



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?

Key points

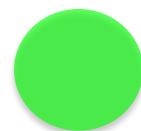
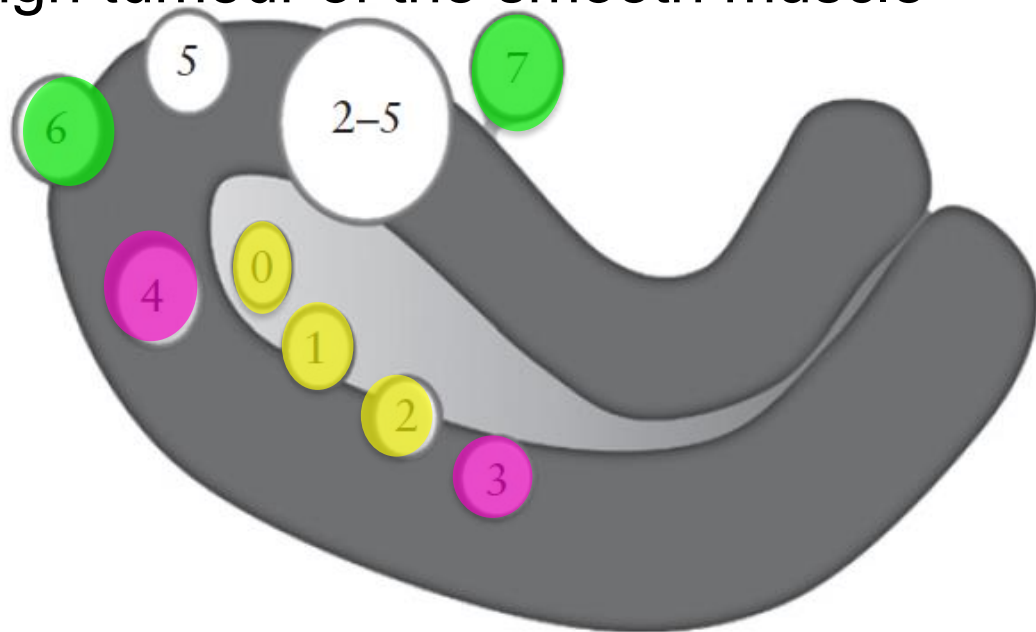
- Understand the typical ultrasound features of a normal myometrium
- Understand the typical ultrasound features of common abnormalities in the myometrium
- Know when to refer for a specialist opinion

Common myometrial pathology

- Leiomyoma (fibroids)
- Adenomyosis
- Myometrial cysts
- Calcifications
- Enhanced myometrial vascularity

Most common myometrial pathology - myoma

“Benign tumour of the smooth muscle”



Subserosal



Intramural



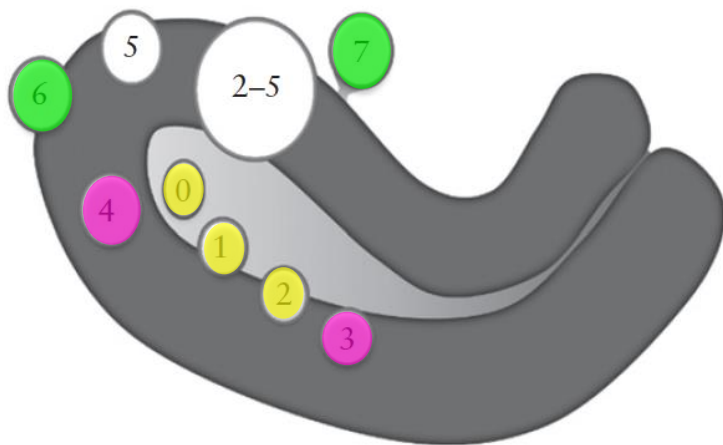
Submucosal

Van Den Bosch et al. Ultrasound Obstet Gynecol 2015; 46: 284–298

Most common myometrial pathology

- myoma

- Measure in 3 planes
- Location:



- **Grade 0 (G0):** fibroid completely within the cavity, pedunculated and without intramural extension
- **Grade 1 (G1):** sessile fibroid, with $\geq 50\%$ of the endocavitary portion protruding into the cavity
- **Grade 2 (G2):** with the endocavitary part of the fibroid $< 50\%$

Van Den Bosch et al. Ultrasound Obstet Gynecol 2015; 46: 284–298

Myoma

Non-uniform
Mixed
echogenicity

• Echogenicity

(a)



Uniform
Hypoechogenic

(d)



Non-uniform
Echogenic areas

(b)



Uniform
Isoechogenic

(e)



Non-uniform
Cystic areas

(c)



