BMUS Gynaecological Ultrasound Study Day

26th April 2024

Roxanne Sicklen - Clinical Specialist Sonographer

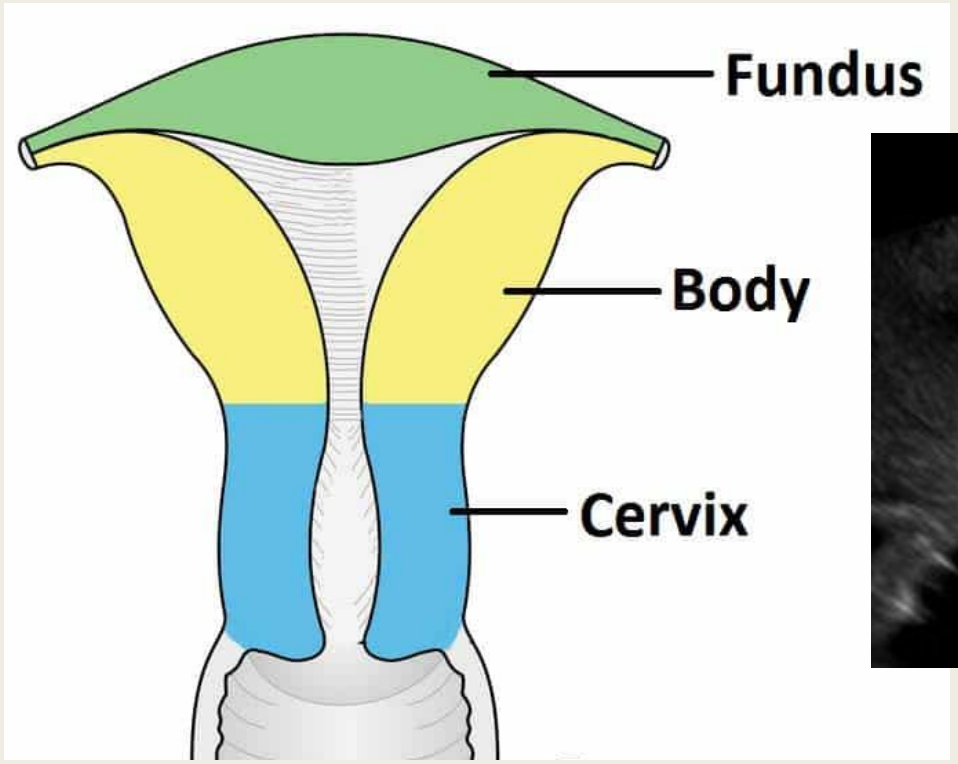
Session Aims

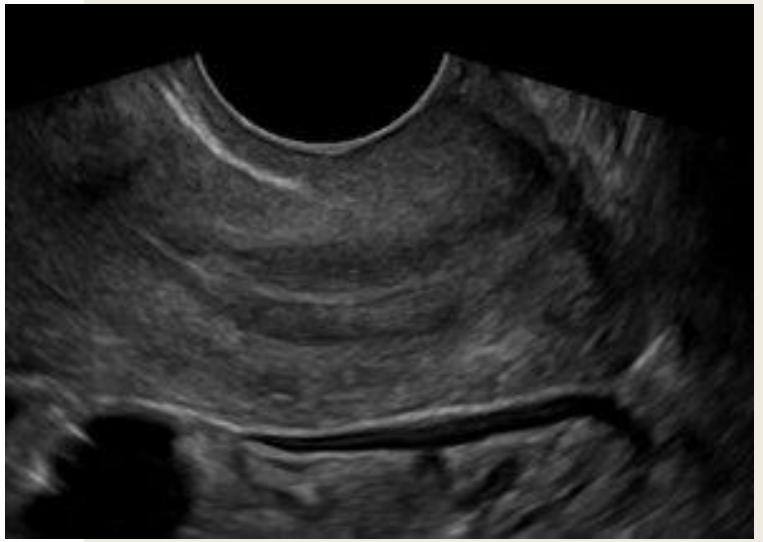
Refresh cervical anatomy

