

# Scanning the cervix in pregnancy:

## 'Do's, don'ts and diagnoses'

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BMUS Obstetric study day

06/10/23

# Aims of the session

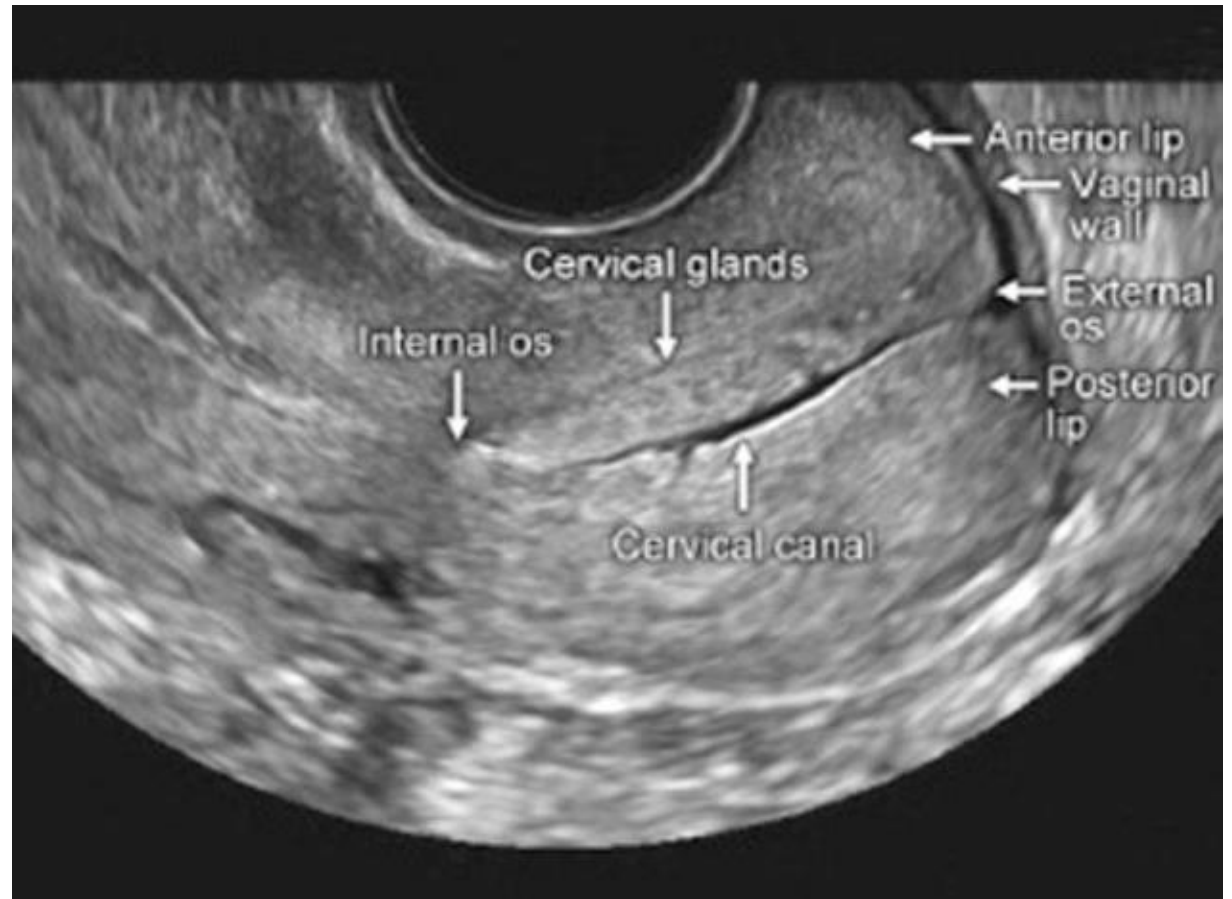
Normal cervical  
anatomy

When to scan  
the cervix

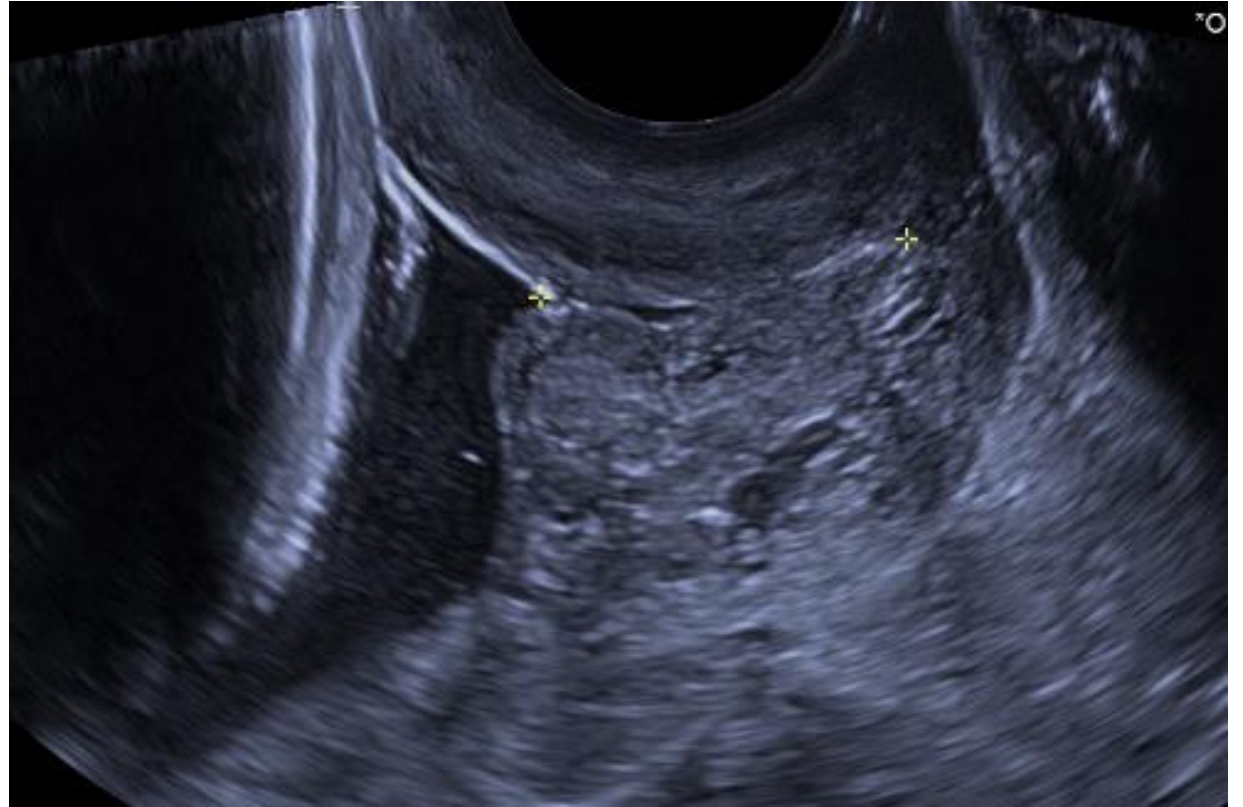
Scanning  
technique, inc.  
measurement of  
cervical length

Diagnosis of  
cervical  
pathology

# NORMAL CERVICAL ANATOMY



# NORMAL CERVICAL ANATOMY (PREGNANCY)



# Contraindications to Transvaginal scanning

- ? Placenta praevia with vaginal bleeding
- ? Ruptured membranes
- LACK OF PATIENT CONSENT



# When to scan the cervix

## Asymptomatic

(Pre-term birth screening)

Previous pre-term birth or late miscarriage

History of cervical surgery (e.g. LLETZ)

History of full dilatation caesarean section

Known Mullerian duct anomaly

Known connective tissue disorder (e.g. Ehlers–Danlos syndrome, Marfan syndrome)

