnosis

Left Ovary:
Normal size and echogenicity

Enlarged Right Ovary:
Normal diameter of ovary is 2x2x3 cm
Ultrasound Findings

- Check for normal size and diameter of pelvic organs
- Note any areas of Heterogeneity
- Distinct planes should be noted between endometrial lining and myometrium – “Sandwich sign” may be noted or simple hyperechoic stripe
Index Patient: 
CT Staging and Surveillance

Large, round, heterogeneous, low attenuation liver mass overlying hepatic vein confluence and IVC noted on contrast delay CT scan
- Impingement of middle and right hepatic veins

- Lead to hypervascularity seen in other cuts
Index Patient CT:
Abnormal Gallbladder w/Lymphadenopathy

Gallbladder-distended w/thickened wall
Node
IVC
L Kidney

PACS, BIDMC
Index Patient CT: Suspected Primary Lesion – Cervical Mass

Large heterogeneous cervical mass with areas of low attenuation representing necrosis and/or hemorrhage.
Enlarged, heterogeneous right ovary with areas of low attenuation suggestive of ovarian primary or spread from endocervical primary.
Companion Imaging Procedures
Companion Imaging: PET Imaging of Cervical Cancer

Grigsby, PW mednews.wustl.edu/tips/page/normal/910.html
**Companion MR Imaging of Uterine /Cervical Mass**

**Sagittal T2-weighted MR image:** hyperintense, solid mass extending along the anterior vaginal wall to lower one-third of the vagina (arrow)

**Axial T2-weighted MR image:** low signal intensity of the anterior vaginal wall is partly disrupted (arrowheads); little fatty tissue but bladder uninvolved

Index Patient’s Story Continues

- IS was taken to the OR for an exam under anesthesia (EUA); D&C and cervical biopsy:
  - Palpable lesions w/small cysts deep to cervical mucosa
  - 10 cm enlarged uterus
  - No evidence of parametrial disease, rectal lesions, or cul-de-sac nodularity
  - Punch biopsy taken
- An US-guided liver biopsy was taken
- Pathology:
  - Cervical cyst biopsy showed adenocarcinoma w/ necrotic material and calcifications
  - Liver mass was consistent with poorly differentiated adenocarcinoma taken from cervix
- Stage IB1 by clinical assessment but stage IVB based on imaging
- Patient consented to simple total abdominal hysterectomy; palliative radiation may be considered
Index Patient: Interesting Finding

Horseshoe Kidney
References


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