Normal ultrasound appearances of the cervix

Ultrasound appearances of cervical pathology

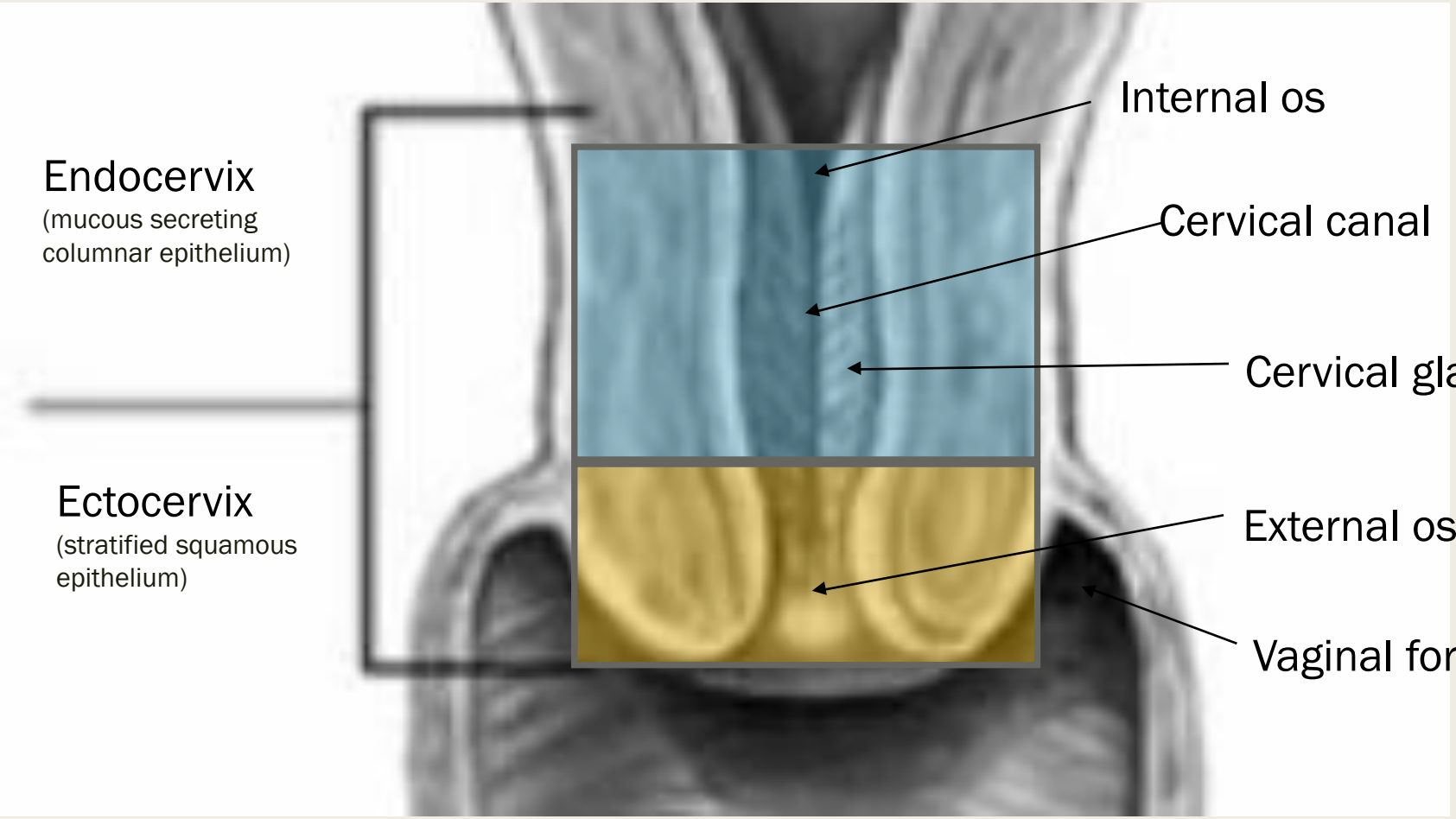
Good cervical ultrasound technique



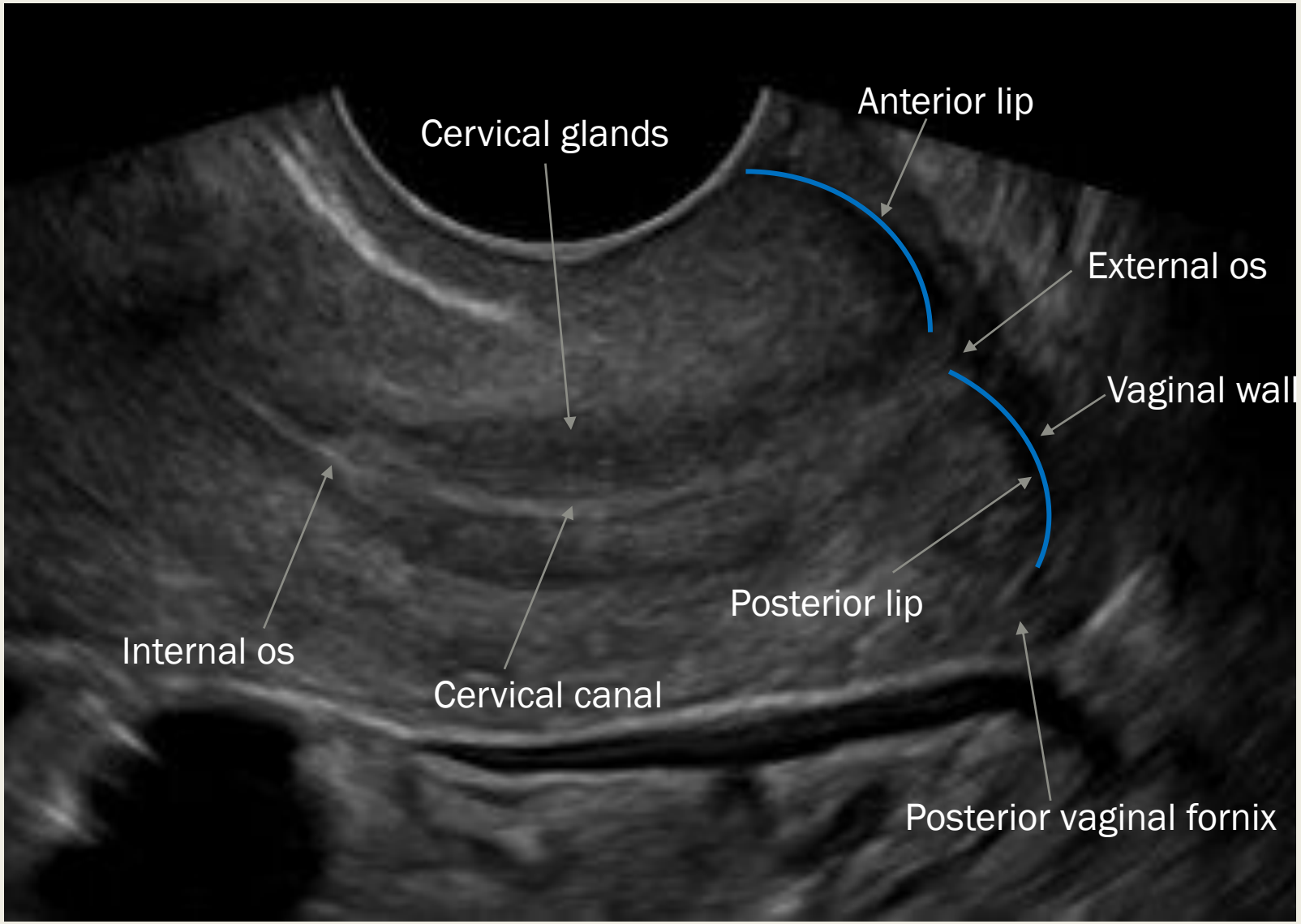


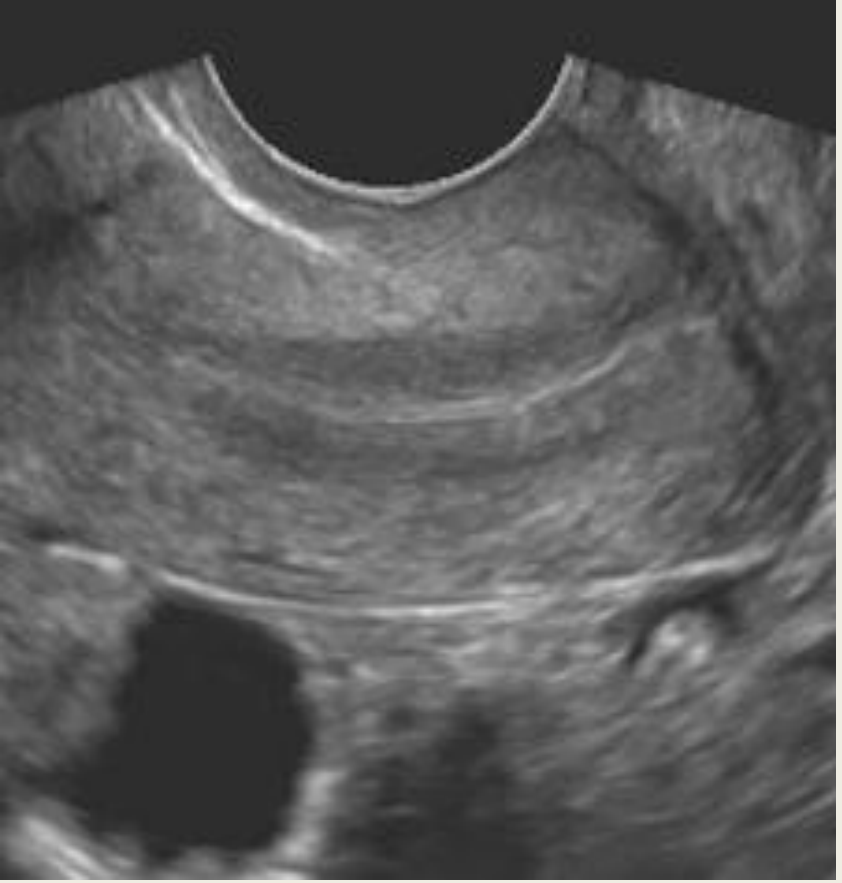
WHAT IS THE CERVIX?