## Symptomatic

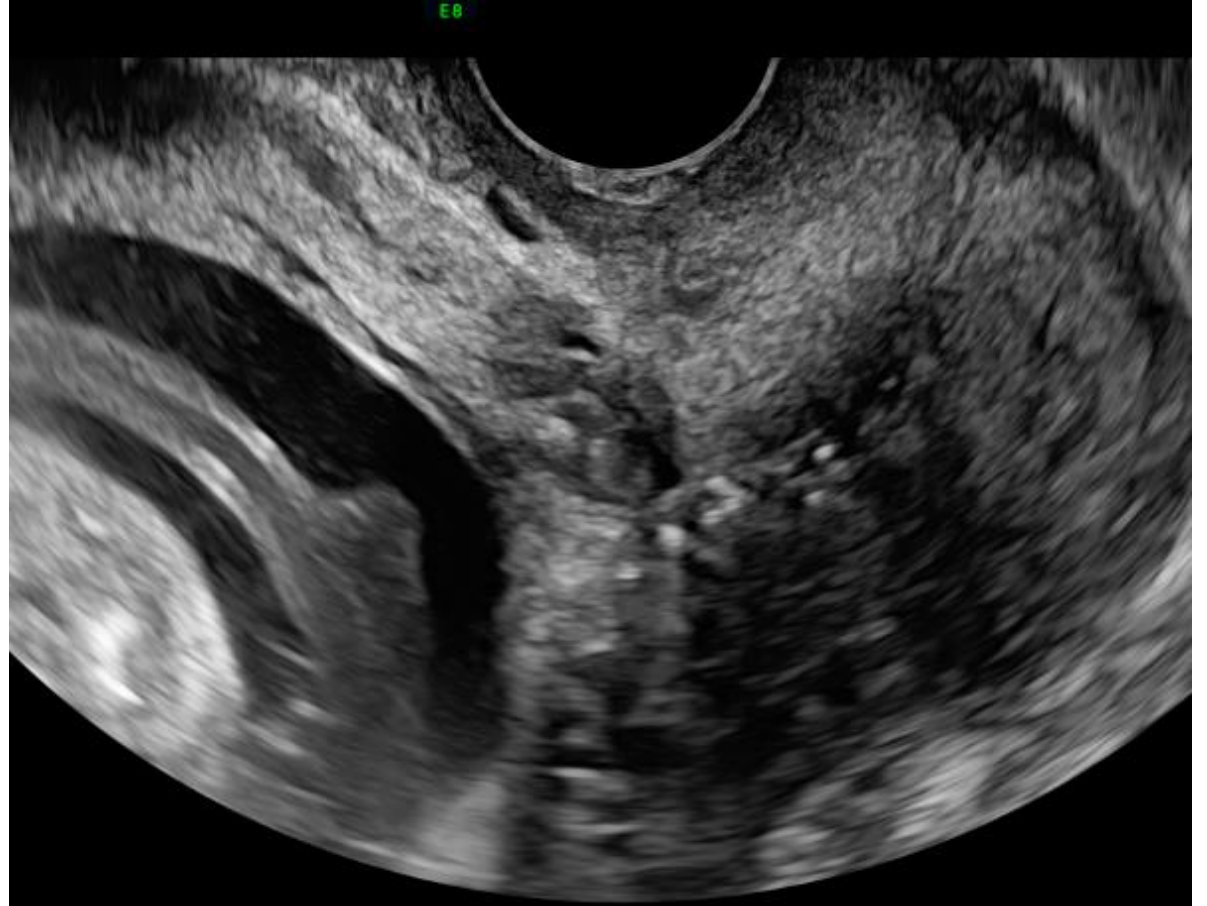
Threatened pre-term labour

Attendance with pelvic pain

Vaginal bleeding

# Full dilatation caesarean section

Increases the risk of  
pre-term birth due to  
cervical incision



# Cervical scanning technique

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The maternal bladder should be emptied before the scan.

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A longitudinal axis of the cervix should be imaged.

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Presence of the cervical canal and surrounding cervical mucosa identified.

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The cervical length ultrasound image should be magnified to fill 50-75% of the screen.

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Pressure of the probe on the cervix should be minimised.

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Scanning time of the cervix should be 3 to 5 minutes.

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A considerable number of measurements (at least three) should be taken and the shortest measurement should be reported.

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(ISUOG,2015)



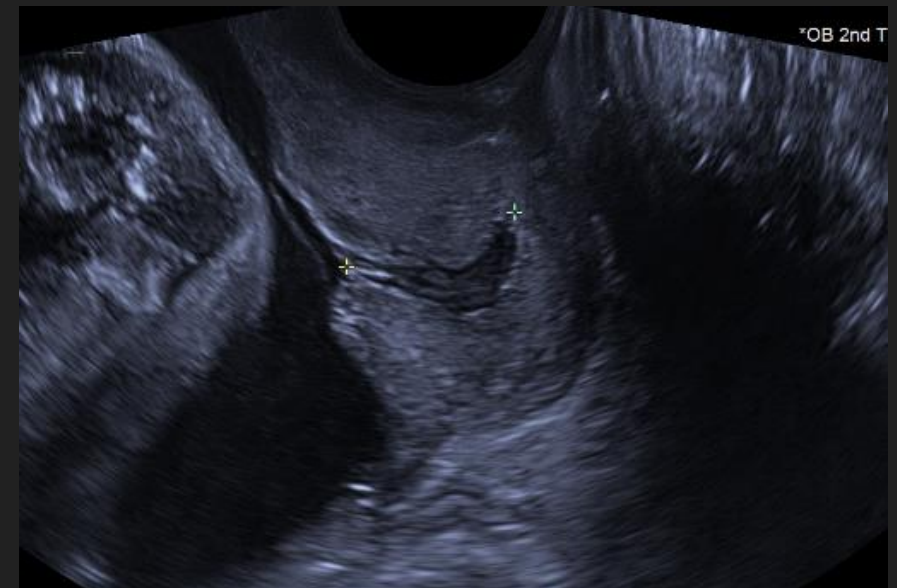
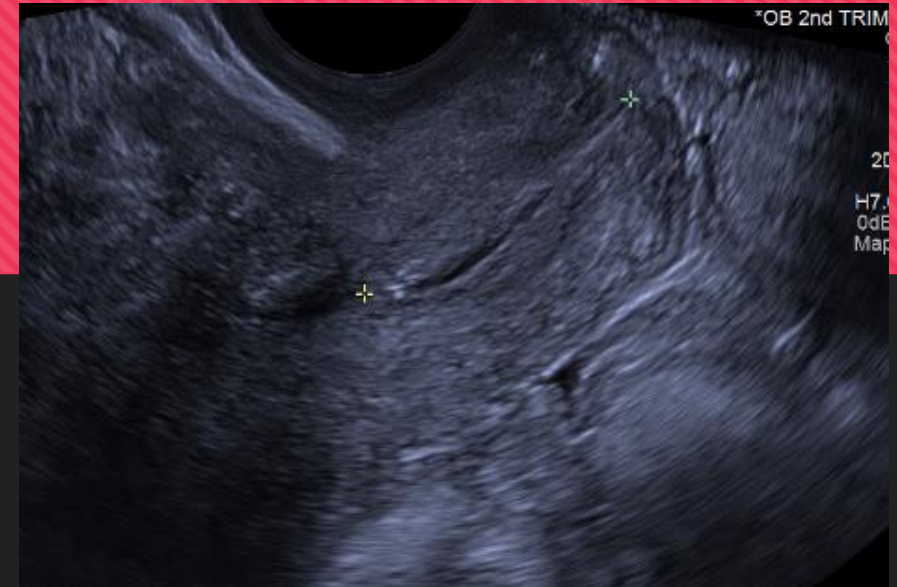
# Longitudinal section

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The cervix must be measured along its longitudinal axis which may differ from the patient's longitudinal axis.

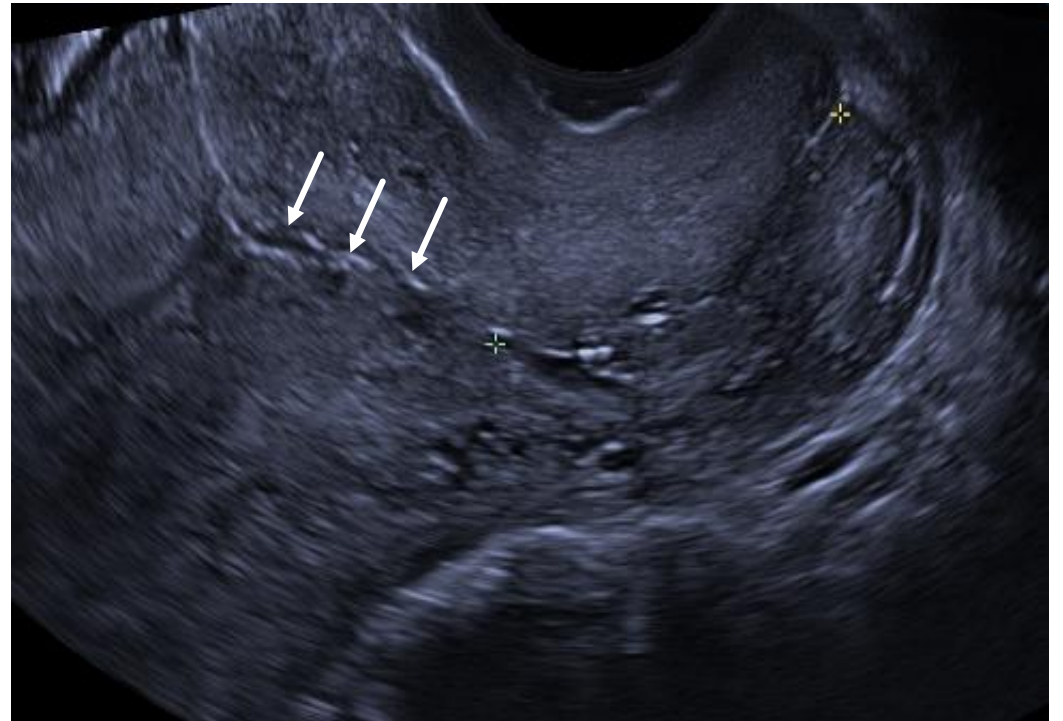
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The cervical canal is demonstrated as a relatively thin line, sometimes containing hypoechoic contents.