Uniform
Hyperechogenic

(f)



Myoma

Echogenicity

Non-uniform
Mixed
echogenicity •

Non-uniform
Echogenic areas

Non-uniform
Cystic areas

**Low
threshold for
specialist
referral if
atypical
features**

Uniform
Hypoechogenic

Uniform
Isoechogenic

Uniform
Hyperechogenic



Van Den Bosch et al. Ultrasound Obstet Gynecol 2015; 46: 284–298

Most common myometrial pathology - myoma

- Shadowing

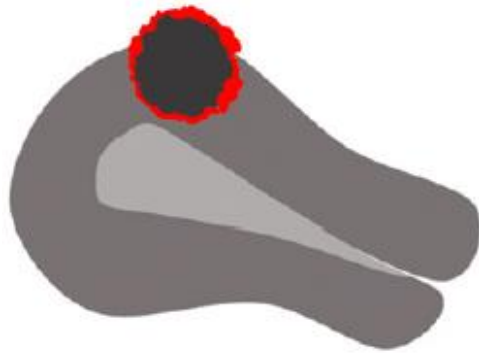


Van Den Bosch et al. Ultrasound Obstet Gynecol 2015; 46: 284–298

Leone et al. Ultrasound Obstet Gynecol 2010; 35: 103–112

Most common myometrial pathology - myoma

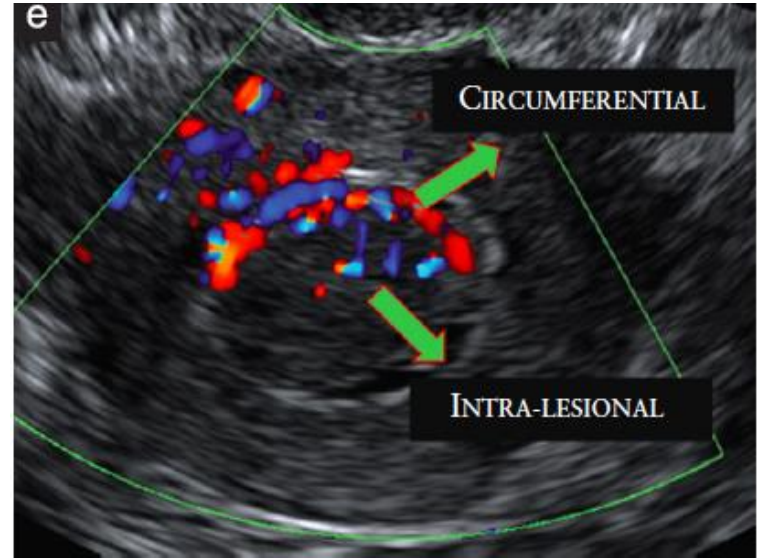
- Vascularity



Circumferential



Intra-lesional

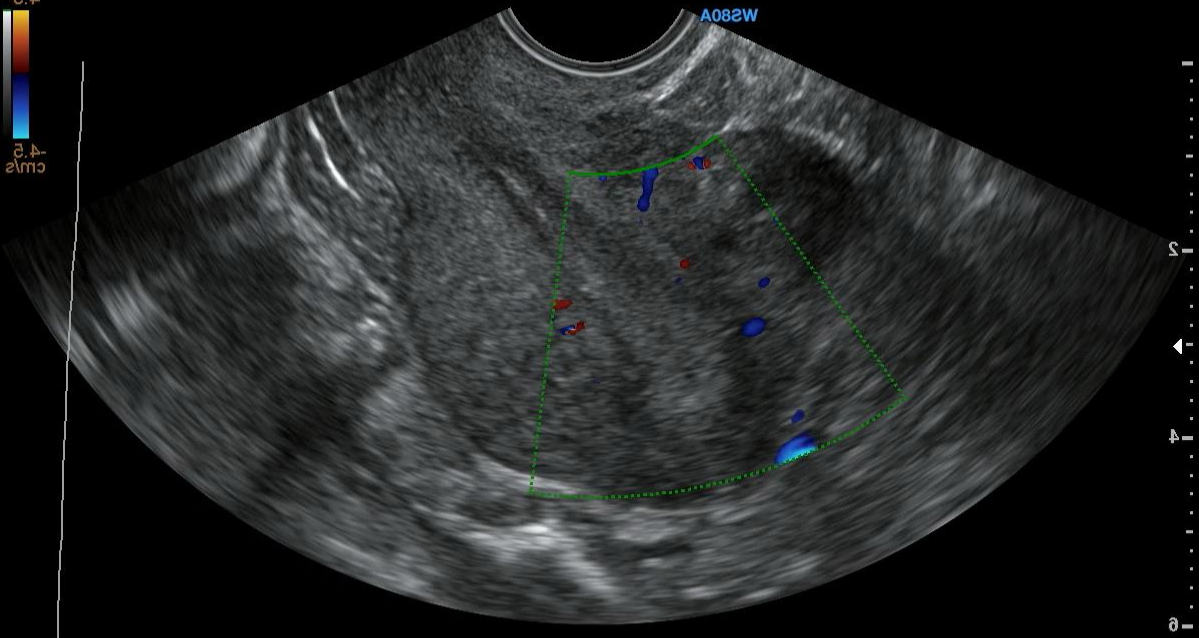


Van Den Bosch et al. Ultrasound Obstet Gynecol 2015; 46: 284–298