Cervical anatomy



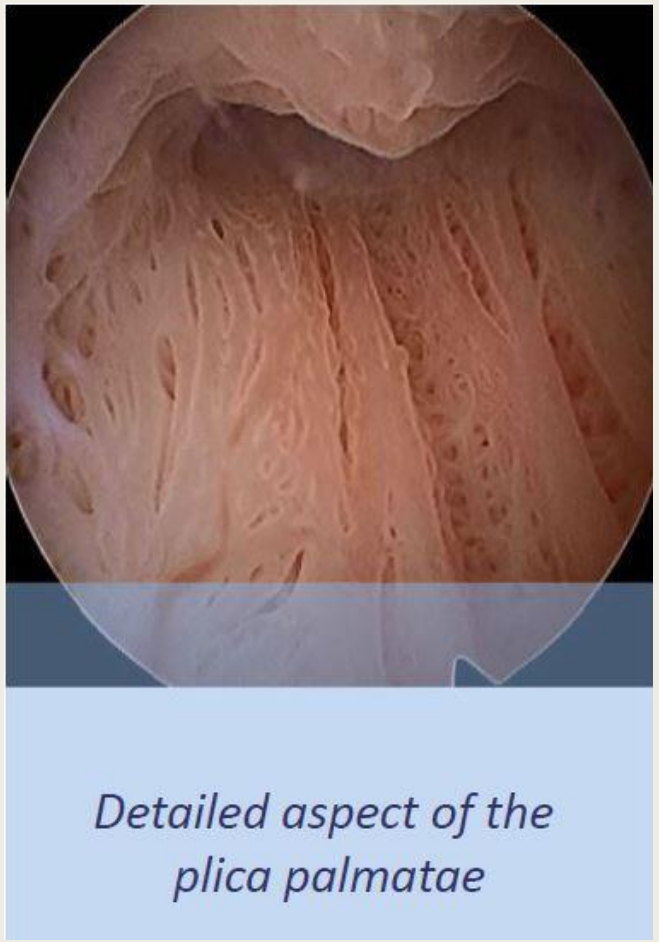
Normal Ultrasound Appearances





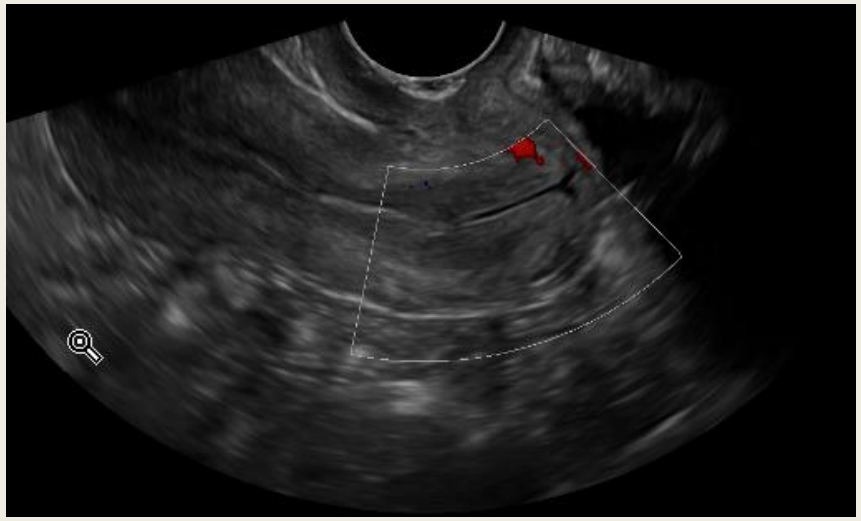
THE NORMAL APPEARANCES OF THE CERVICAL GLANDS ARE VARIABLE!

Plica Palmatae



- The mucosa of the cervical canal is organised into longitudinal ridges and folds called 'plicae palmatae'
- Studies report this finding in 50% of women aged 20-50 years and in 25% of women over 50

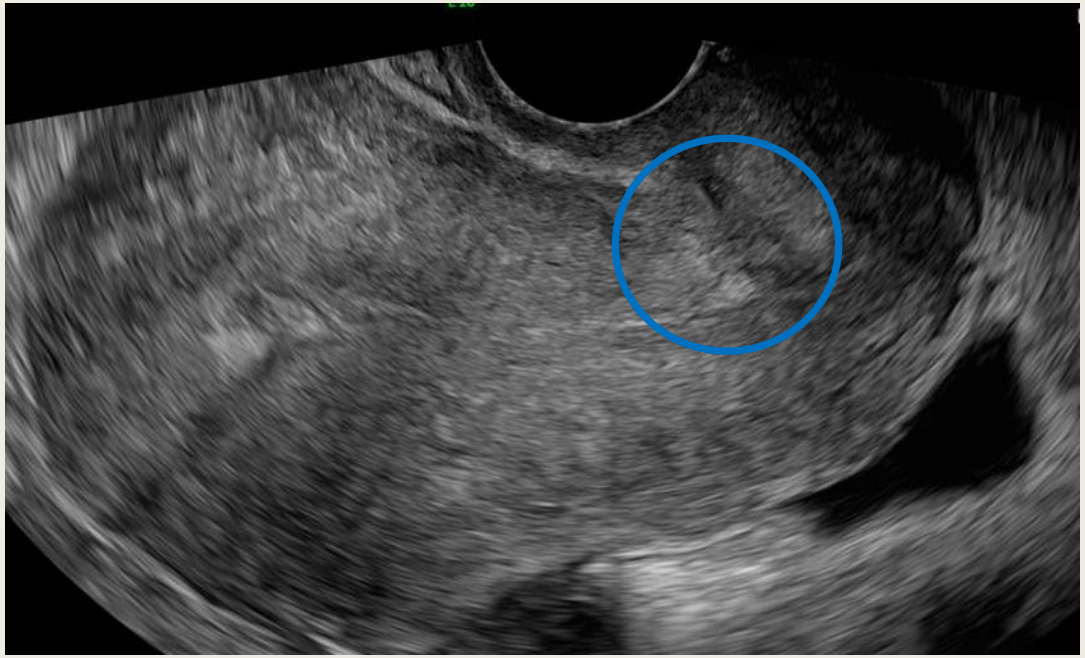
https://th.bing.com/th/id/R.18949094f72db24456f5019c1ddee442?rik=cel%2bIr9yan0%2bDw&riu=http%3a%2f%2fwww.hysteroscopy.info%2fwp-content%2fuploads%2f2016%2f03%2fcervical-canal.jpg&ehk=KLb6elXUakh90wip4l6sP0nLpz6BrwXtOk8VD2uHp3E%3d&risl=&pid=ImgRaw&r=0