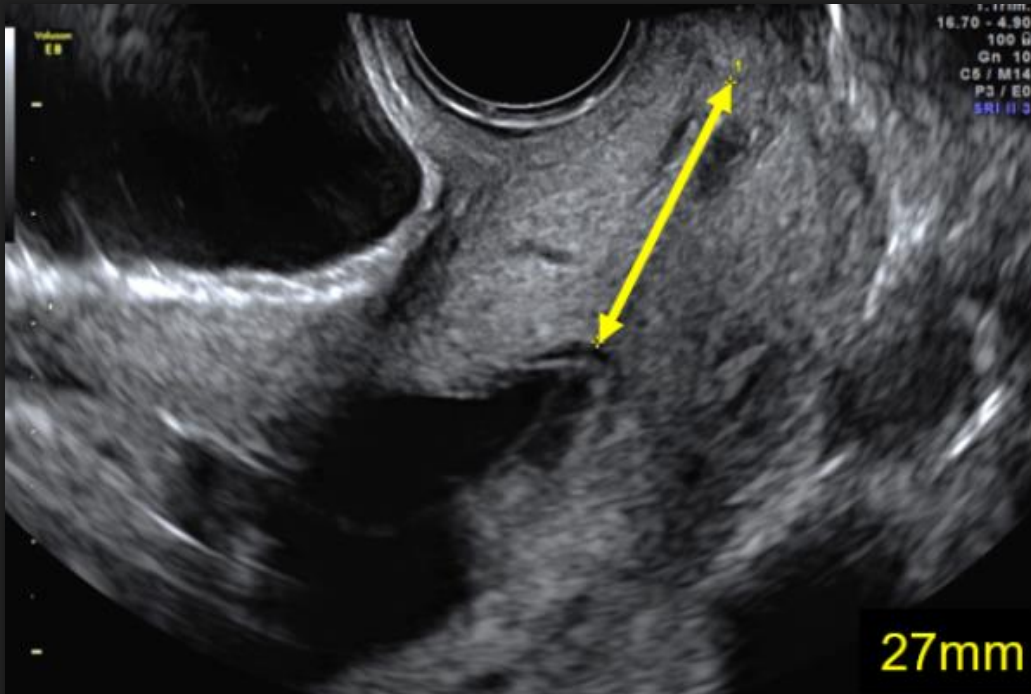


# Avoiding the isthmus

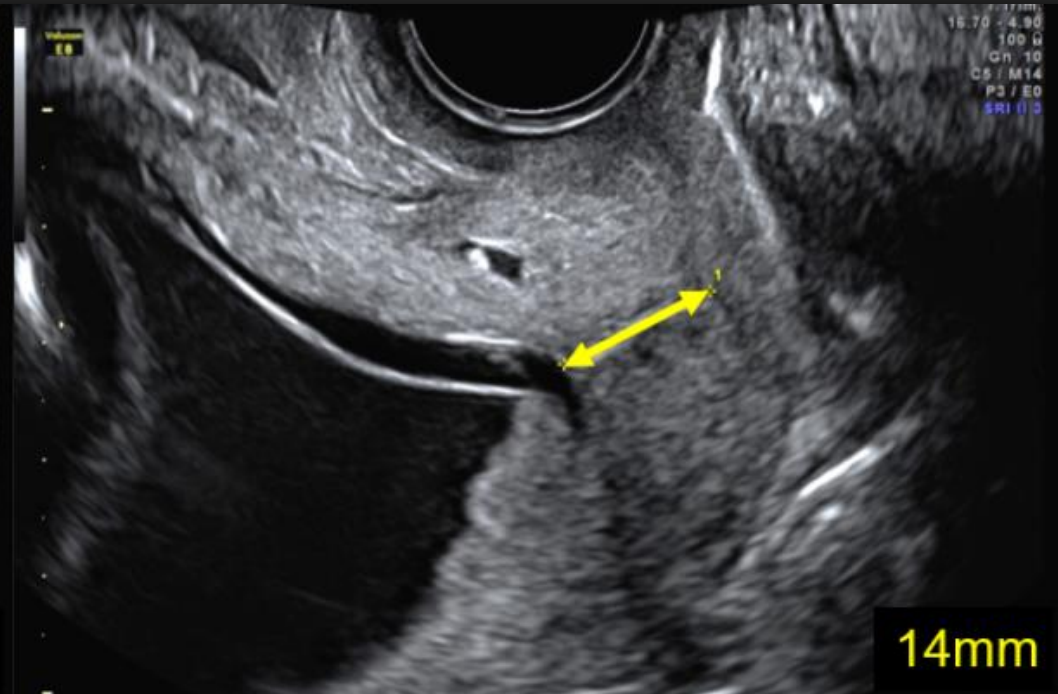
- Care must be taken to differentiate the cervix from the isthmus
- In the early second trimester, the isthmus is seen between the gestational sac and the cervix



# Empty maternal bladder



Full bladder





Empty bladder

# New research...

ORIGINAL RESEARCH | OBSTETRICS | ARTICLES IN PRESS

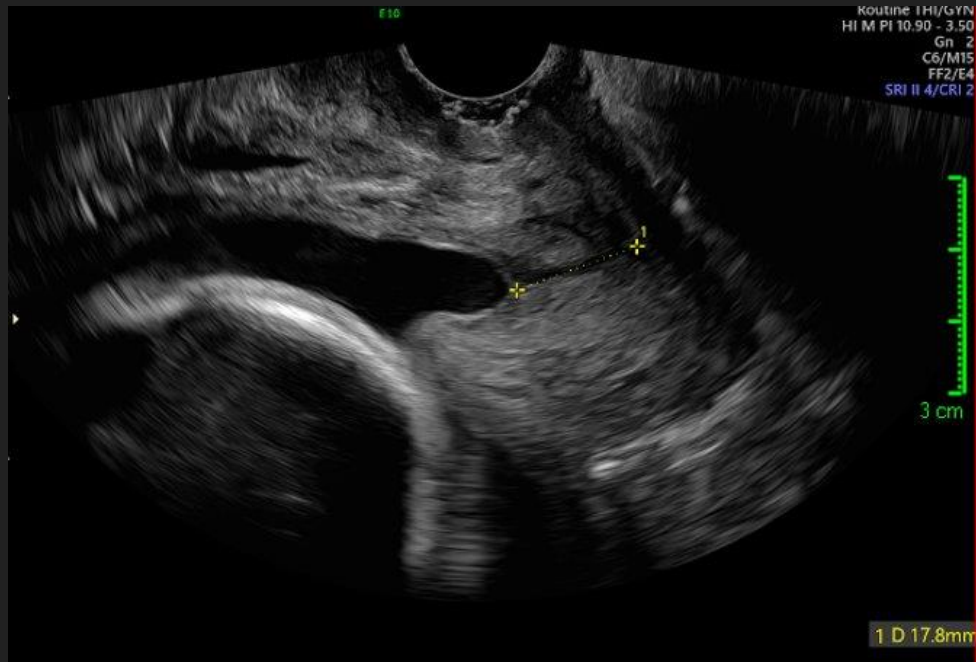
## Real-time ultrasound demonstration of uterine isthmus contractions during pregnancy

Alba Farràs, MD, PhD   • Sara Catalán, MD • Alba Casellas, MD • ... Nerea Maiz, MD, PhD •  
Maia Brik, MD, PhD • Elena Carreras, MD, PhD • [Show all authors](#)