Preset Change

- Ex Exam+
- Gynecology
 - Adnexa
 - General
 - General
 - OB
- 1st Trimester
- Urology
- Prostate
- User Preset
- 1st Trim Anom

SD G43 DR123 FA10 P90 Frd Pen.6.0cm
C G80.0.80KHz F1 FA8



ROI Position ROI Size

Navigation controls including a trackball and buttons for:

- Set
- Exit
- Volume Save
- None
- Exit
- Application Change
- Resend
- CineSend



Preset Change

Ez Exam+

Gynecology

Adnexa

General

General1

OB

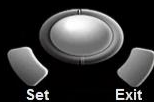
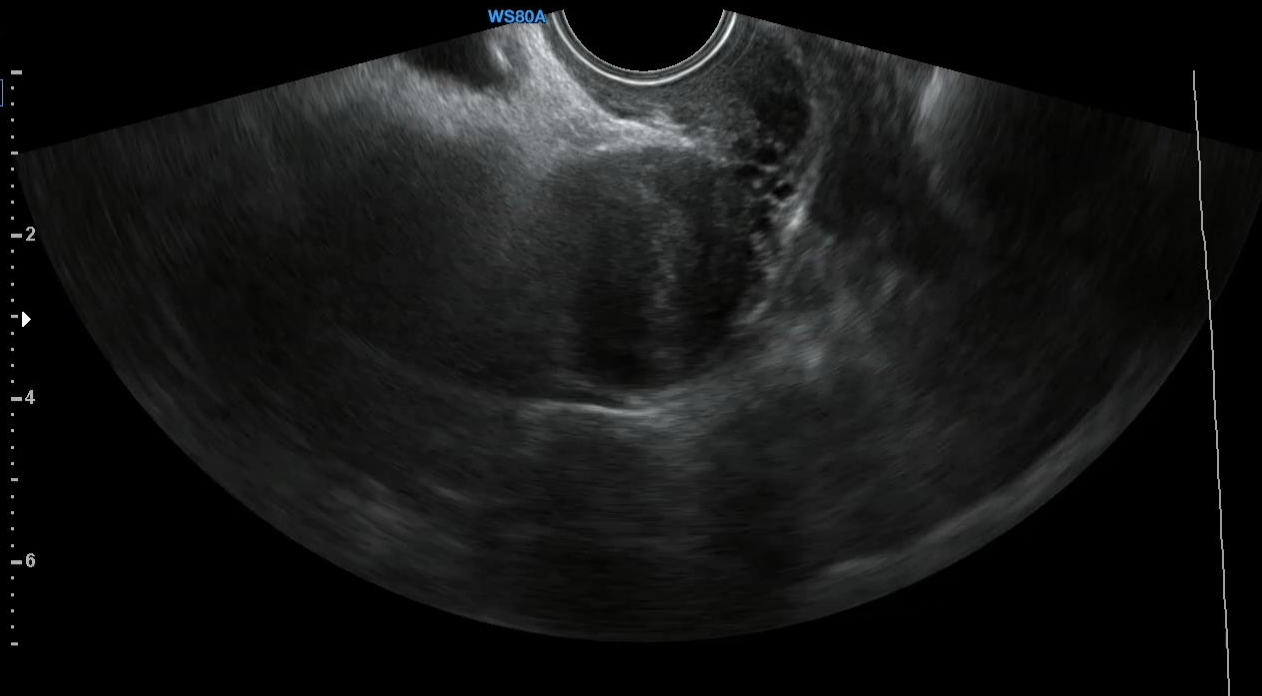
1st Trimester

Urology

Prostate

User Preset

1stTrim Anom



P1 Cine/Send
P2 Rec/Send
U1 Application Change
U2 Exit
U3 None
U4 Volume Save



Preset Change

Ez Exam+

- Gynecology
 - Adnexa
 - General**
 - General1
- OB
 - 1st Trimester
- Urology
 - Prostate
- User Preset
 - 1stTrim Anom