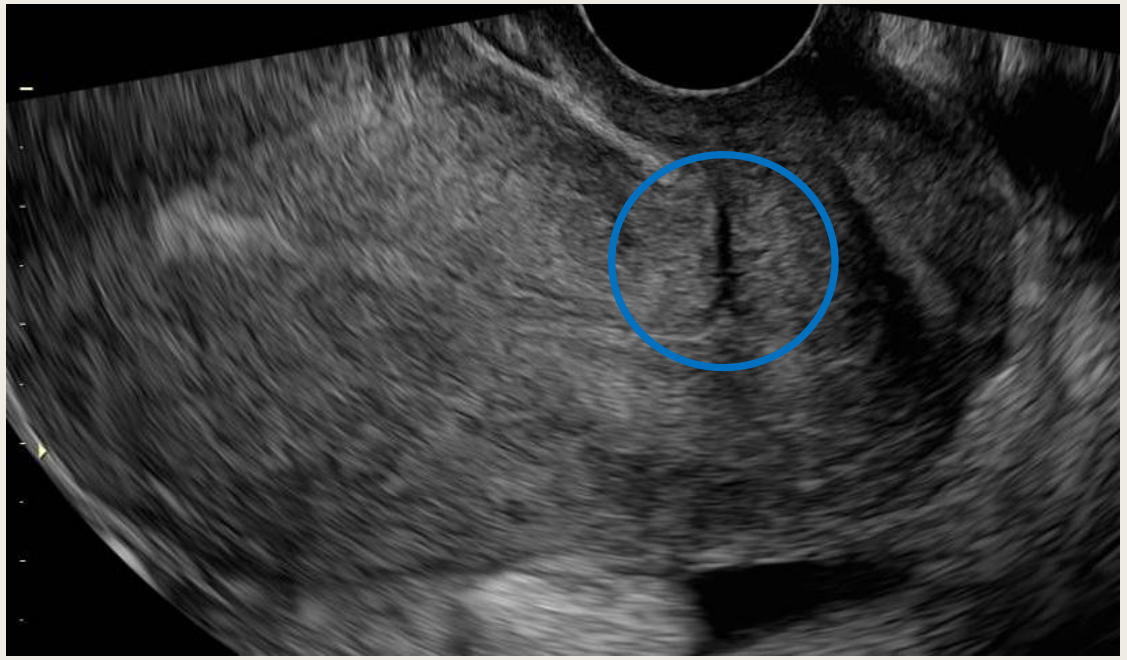


Cervical Mucous

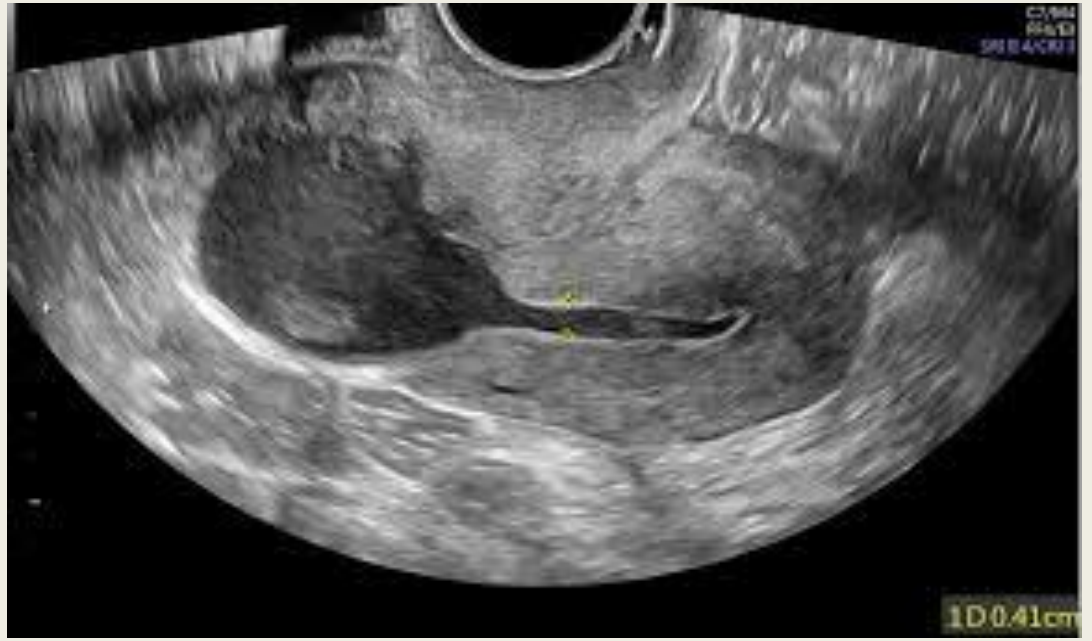
- Cervical mucous is normal in pre-menopausal women, especially in the periovulatory period
- Secreted from cells lining the cervical canal
- Numerous functions include:
  - *aiding the passage of sperm during fertile days*
  - *Preventing ascending infection*

What do you notice?





Uterine niche / isthmocele



- A uterine niche or isthmocele describes a defect in the anterior uterine wall at the site of a previous caesarean section.
- On ultrasound, they typically appear as a triangular, anechoic myometrial defect
- A previous full dilatation caesarean section raises the potential for a caesarean niche

https://radiopaedia.org/articles/cesarean-scar-niche?lang=gb

Nabothian Cysts

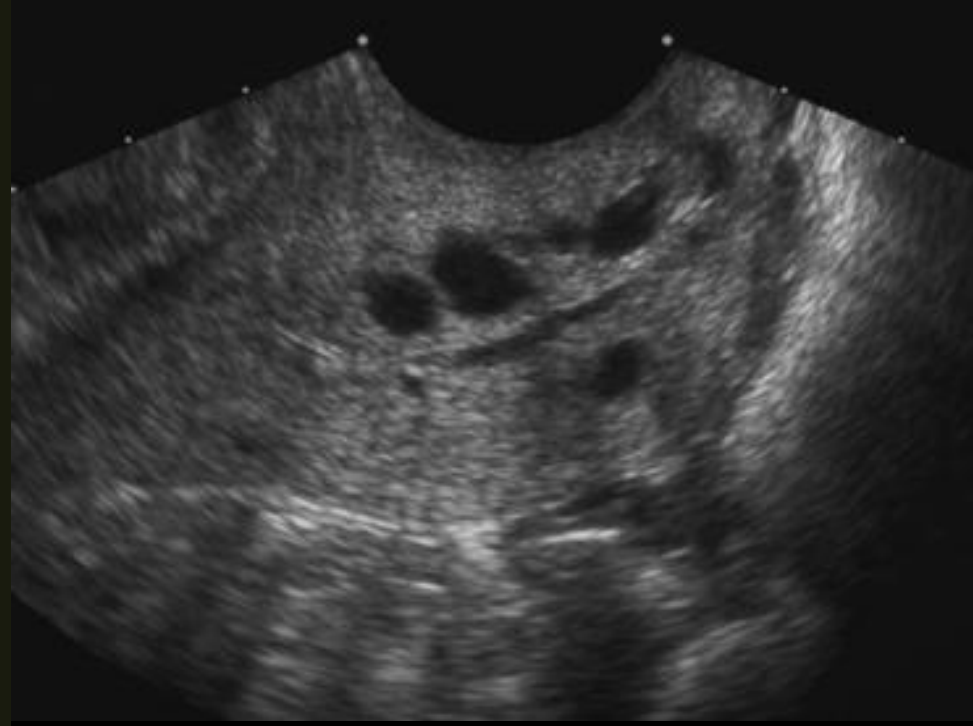
Also known as retention cysts of the cervix

Mucin filled cysts caused by obstruction of the mucous secreting endocervical glands

Usually small (<1cm) but can become enlarged and symptomatic

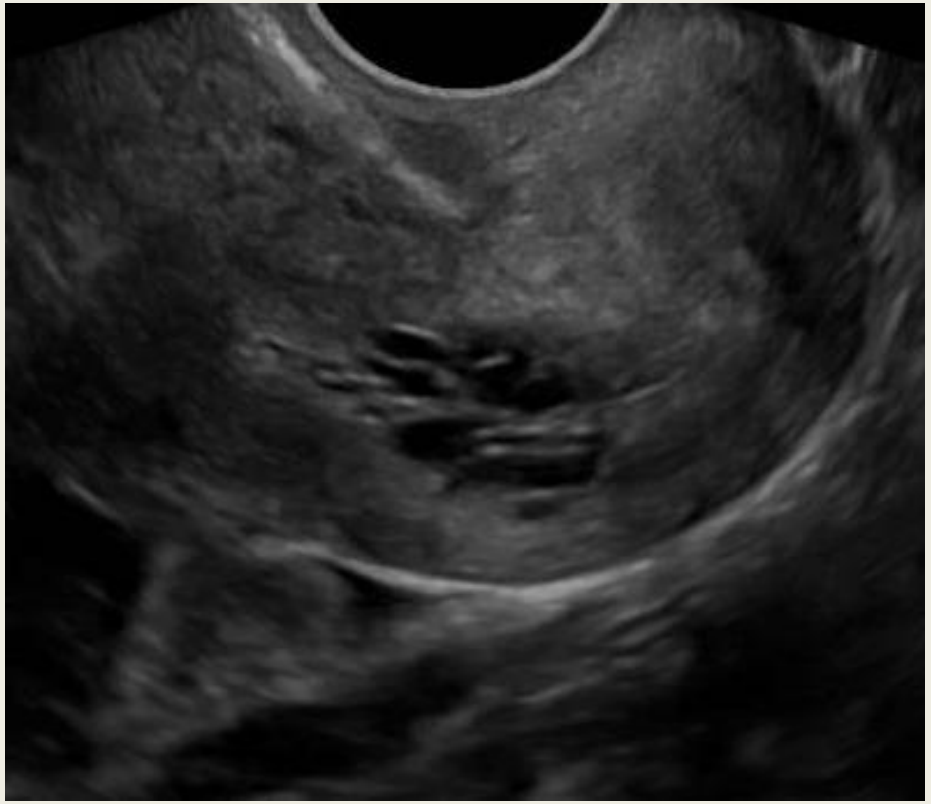
Usually anechoic; can contain low level echoes