Published: July 20, 2023 • DOI: <https://doi.org/10.1016/j.ajog.2023.07.025>

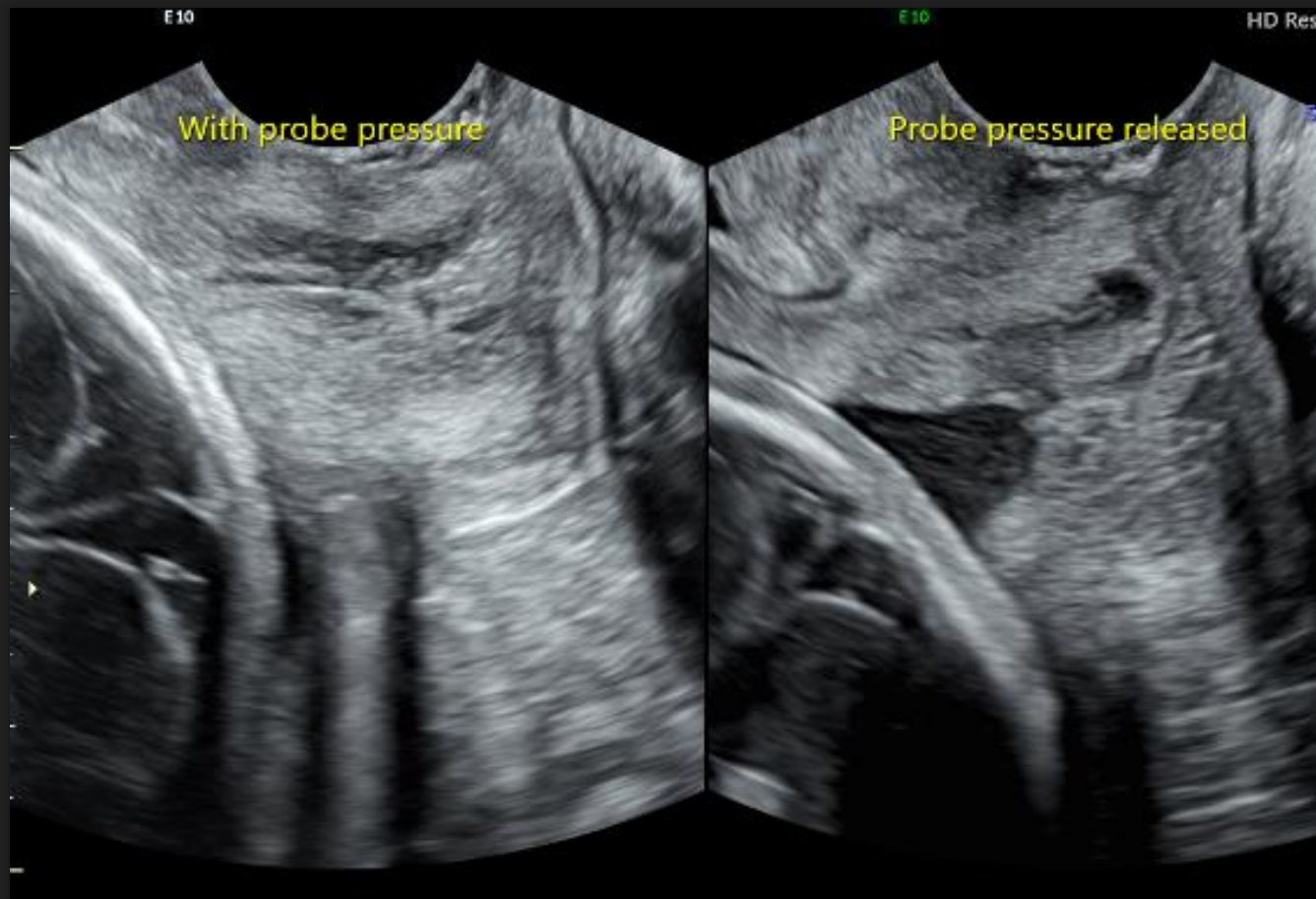
- Asymptomatic contractions are a frequent physiological phenomenon in pregnancy.
- This study observed contractions triggered by bladder voiding in 43% of pregnant women.
- Study recommends performing cervical length assessment >20 minutes after voiding.

# Image magnification

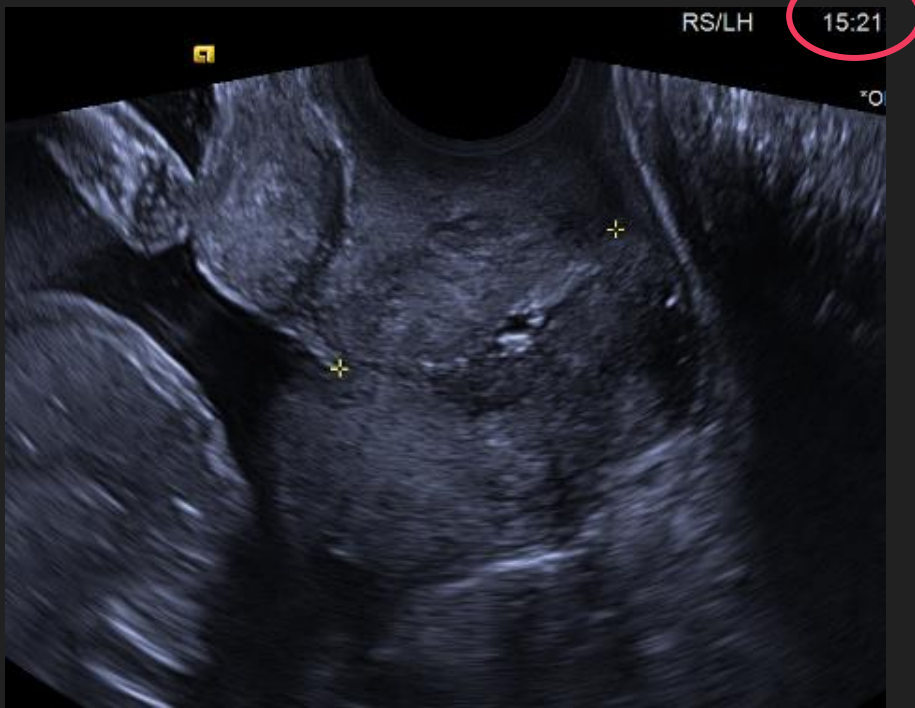


- The image should be magnified adequately to delineate the anatomy of the cervix easily.
- Recommendations are that the cervix should occupy approximately 50–75% of the image on the screen.

# Minimise probe pressure



- Excessive probe pressure elongates the cervix.
- Pressure should be minimised, ideally to visualise urinary bladder

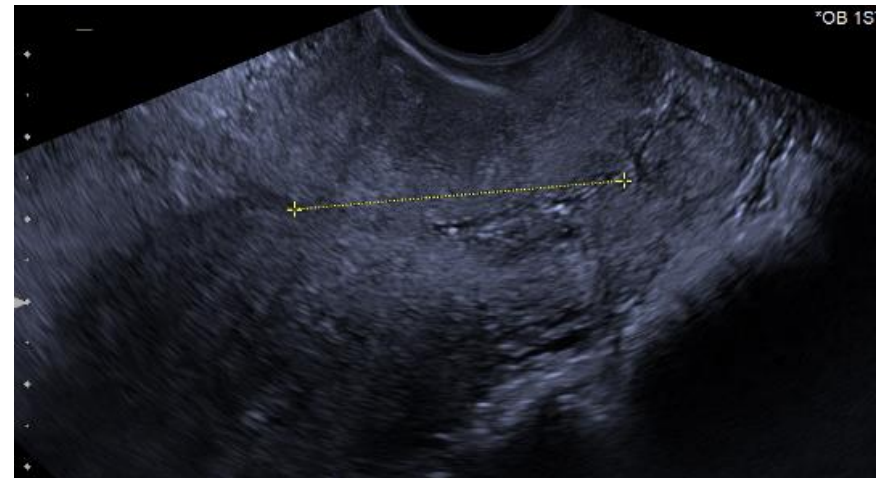
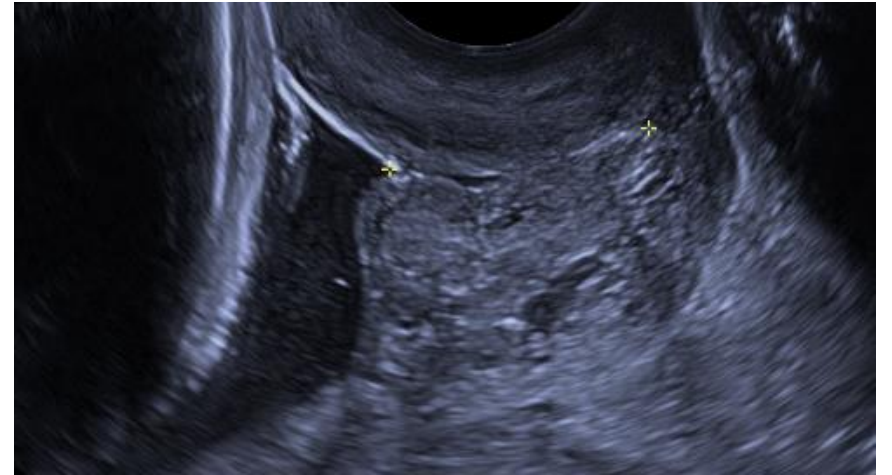


## Sufficient scanning time

- The cervix is a dynamic structure therefore cervical lengths can vary.
- It is recommended by ISUOG, that the cervix should be scanned for 3 to 5 minutes
- Manual uterine pressure on the uterus can be applied to assess the cervical stability
- Some propose scanning with the patient standing

# Calliper placement

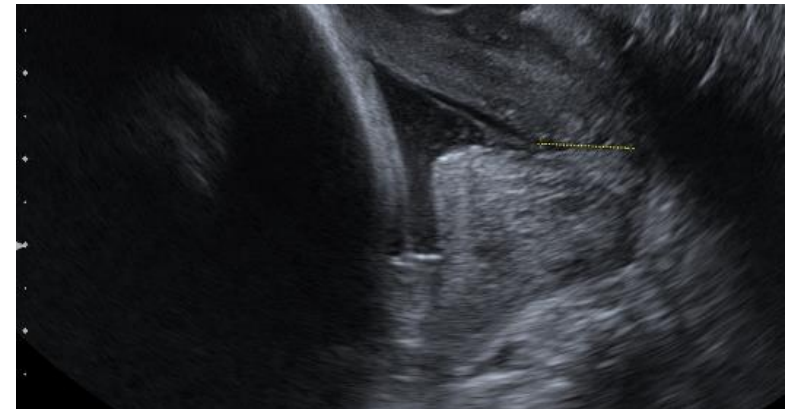
- The recommended method of measuring the cervix is using a **straight line** between the internal and external os.
- If the cervix measures more than 25 mm in length, it will be curved in  $> 50\%$  of cases.
- In high-risk patients with a cervical length  $< 16$  mm, the cervix will always be a straight line.





