ISUOG Basic Training
Examining the Uterus: Myometrium
Learning objectives

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

• Recognise the typical ultrasound appearances of the normal myometrium

• Recognise the typical ultrasound appearances of abnormalities in the myometrium
Key questions

• What are the typical ultrasound findings of a normal myometrium?

• What are the typical ultrasound findings of common abnormalities in the myometrium?

• Know when to refer for a specialist opinion
Normal myometrium before menopause
Uterine measurements
Myometrial pathology: MUSA

Terms, definitions and measurements to describe sonographic features of myometrium and uterine masses: a consensus opinion from the Morphological Uterus Sonographic Assessment (MUSA) group

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Myometrial pathology: MUSA

- Common
  - Leiomyoma (fibroids)
  - Adenomyosis

- Rare
  - Calcifications
  - Enhanced myometrial vascularity
Most common myometrial pathology - myoma

“Benign tumour of the smooth muscle”
Most common myometrial pathology - myoma

- Echogenicity
- Shadowing
- Vascularity
Myoma - Echogenicity

- Uniform Hypoechochogenic
- Uniform Isoechochogenic
- Uniform Hyperechochogenic
- Non-uniform Mixed echogenicity
- Non-uniform Echogenic areas
- Non-uniform Cystic areas
Myoma

Echogenicity

- Uniform Hypoechogenic
- Uniform Isoechogenic
- Uniform Hyperechogenic

Non-uniform Mixed echogenicity

Non-uniform Echogenic areas

Non-uniform Cystic areas

Low threshold for specialist referral if atypical features
Most common myometrial pathology - myoma

- Shadowing
Normal Vascularity in the myometrium
Most common myometrial pathology - myoma

- Vascularity

Circumferential  Intra-lesional
Vascularity in myoma

Circumferential vascularity

Intra-lesional vascularity

Score 1

Score 2

Score 3

Score 4
Relatively common myometrial pathology - adenomyosis

“Abnormal presence of endometrium tissue within the myometrium”
Relatively common myometrial pathology - adenomyosis

- Enlarged uterus
  - Asymmetrically enlarged
  - Globally enlarged
- Fan shaped shadowing
- Myometrial cysts
- Poorly defined endometrial-myometrial border
Relatively common myometrial pathology - adenomyosis

- Enlarged uterus
  - Asymmetrically enlarged
  - Globally enlarged
Relatively common myometrial pathology - adenomyosis

- Abnormal myometrial echogenicity

Fan shaped shadowing

'Rain in the forest' sign
Relatively common myometrial pathology - adenomyosis

- Myometrial cysts
- Poorly defined endometrial-myometrial border
Junctional Zone (JZ) zone
JZ zone (3D)

Exacoustos C. et al, BPR; 2014 (28;655-681)

Basic Training
Relatively rare myometrial pathology

- Calcification uterus
- Enhanced myometrial vascularity
Normal myometrium after menopause

- Myometrial calcifications
Retained products of conception (RPOC) / Enhanced myometrial vascularity (EMV)

Standardisation of the routine examination of the myometrium

- Measurement of the uterus
- Symmetry of the myometrium walls
- Echogenicity
- Myometrial lesions (well / ill defined)
- Number of lesions (location/max diam)
- JZ zone
- Vascularity
- Midsagittal/ transverse/ 3D
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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