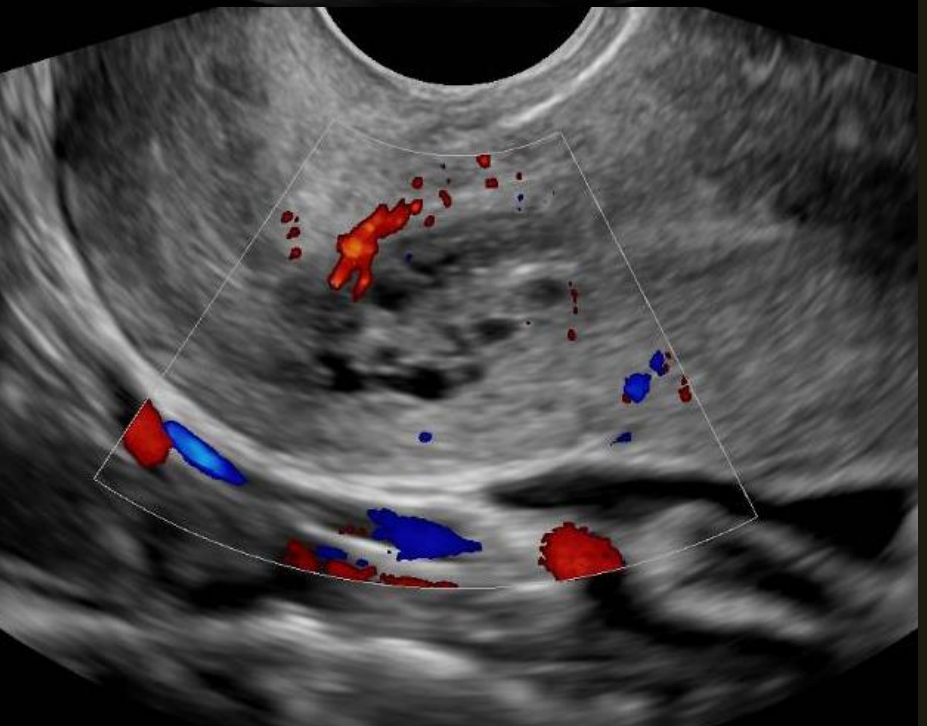
One study found the incidence of haemorrhagic Nabothian cysts to be 3%



Tunnel Cluster

- **Tunnel clusters** are a type of Nabothian cyst, characterised by complex multicystic dilatation of the endocervical glands.
- Found in ~8% of adult women, almost exclusively multigravid women who are older than 30 years
- May present with mucinous discharge
- Often spontaneously resolve, of no clinical significance.

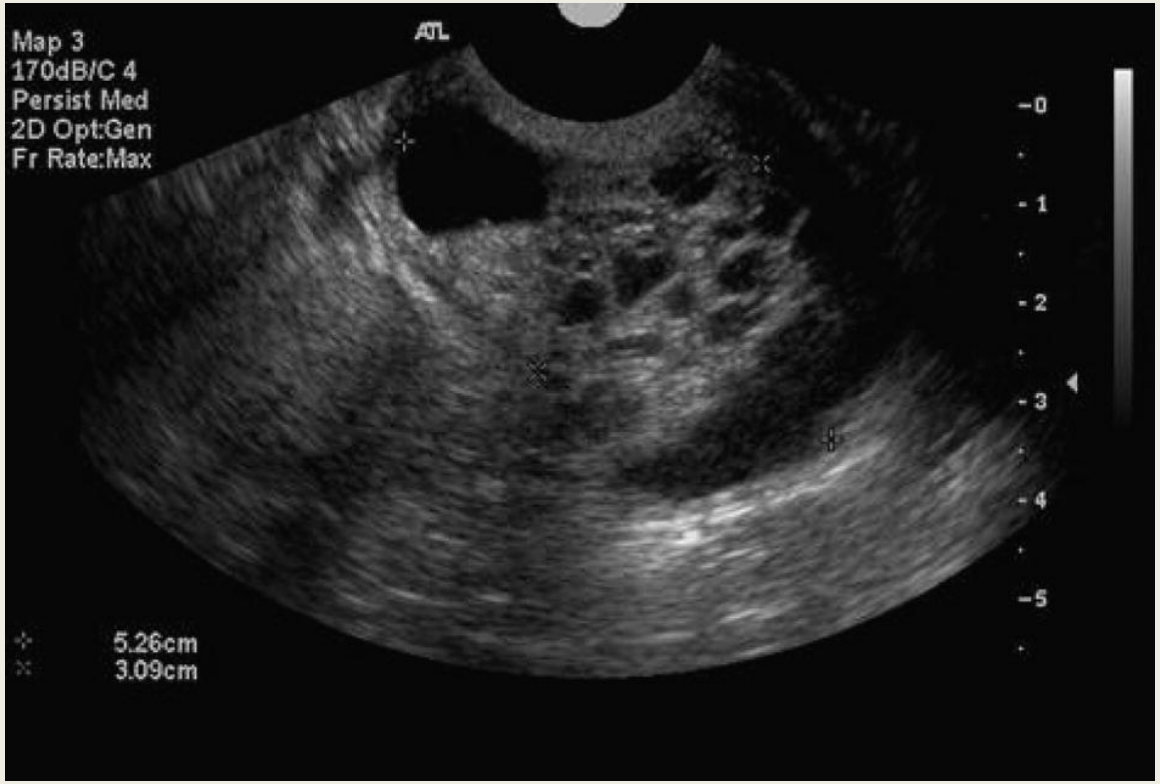




Tunnel Cluster

- A cluster usually comprised of 20-50 closely packed tubules of varying sizes.
- No associated vascularity
- Typically found within the cervical glands of the upper endocervix

Adenoma Malignum



- Rare cervical malignancy, often presenting with vaginal bleeding, watery vaginal discharge, abdominal pain and / or swelling

- Ultrasound features:
  - Enlarged globular cervix
  - Multilocular cystic (grape-like clusters), multilocular cystic with solid components, solid lesion
  - Colour Doppler interrogation usually show moderate or abundant colour content.
  - May show stromal invasion

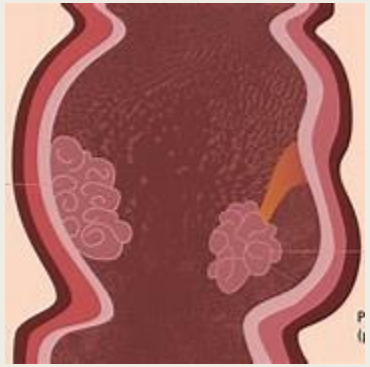
https://www.sciencedirect.com/science/article/pii/S1607551X11002324

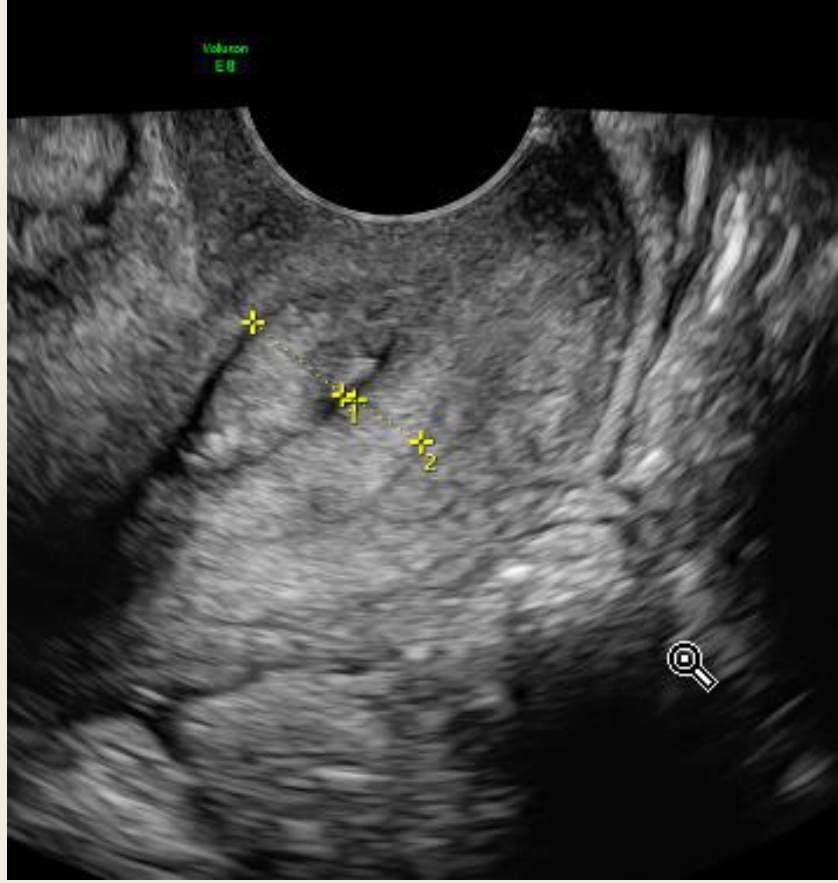
Cervical Polyps

- Usually asymptomatic
- May be associated with postcoital bleeding, postmenopausal bleeding and menorrhagia
- ~25% associated with an endometrial polyp
- ~98% benign aetiology