# Funnelling

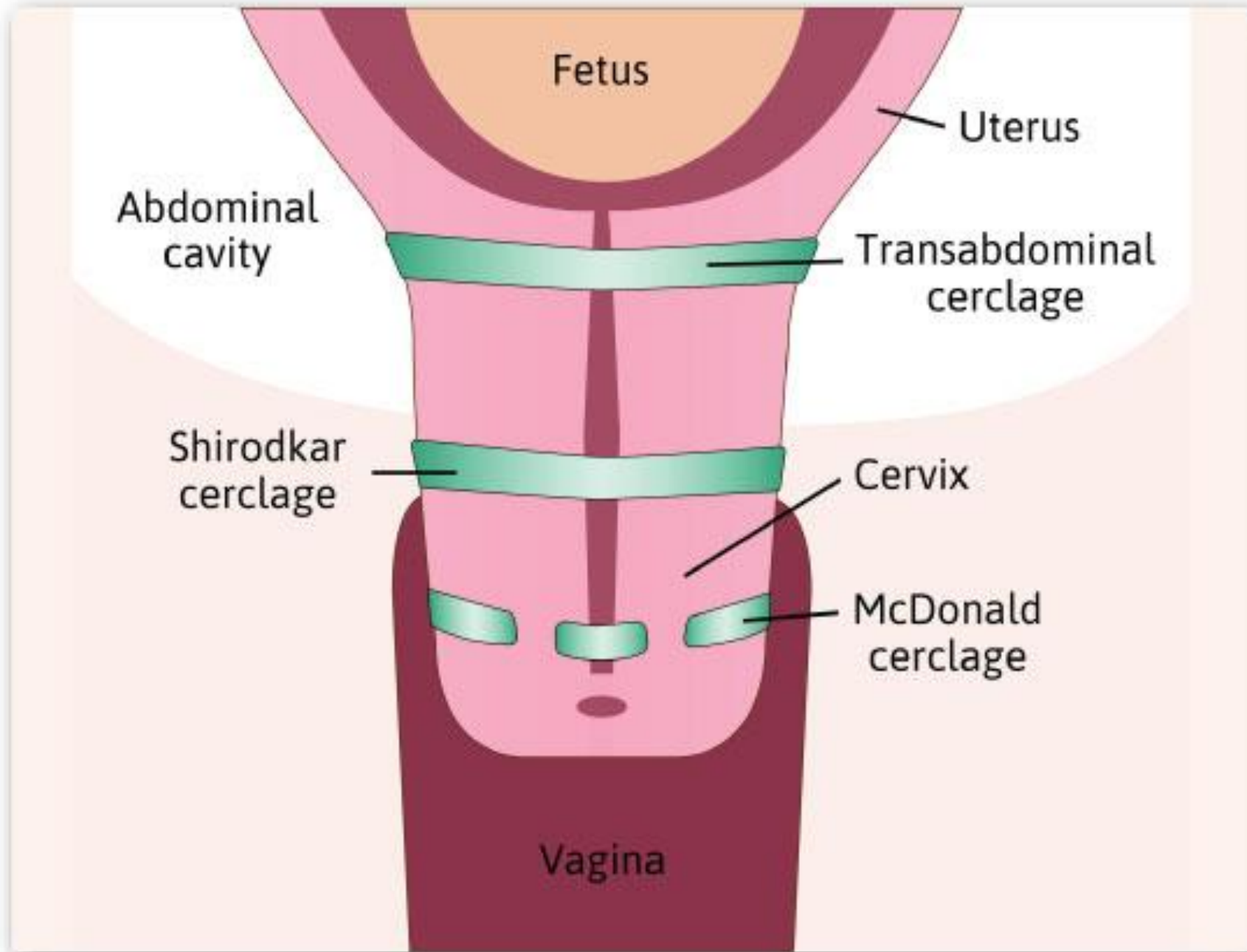
- Funnelling is defined as protrusion of the amniotic membrane into the cervical canal.
- Potential predictor of pre-term birth
- Needs to be differentiated from cervical mucous



# Cervical sludge

- Amniotic sludge appears as echogenic aggregates close to the internal os or within a funnel
- Suggested association with microbial invasion of the amniotic cavity.
- Considered a risk factor for preterm delivery