P1 Cine/Send

P2 Rec/Send

U1 Application Change

U2 Exit

U3 None

U4 Volume Save

2D G50 DR123/FA10/P90/Frq Gen.4.0cm

Preset Change

Ez Exam+

Gynecology

Adnexa

General

General1

OB

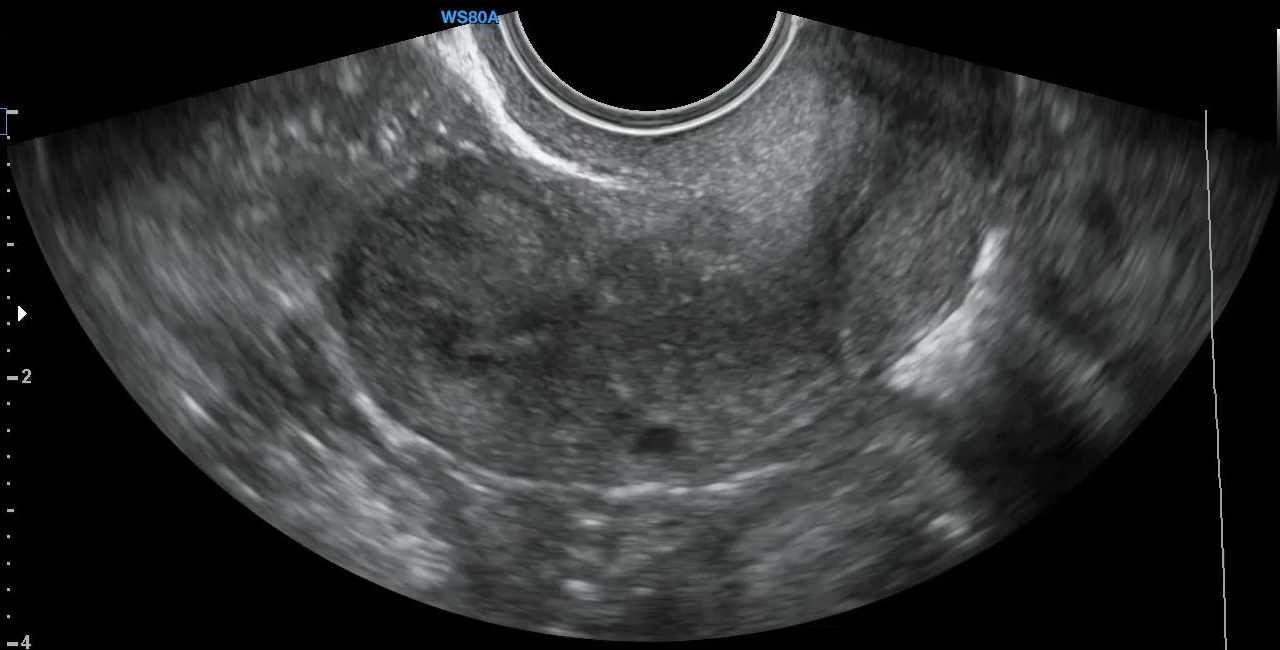
1st Trimester

Urology

Prostate

User Preset

1stTrim Anom



A



- P1 Cine/Send
- P2 Rec/Send
- U1 Application Change
- U2 Exit
- U3 None
- U4 Volume Save

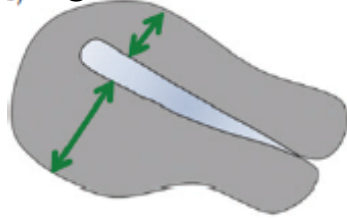
Relatively common myometrial pathology - adenomyosis

“Abnormal presence of endometrium tissue within the myometrium”

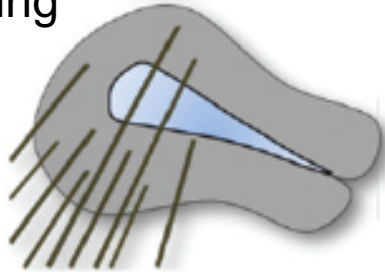


Relatively common myometrial pathology - adenomyosis

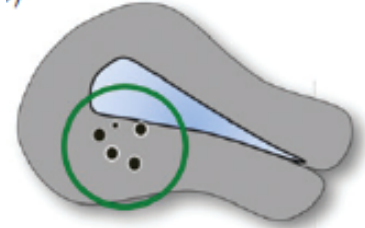
- Enlarged uterus
 - Asymmetrically enlarged
 - Globally enlarged