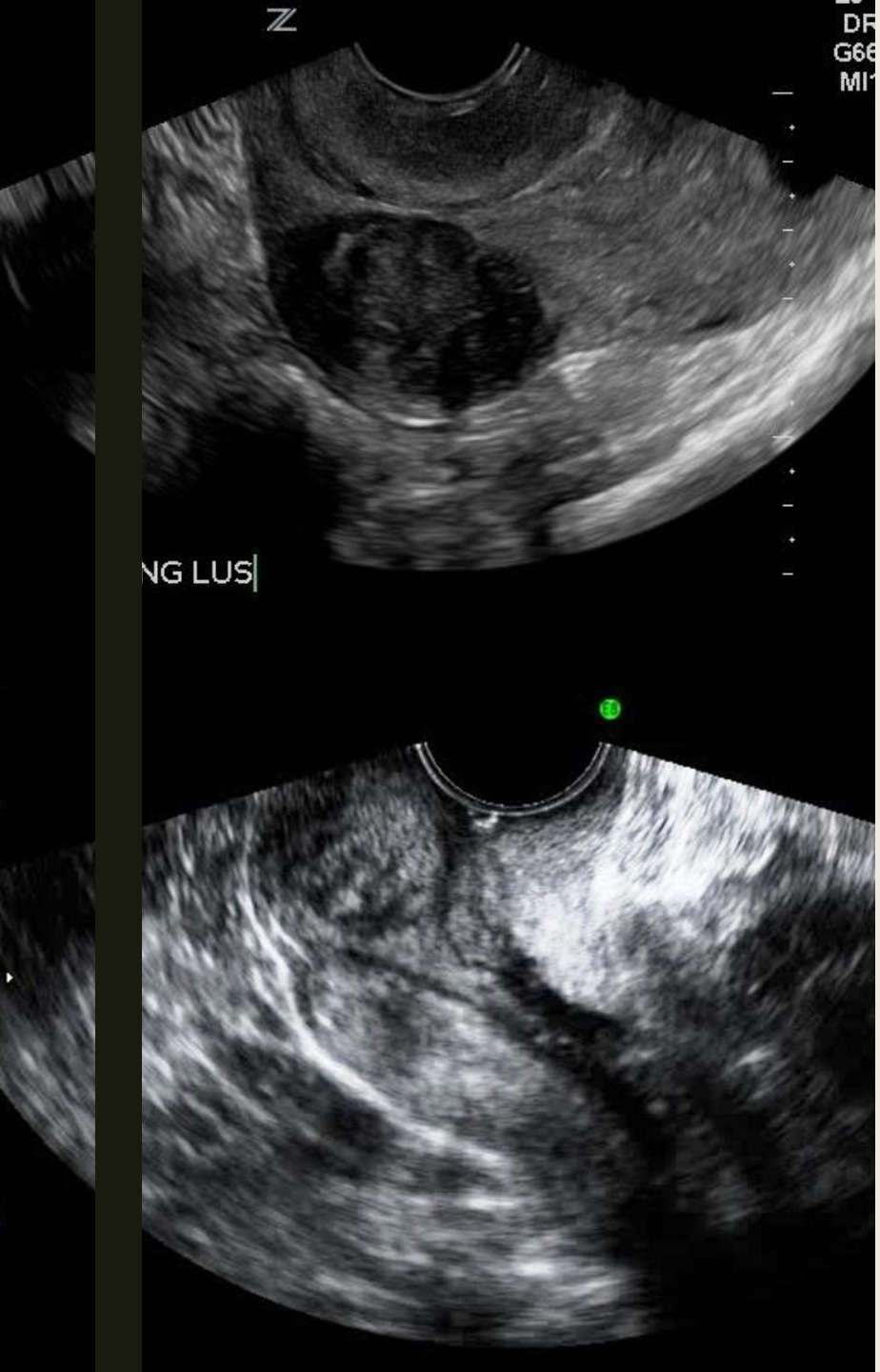
Cervical Polyp

- Well-defined echogenic lesions within the cervical canal
- Important to ascertain origin to inform clinician prior to removal
- May be sessile or pedunculated





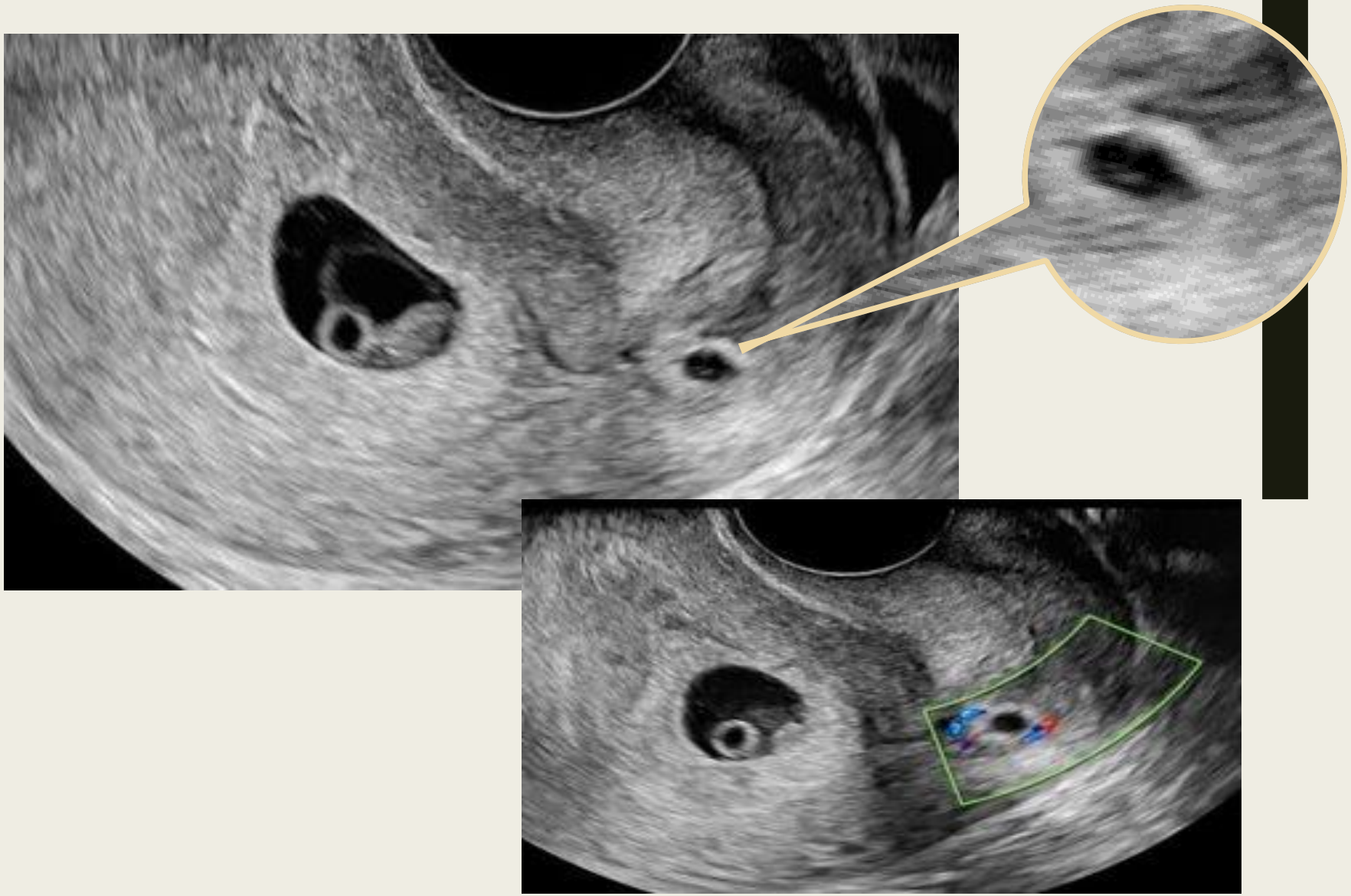
POLYPS



Fibroids

- Quite rare – account for ~5% of all uterine leiomyomas
- Ultrasound appearances similar to fibroids found in the uterine body (well-defined, smooth heterogenous lesions)
- May also see prolapsed pedunculated fibroids which may be necrotic