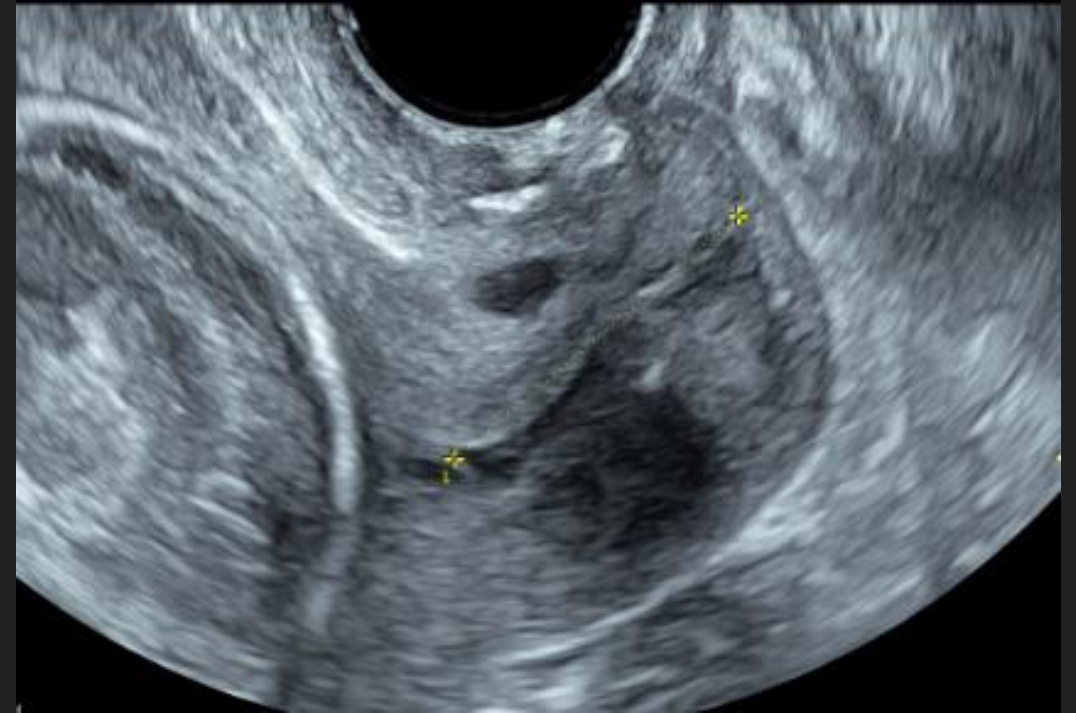


# Cervical stitch

# Cervical stitch



Pre-stitch 18mm



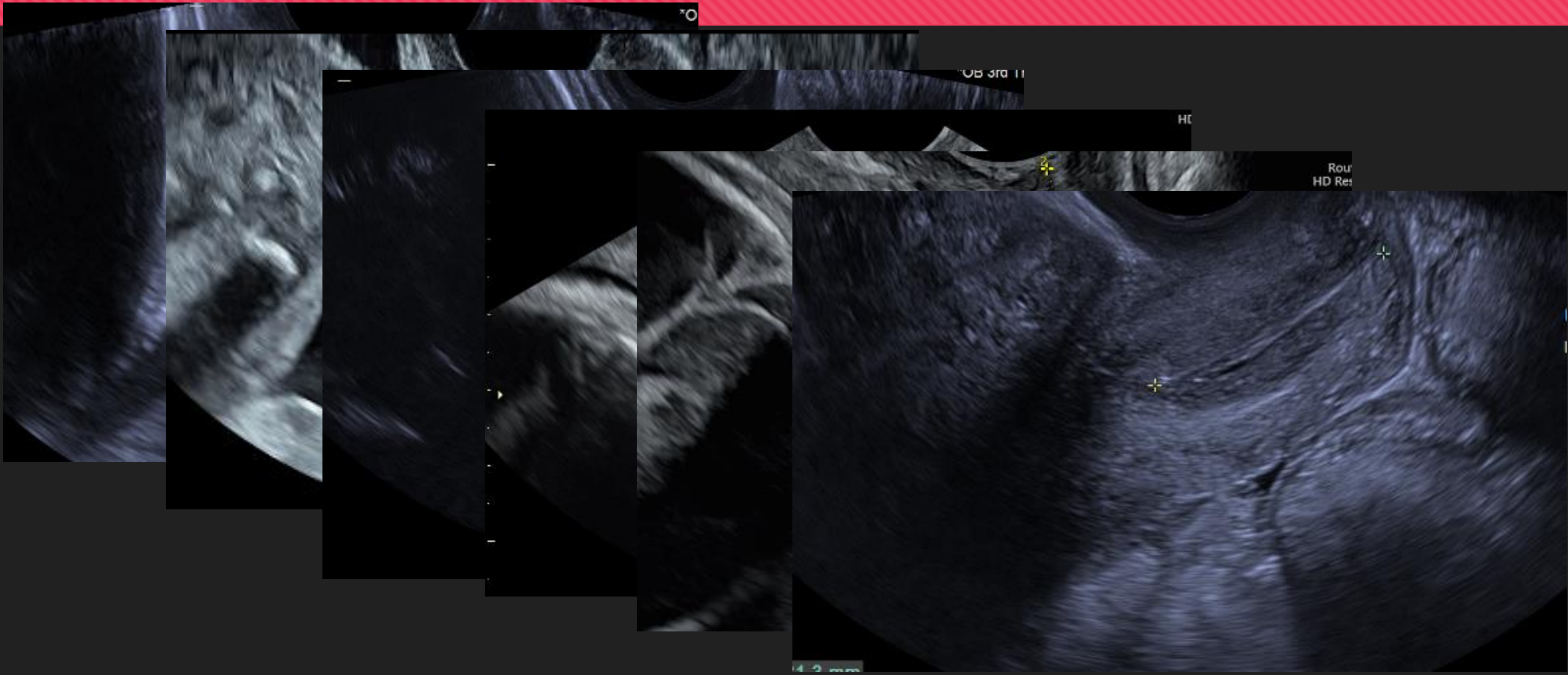
Post-stitch 30mm



## Technical difficulties

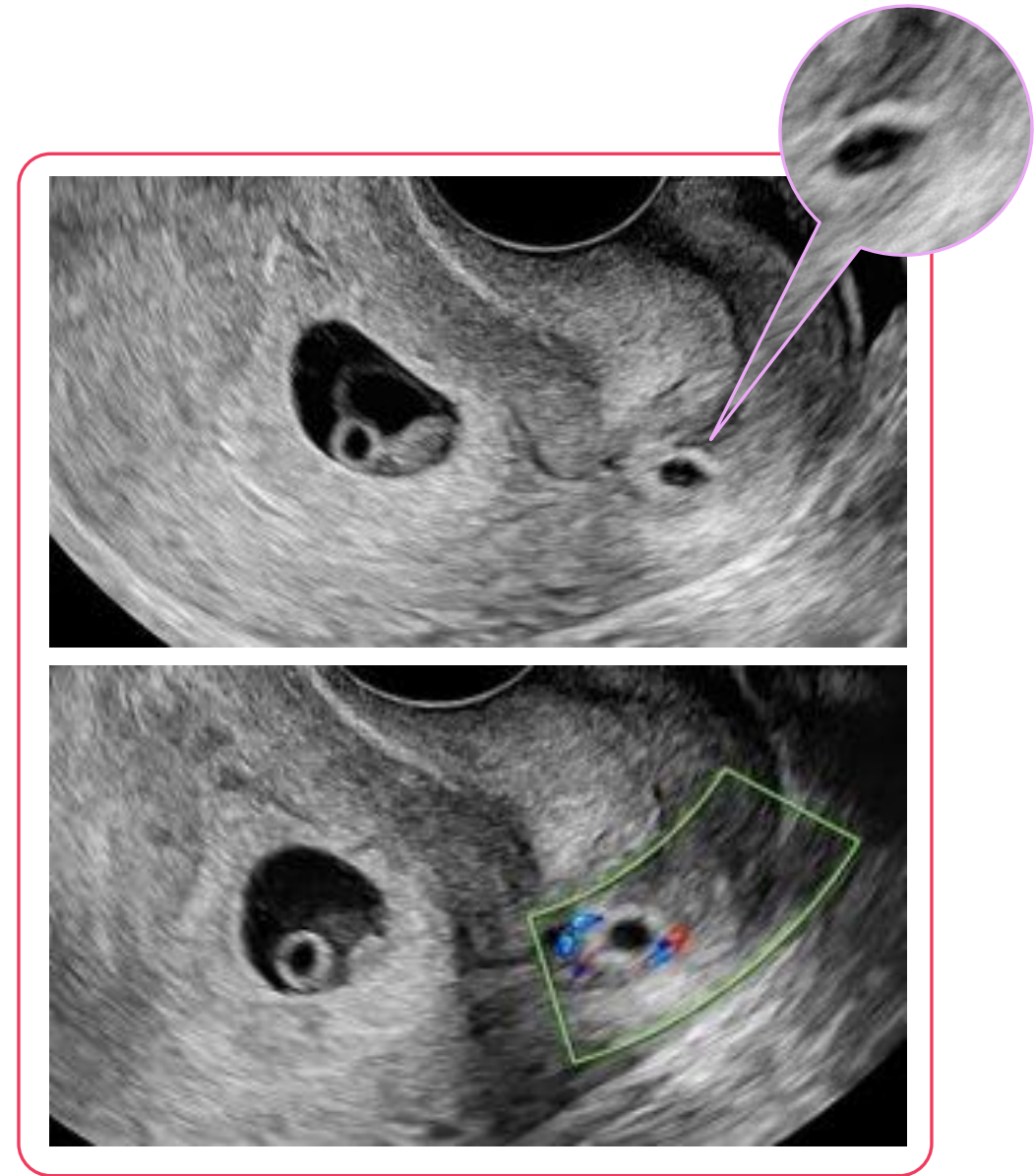
- Uterine position: Axial and AV / RF
- Isthmic contraction

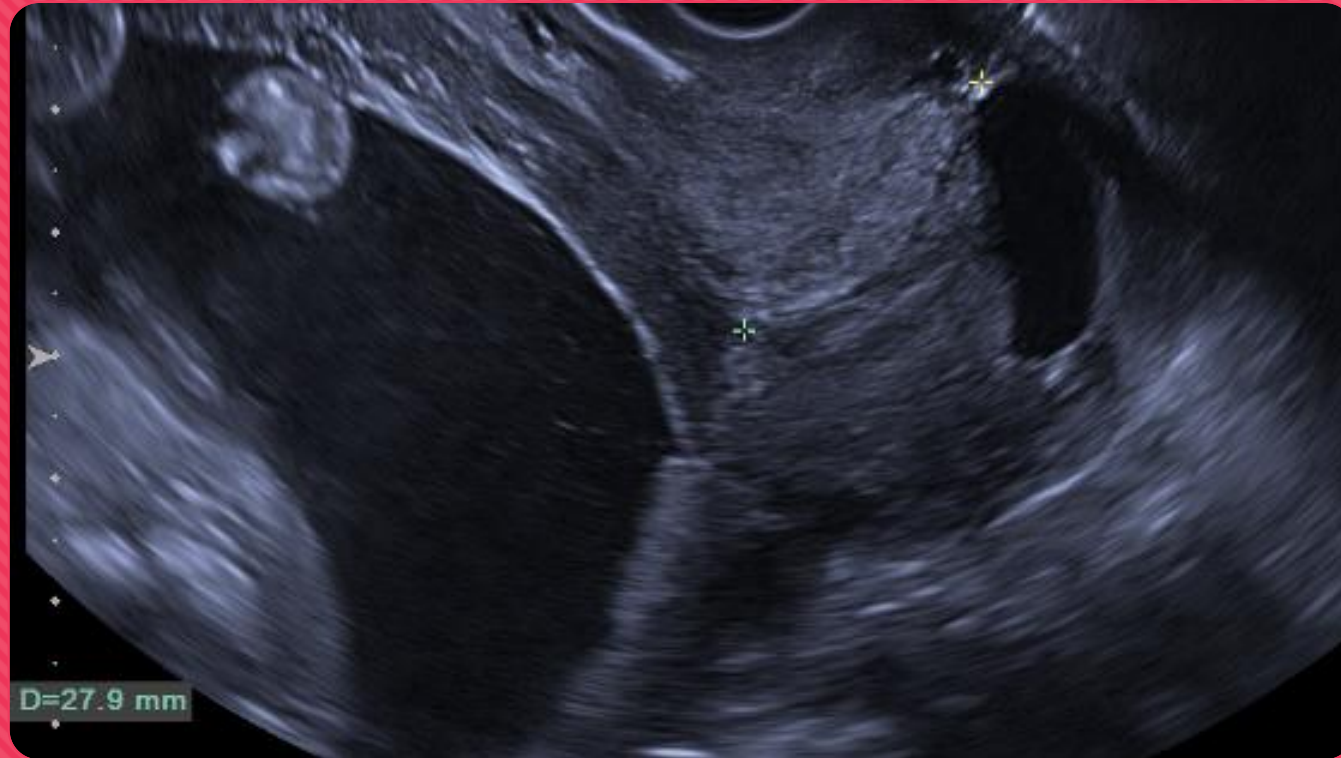
# Image troubleshooting...



