The many faces of Endometriosis

Beryl Benacerraf M.D
Harvard Medical School

What is Endometriosis?

• Endometriosis is defined as the presence of normal endometrial tissue occurring outside of the endometrial cavity.
• This tissue responds to cyclic hormonal changes resulting in localized bleeding, inflammation and adhesion formation.

Common sites of endometriosis

• Ovaries
• Uterine surface
• Peritoneum
• Uterosacral ligaments
• Cul de sac
• Bladder
• Bowel wall
• Scars in anterior abdominal wall
• Rare – outside pelvis

How Common is Endometriosis?

• Prevalence in the general population is estimated at 10% of women.
• Present in up to 80% in patients with pelvic pain.
• Present in up to 20% in infertility patients but in 3% of multiparous women.

Etiology

• Unknown
• Reflux of menstrual tissue and blood through the fallopian tubes during menses.
• Müllerian remnants in the rectovaginal region differentiate into endometrial tissue.
• Lymphatics may be the conduit
• shorter menstrual cycles, longer bleeding, and early menarche are risk factors – supports reflux theory
Endometriosis is a common cause of chronic pelvic pain in premenopausal women.

- The most recognized ultrasound appearance of endometriosis is the cyst known as an endometrioma.
- Traditionally, the sonographic diagnosis of endometriosis was reserved for patients with endometriomas, thus missing the cause of pelvic pain in many patients.

Deep implants

- The pain associated with these implants may be intense but these are small lesions often not detected by a standard pelvic scan.
- Some patients with large endometriomas may have few symptoms whereas others with small deep implants have severe dysmenorrhea, dyspareunia and chronic pelvic pain.

Adenomyosis:

- Thought of as endometriosis of the uterus.
- Characterized by invasion of endometrial glands into the neighboring myometrium.
- Symptoms: Dysmenorrhea, abnormal bleeding, uterine enlargement and tenderness.
The curse of pelvic pain

• Many patients never get a diagnosis and live with chronic pain
• 15% of women - as defined by pain for > 6 months in women 18-50 years old.
  (Matthias et al OB GYN 1996;87:321)
• Pelvic pain accounts for 10% of referrals to a gynecologist and more than 40% of diagnostic laparoscopies
  (Shwayder JM. Semin Reprod Med. 2008;26:25)

Get a history during the exam

• Acute or chronic
• Diffuse or focal
• Cyclic or constant
• Sharp or dull or cramping
• ? Prior surgery
• Menopausal and hormonal status
• Could she be pregnant?

During the scan

• How tender is the patient?
• Where is the tenderness? Focal?
• Do organs slide past each other?
• Push deliberately on each part of the pelvis with the probe and other hand to determine where the pain comes from.
• Talk to the patient!

Adenomyosis: Invasion of endometrial glands into myometrium

Ultrasound appearance:
  – Mottled inhomogeneous myometrium
  – Globular & asymmetrical uterus,
  – Small subendometrial cysts
  – Indistinct endometrial stripe.
Fuzzy borders of cavity due to adenomyosis

Adenomyoma versus fibroid

Subendometrial bands / Adenomyosis

Fuzzy borders of cavity due to adenomyosis

Is this adenomyosis? Ashermans
Decidualized Endometrioma

- Cystic masses mimicking an ovarian malignancy during pregnancy, due to areas of nodularity containing blood flow by color Doppler.
- A prospective diagnosis is possible when a pregnant woman has a cyst with solid smoothly lobulated nodules and internal vascularity, stable over several weeks.
22 masses in 17 pregnant pts

- 8 pts went to surgery, 9 (14 masses), had f/u scans and surgery 3-34 weeks later
- 8 of these masses showed no change and one became smaller.
- There were no characteristic sono features identified to distinguish decidualized endometriomas from ovarian malignancy.
- Lesions showing no change over 4 weeks, or lacking solid components and vascularity are more likely to be benign.


Unusual appearances of endo implants anywhere

- Endo implant in CDS
- Endo in bowel wall
- Tubal endometriosis

Endometriosis of the bladder wall

Invasive ovarian cancer at 8 wks
Extensive endometriosis 24 year old

Endo implant in utero-sacral ligament

Appendicitis!

Endo implant on appendix

Anterior abdominal wall scar

The comet shape

Endo in wall of sigmoid adherant to back of uterus
The comet-sign of endometriosis of the bowel wall
Detection of Bowel Endometriosis
10 prospective studies – 1106 pts – prevalence of bowel endo 24-73%

<table>
<thead>
<tr>
<th>Endo focus</th>
<th>Sensitivity</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bladder</td>
<td>61%</td>
<td>99%</td>
</tr>
<tr>
<td>Recto-vaginal septum</td>
<td>52%</td>
<td>96%</td>
</tr>
<tr>
<td>Rectal</td>
<td>65%</td>
<td>99%</td>
</tr>
<tr>
<td>Sigmoid</td>
<td>69%</td>
<td>98%</td>
</tr>
</tbody>
</table>

Hudelist et al. UOG 2011;37:257

Ultrasound for detecting deep pelvic endometriosis in 79 cases

• Ultrasound sensitivity and specificity for detecting the disease was 78.5% and 95.2% respectively.

• The sensitivity was best for intestinal and bladder disease and slightly less accurate for utero-sacral and -rectovaginal lesions

Abrao et al. found that transvaginal ultrasound had a sensitivity, specificity and accuracy of 98%, 100% and 99% respectively compared to MRI's sensitivity, specificity and accuracy of 83%, 98% and 90% for recto-sigmoid endometriosis.


The sensitivity and specificity for detecting deep endometriosis by tenderness guided ultrasound was 86% and 73% respectively while for MRI it was 90% and 73% respectively.


How to test tubal patency with ultrasound
Conclusions

• Pelvic pain in endometriosis is common and impairs quality of life.
• Accurate Dx requires an extended ultrasound and history.
• Patients with endometriosis deserve more than just a series of standard pictures of the uterus and ovaries.
• Those that we help are among the most grateful of all our patients!