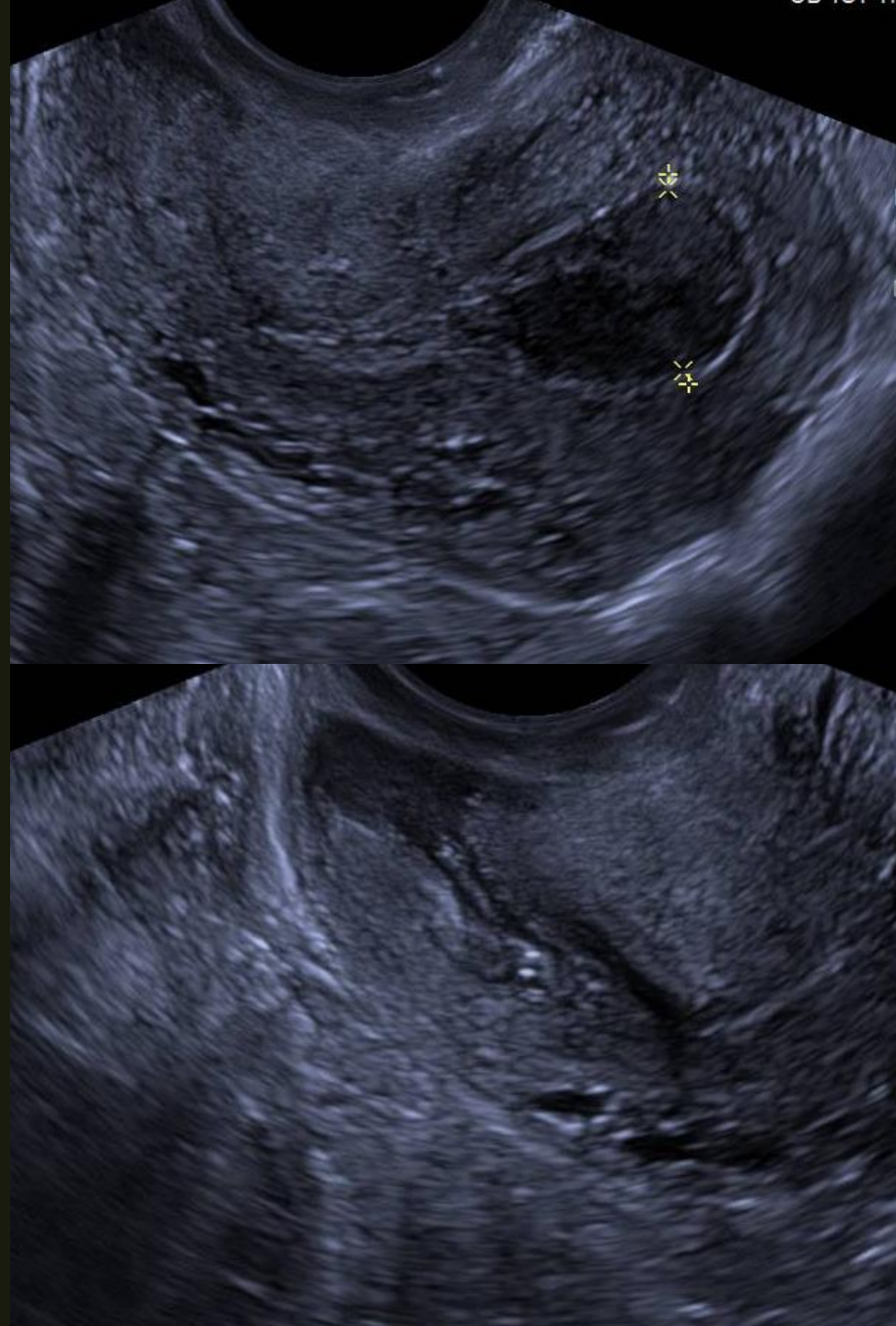
Cervical Ectopic Pregnancy

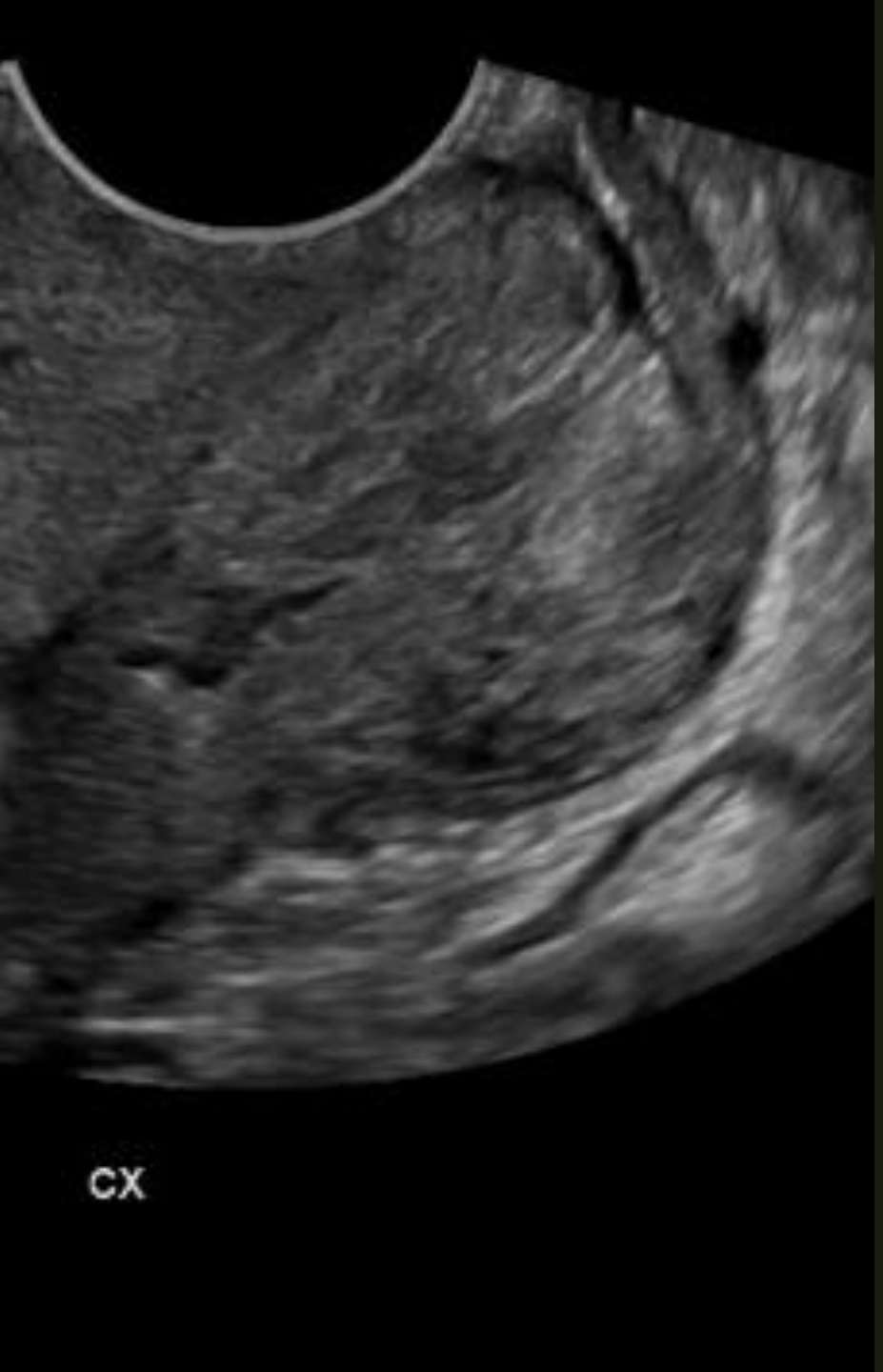


- Rare form of ectopic pregnancy
- Risk factors include previous uterine instrumentation and IVF
- Take care to differentiate from cervical phase of miscarriage

