ISUOG Basic Training
Examining the Uterus: Cervix & Endometrium
Learning objectives

At the end of the lecture you will be able to:

• Recognize the typical ultrasound appearances of a normal cervix and endometrium
• Recognize the typical ultrasound appearances of abnormalities in the cervix and endometrium
Key questions

• What are the typical ultrasound findings of a normal cervix and endometrium?

• What are the typical ultrasound findings of common abnormalities in the cervix and endometrium?
Key points

• Understand the typical ultrasound features of a normal cervix and endometrium
• Understand the typical ultrasound features of common abnormalities in the cervix and endometrium
• Know when to refer for a specialist opinion
Rectovaginal nodule of endometriosis

- You don’t need to know how to recognize this
- It is just a reminder to not forget to look at the vagina when you start your TV US
- The more you see ‘normal’ the easier it will be to recognize abnormalities

Cervix
Cervical findings

- Nabothian follicle
- Cervical polyp
- Cancer
Nabothian follicle

- Mucus-filled cyst on surface of cervix
- Caused by squamous epithelium of the ectocervix growing over the columnar epithelium of the endocervix
- This tissue growth can block the cervical crypts
- On US:
  - Anechoic
  - Avascular
Cervical polyps

- Sessile or pedunculated well-circumscribed masses within endocervical canal
- Hypo or hyper-echogenic
- Identifying the stalk attaching to the cervical wall helps differentiate it from an endometrial polyp
- May have feeding vessel
Cervical cancer

- Heterogeneous mass involving the cervix
- May show increased vascularity on color Doppler
- Ultrasound can be useful to evaluate:
  - size (<4 cm or ≥4 cm)
  - parametrial invasion
  - tumor invasion into the vagina
  - tumor invasion into adjacent organs
  - hydrenephrosis (implies stage IIIB tumour)
Describing the endometrium

- Hypoechochogenic
- Isoechochogenic
- Hyperechochogenic

Normal ultrasound findings

- Differ between women before and after menopause
- Change throughout the menstrual cycle
The endometrium changes throughout the menstrual cycle

- Shortly after menstruation
- Proliferative phase
- Proliferative phase
- Secretory phase
Changes during menstrual cycle

Shortly after menstruation

Proliferative phase
3 days before ovulation

Proliferative phase
1 day before ovulation

Secretory phase
6 days after ovulation
The endometrium in postmenopausal women

- Median ET = 3mm
- 10th & 90th percentile: 2 – 5mm
- ET >5mm is NOT necessarily pathological
The IETA consensus statement

How to describe

• Endometrial echogenicity
• Endometrial midline
• Endometrial-myometrial junction

If fluid in the cavity

• Fluid echogenicity
• Endometrial outline
• Intracavitary lesion

On colour/power Doppler

• Colour content
• Morphology of endometrial vessels

How to measure endometrial thickness (ET)
1. When intracavitary fluid is present, measure thickness of both single layers and add together to give ET

2. When intracavitary pathology is present measure total ET including the lesion (unless it’s a well defined myoma that can be measured separately)

• EDITED VIDEO OF MEASURING ET
Most common endometrial pathology

- Polyp
- Submucous myoma
- Endometrial thickening
- Cancer
Typical ultrasound features of endometrial polyp

- Bright edge
- Regular cysts
- Hyperechogenic
- Feeding vessel
Typical ultrasound features of submucuous myoma

- Solid tumor protruding into uterine cavity
- Same echogencicity as myometrium
- Color Doppler: ring of color

Courtesy Dirk Timmerman
Typical ultrasound features of endometrial cancer

- Thick endometrium
- Inhomogenous echogenicity
- Richly vascularized on color Doppler
Diffuse vs focal endometrial thickening
IETA consensus statement
Doppler ultrasound examination of the endometrium
Quantification of the color content of the endometrial scan

<table>
<thead>
<tr>
<th>Color Score</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>no color</td>
</tr>
<tr>
<td>2</td>
<td>minimal color</td>
</tr>
<tr>
<td>3</td>
<td>moderate color</td>
</tr>
<tr>
<td>4</td>
<td>abundant color</td>
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</tbody>
</table>

Adjust settings: maximize detection of flow without artefacts
(pulse repetition frequency (PRF): 0.3-0.6 KHz, 3-6 cm/s velocity scale)

Benefits of fluid instillation


Basic Training
Intrauterine adhesions

Correct position of copper IUCD
Correct position of hormonal IUD
IUD and 3D ultrasound

Correct placement
Incorrect position of IUCD

Too low
Which patients should I refer for specialist opinion?

- Those in whom you are uncertain about the diagnosis (especially if you suspect malignancy)
Key points

We should use a standardized terminology when we describe ultrasound images of:

• Adnexal lesions (IOTA)
• The endometrium/uterine cavity (IETA)
• The myometrium (MUSA)
• Deep infiltrating endometriosis (IDEA)
Key points

When in doubt: refer for second opinion
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