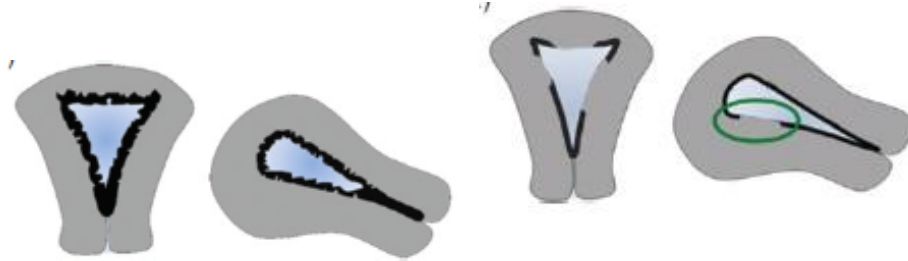
- Fan shaped shadowing



- Myometrial cysts



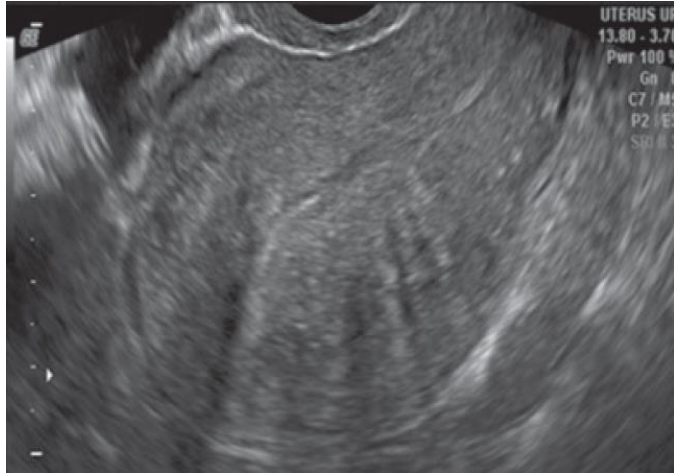
- Poorly defined endometrial-myometrial border



Van Den Bosch et al. Ultrasound Obstet Gynecol 2015; 46: 284–298

Relatively common myometrial pathology - adenomyosis

- Enlarged uterus



Asymmetrically enlarged

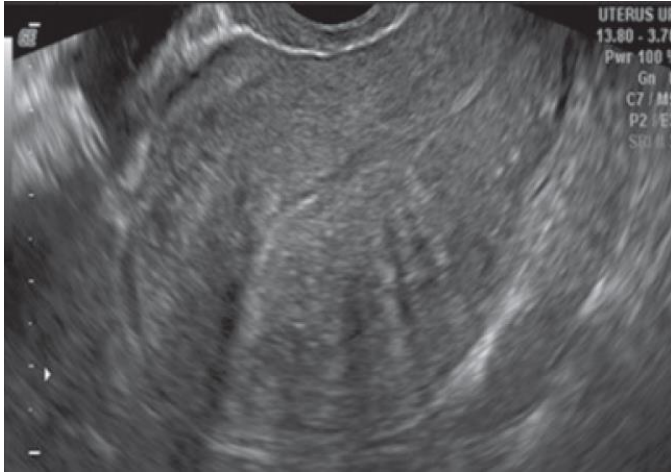


Globally enlarged

Van Den Bosch et al. Ultrasound Obstet Gynecol 2015; 46: 284–298

Relatively common myometrial pathology - adenomyosis

- Abnormal myometrial echogenicity



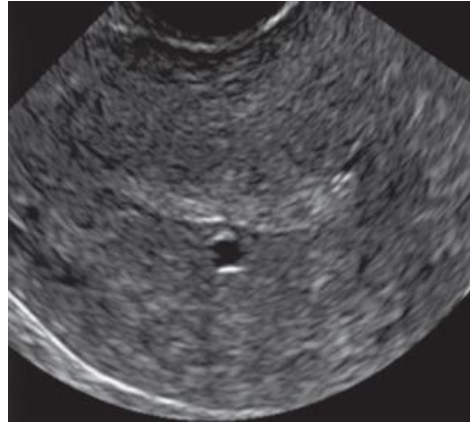
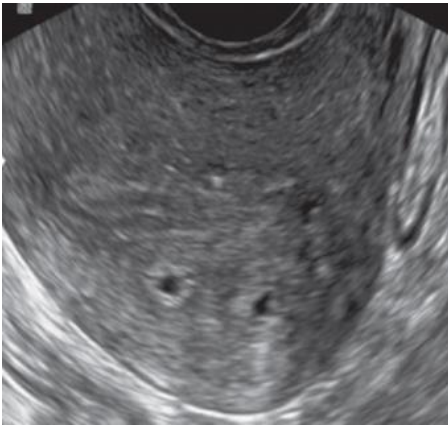
Fan shaped shadowing