# The Cervix in Early Pregnancy

- Always assess the cervix in early pregnancy!
- Cervical ectopic pregnancies are associated with previous uterine instrumentation
- Colour Doppler useful to assess peritrophoblastic flow





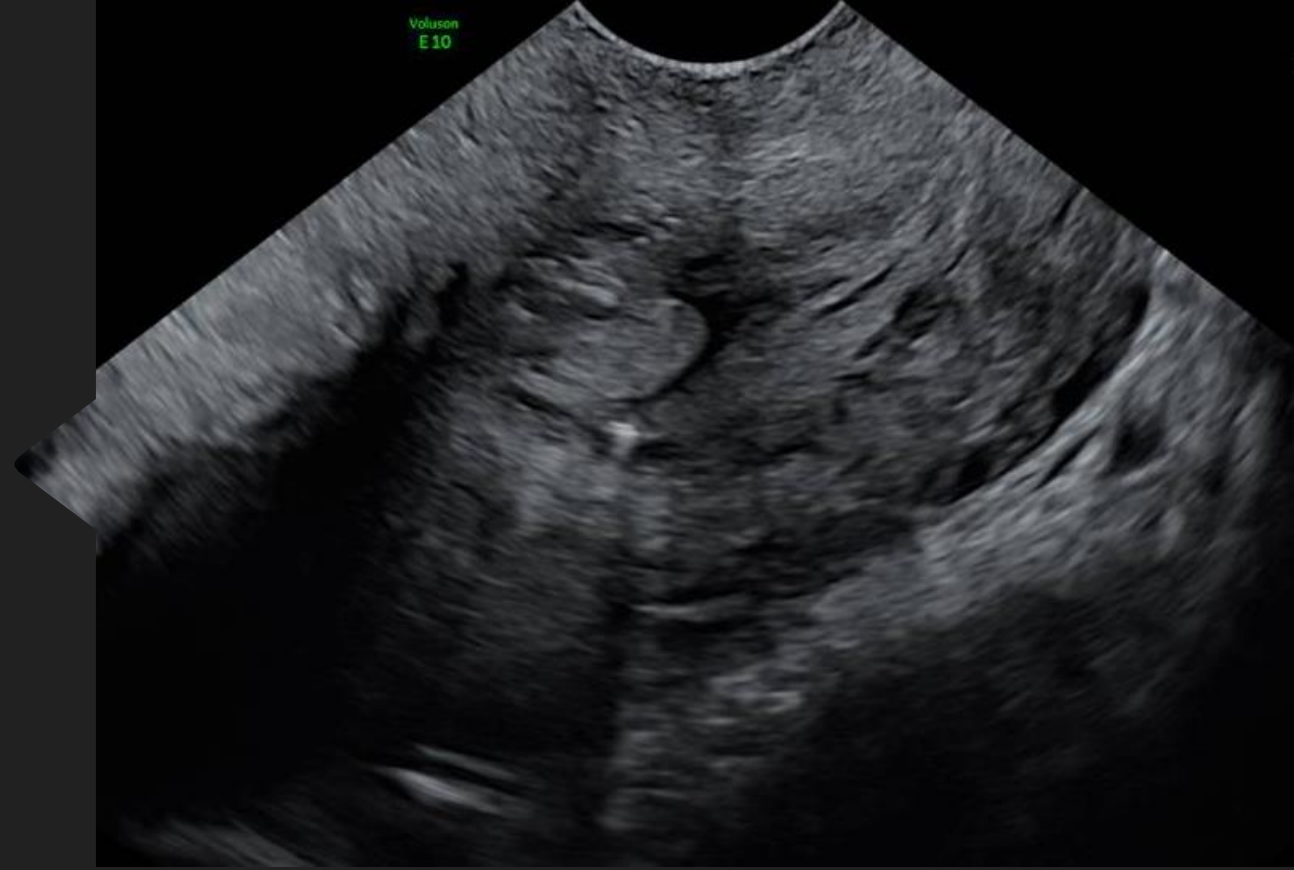
# Cervical pathology

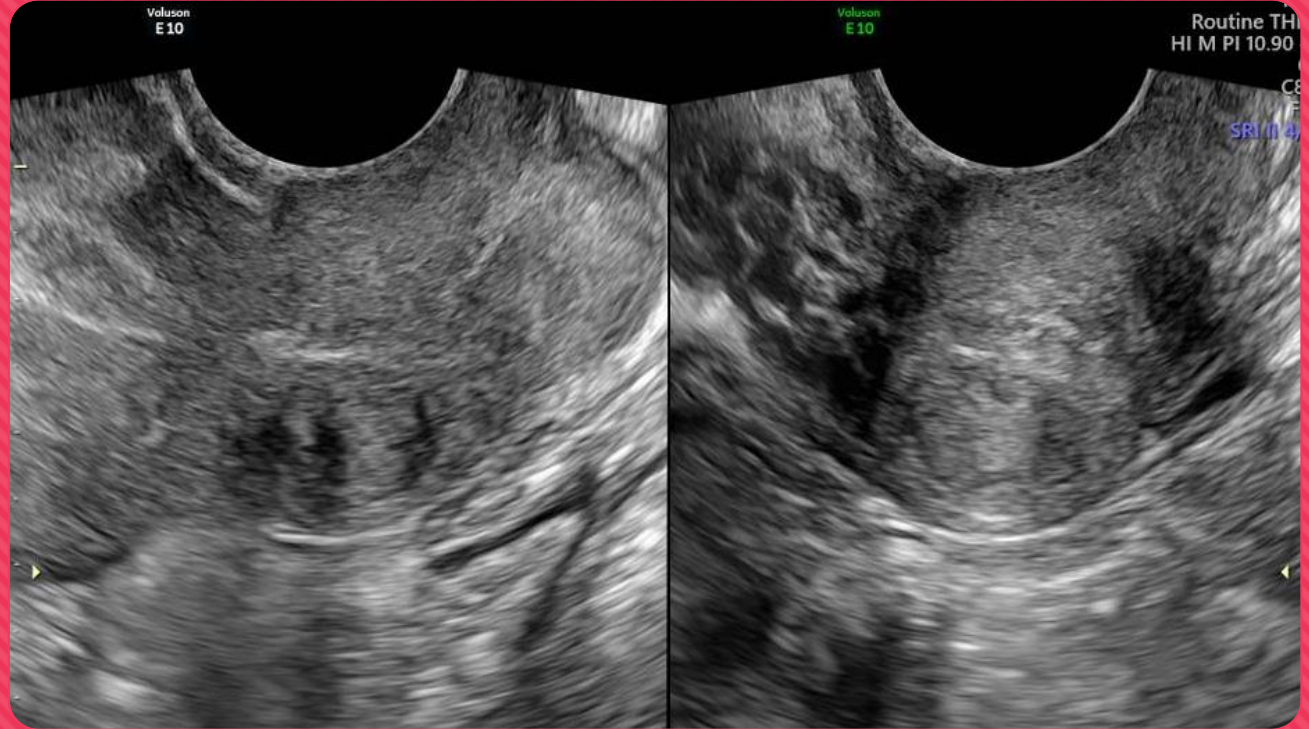
Important to assess for cervical pathology as well as length