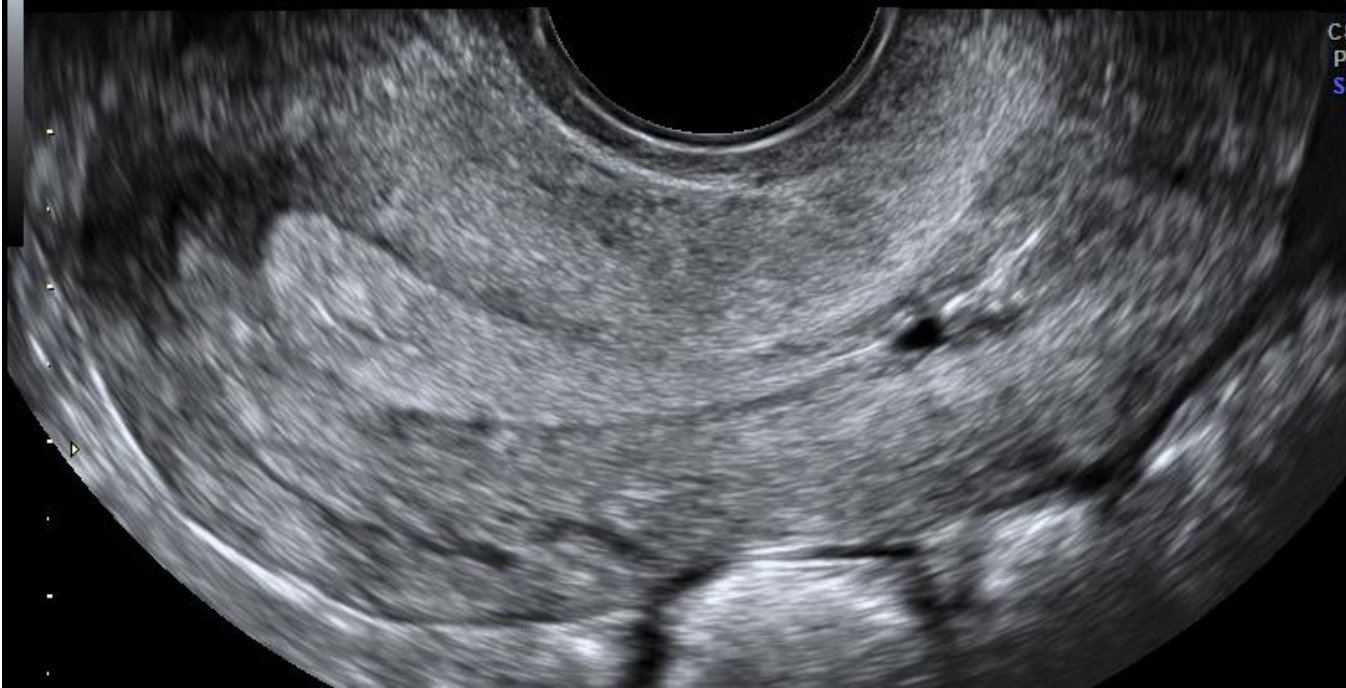
'Rain in the forest' sign

Relatively common myometrial pathology - adenomyosis

- Myometrial cysts
- Poorly defined endometrial-myometrial border



Normal myometrium before menopause

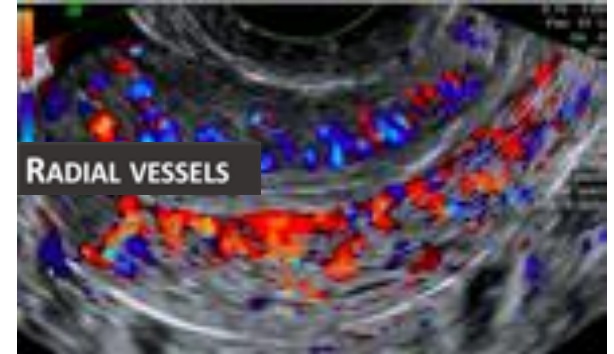
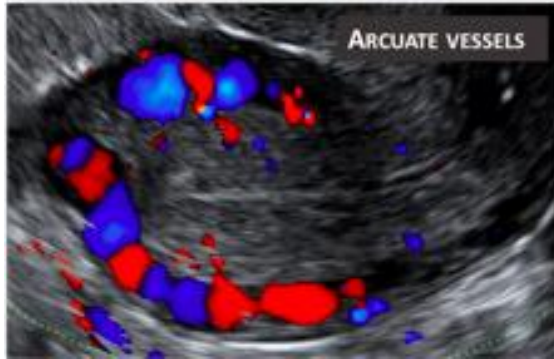
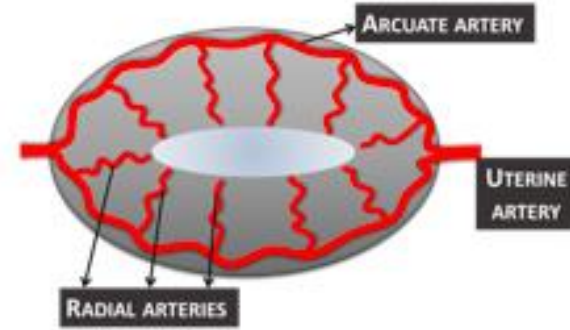
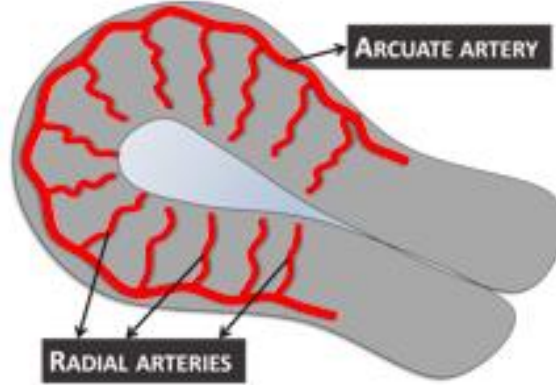


Normal myometrium after menopause

- Myometrial calcifications

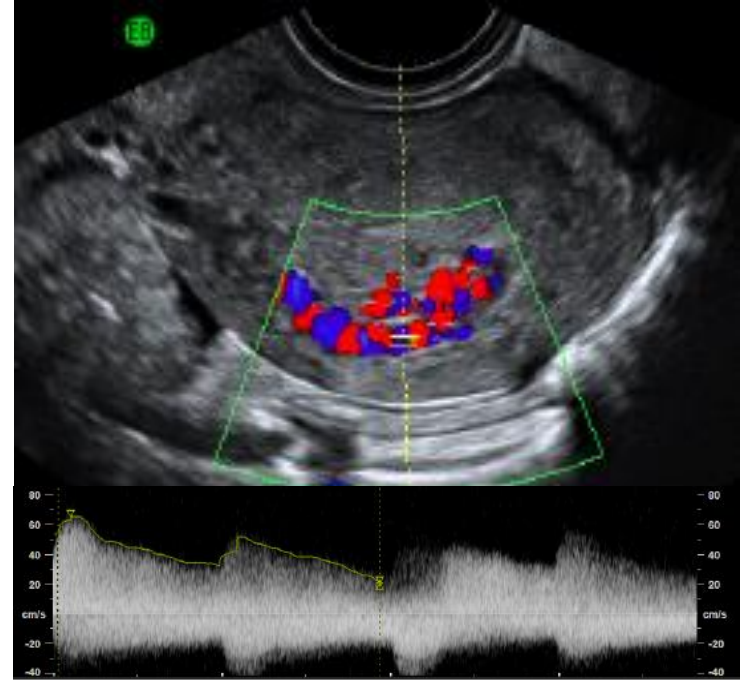
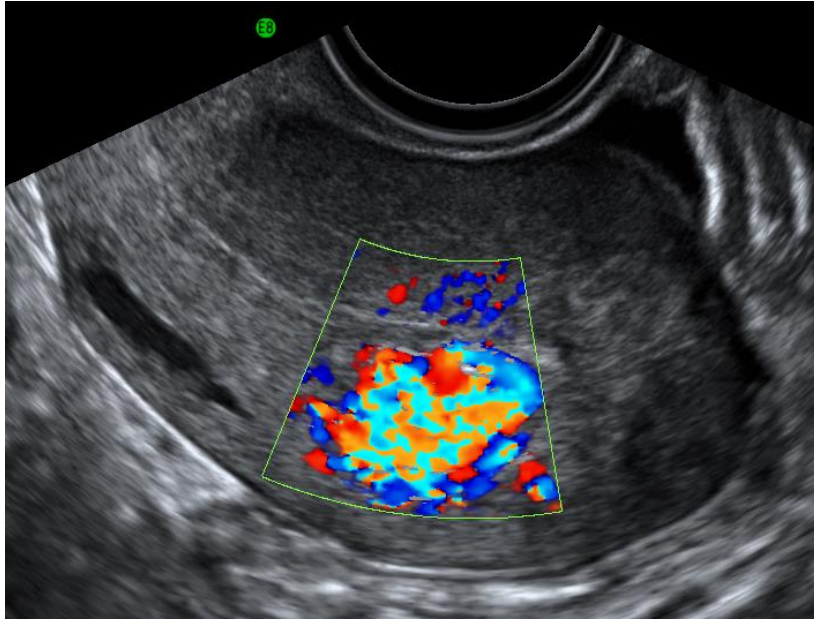