# Cervical Polyp

- Usually an incidental finding
- May be associated with vaginal bleeding



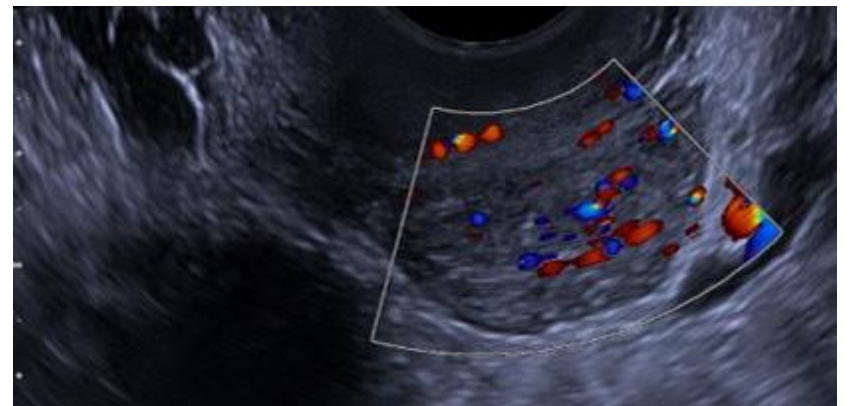
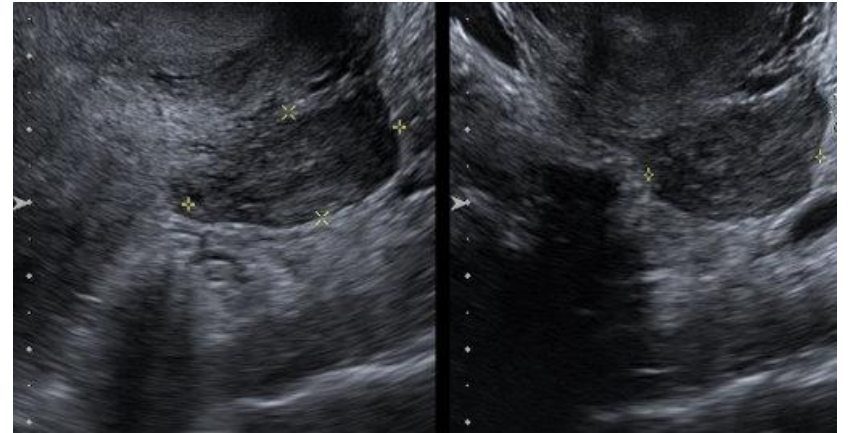


# Cervical Fibroid

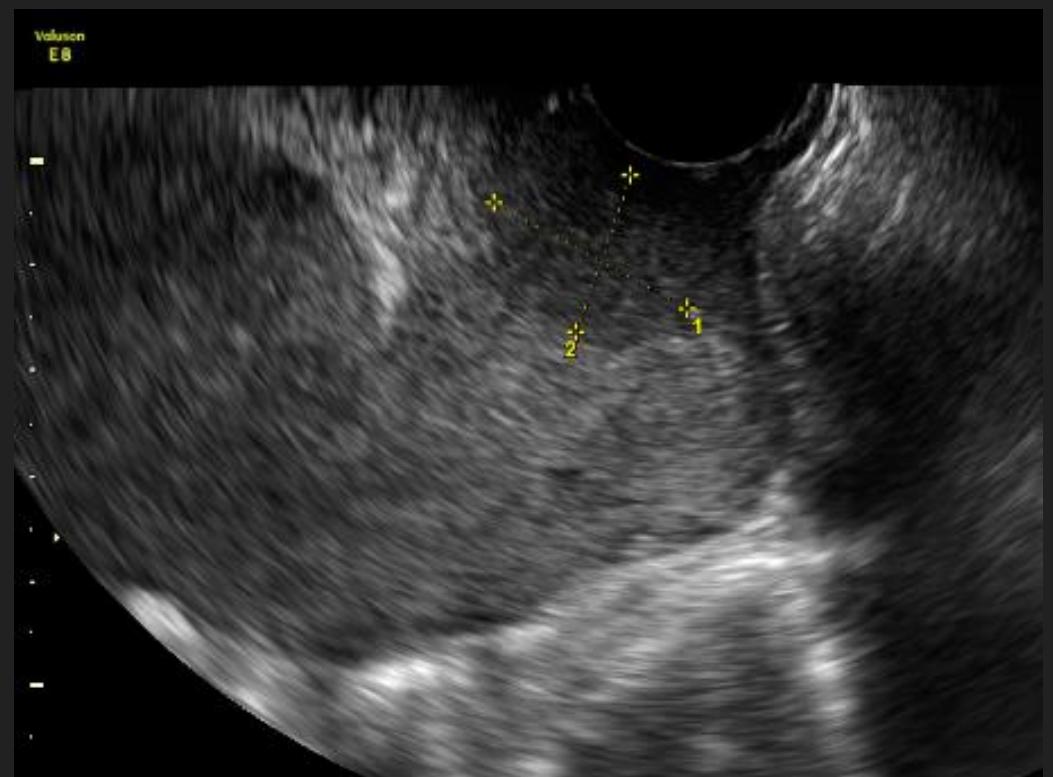
Important to assess for potentially obstructive position

# Endometriosis

- Attended for cervical length at anomaly scan
- Hypoechoic mass noted, apparently adherent to the posterior cervical wall
- May be highly vascular with colour Doppler

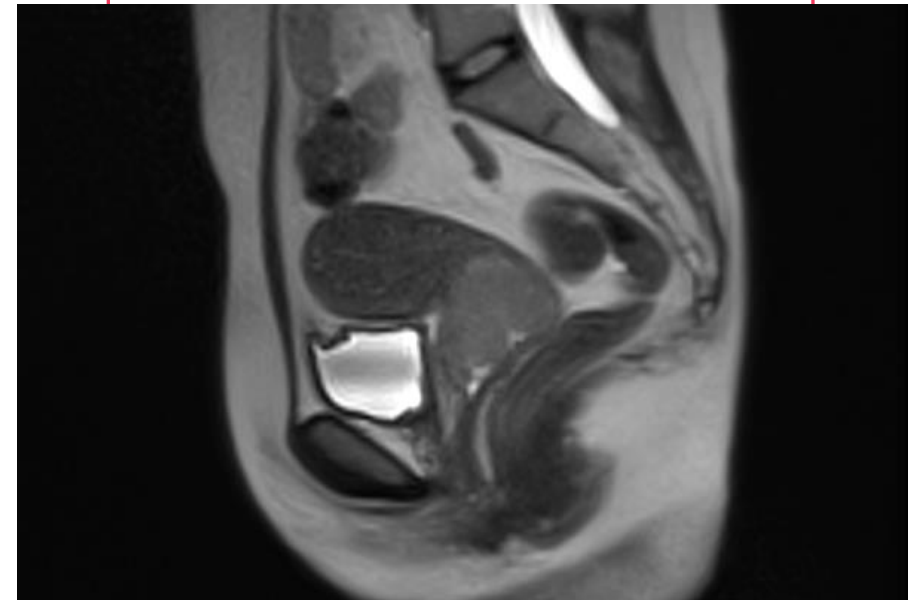
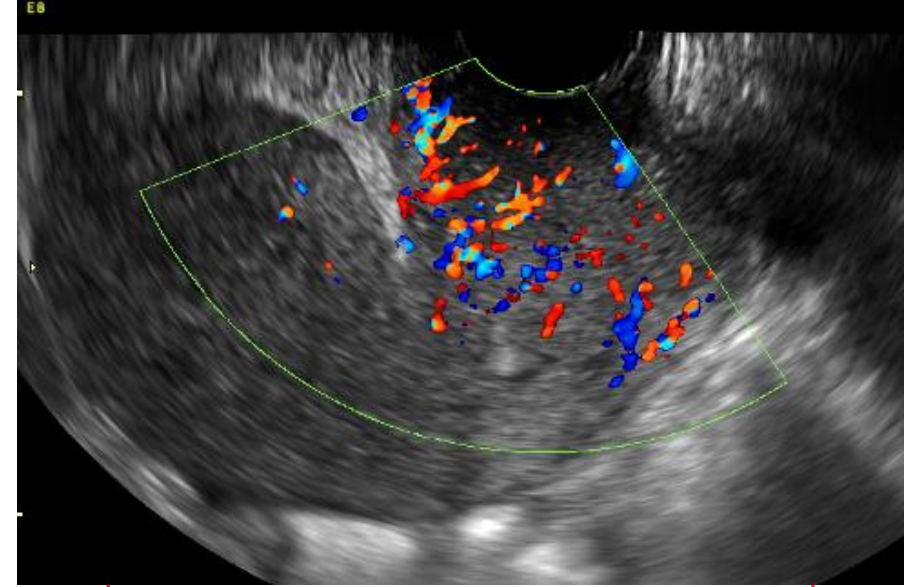


# Cervical Malignancy



# Cervical Malignancy

- Typically, hypoechoic / isoechoic masses
- Vast majority (~95%) will appear hypervascular with colour Doppler
- May deviate the normal cervical contours



# Conclusions

01

Understand normal cervical anatomy

02

Remember to minimise probe pressure and scan for a minimum of 3 minutes

03

Report: cervical length, presence of funneling and sludge

04

Be aware of the potential for diagnosing cervical pathology



**Thank you for listening!**



**Any questions?**