Normal vascularity in the myometrium



Van Den Bosch et al. Ultrasound Obstet Gynecol 2015; 46: 284–298

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



Preset Change

2D G50 DR123/FA10/P90/Frq Gen./6.0cm

C G50/5.00kHz/F1/FA8

PW G49/8.00kHz/F1/ 1.5mm:0°@2.4cm

Ez Exam+

Gynecology

Adnexa

General

General1

OB

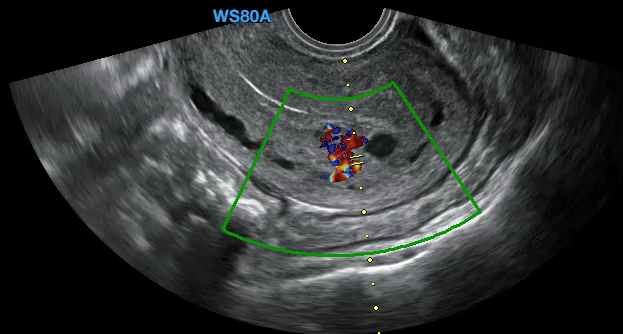
1st Trimester

Urology

Prostate

User Preset

1stTrim Anom



37.5

-37.5
cm/s

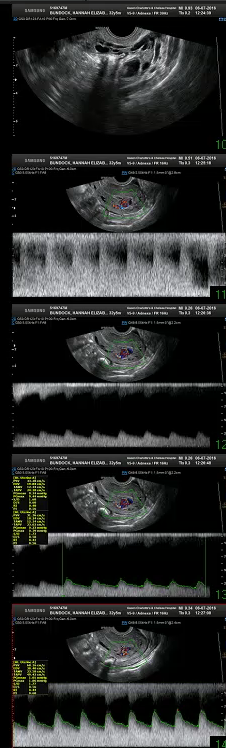
- 100

- 75

- 50

- 25

cm/s

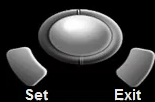


ROI Position

ROI Size

SV Position

SV Size



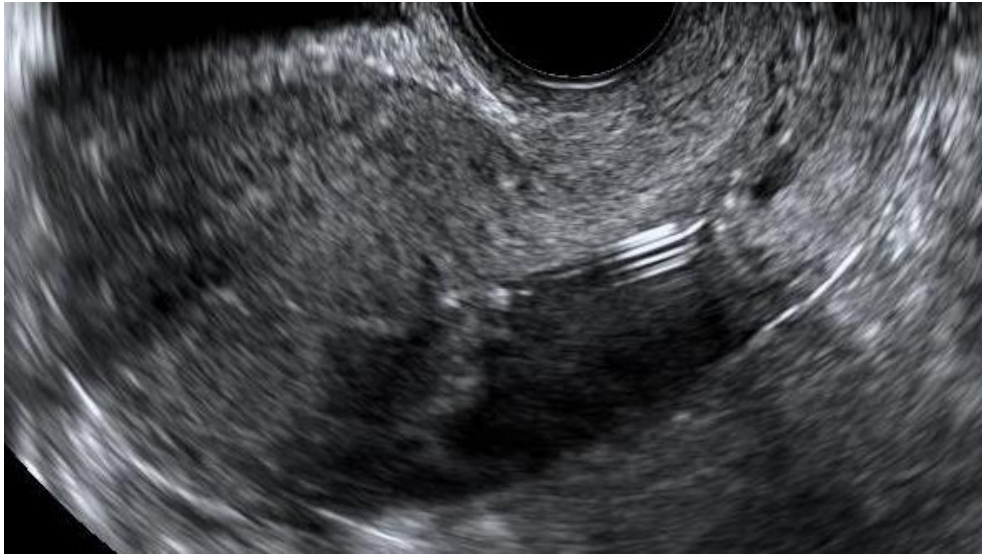
P1 Cine/Send
P2 Rec/Send
U1 Application Change
U2 Exit
U3 None
U4 Volume Save

Correct position of copper IUCD



Incorrect position of IUCD

- Too low



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**

Acknowledgments

These slides were created by:

- Shabnam Bobdiwala
- Maya Al-Memar
- Lil Valentin



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