Cervical stenosis

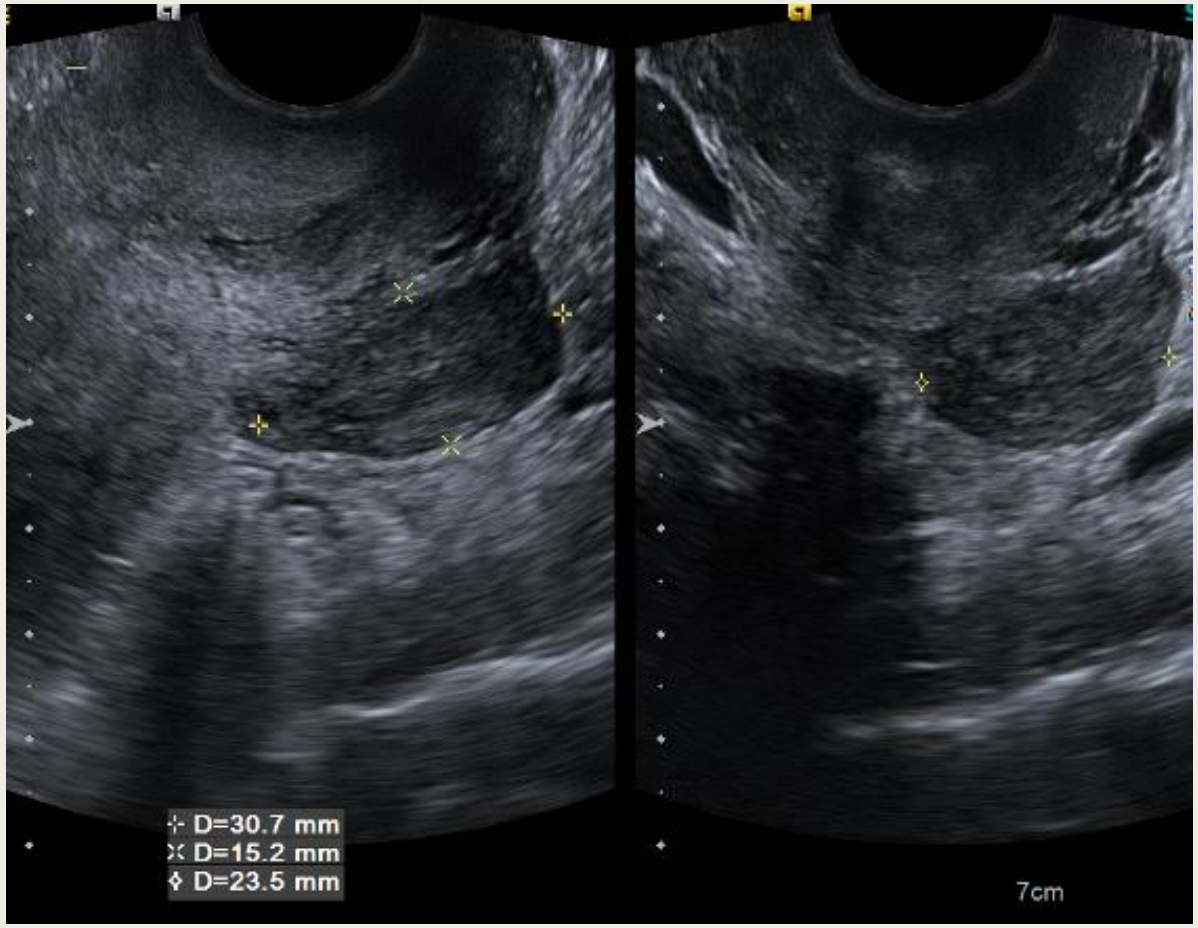
- May be congenital or acquired
- Causes include radiotherapy, infection, neoplasia, scarring after cervical procedures (e.g.LLETZ)
- Seen very commonly in elderly ladies due to atrophy





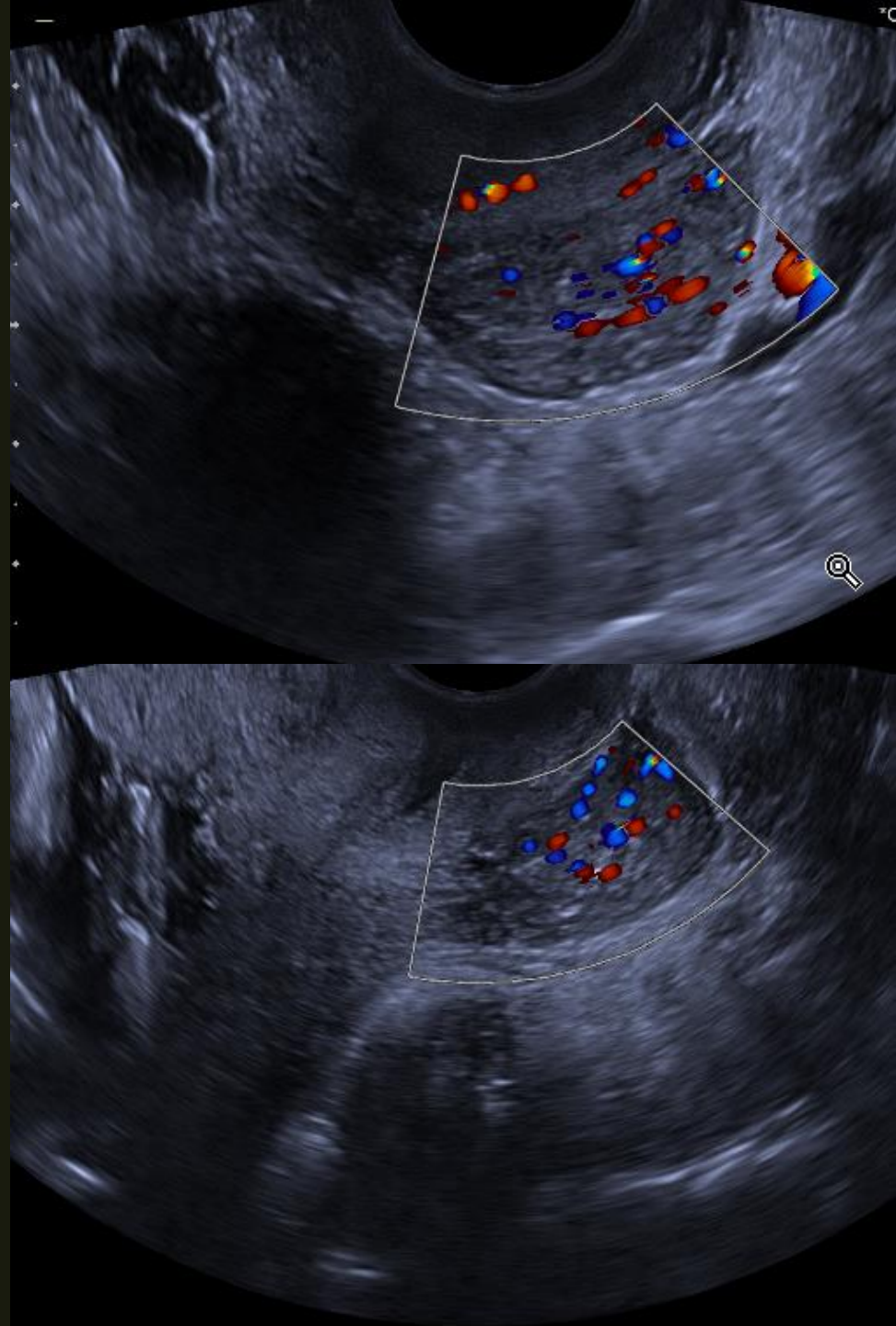
Endometriosis

- Endometriosis nodules can be found in the posterior vaginal fornix
- Will be extremely tender on palpation
- Hypoechoic +/- cystic spaces
- Avascular



AN INTERESTING CASE...

- Patient was 20 weeks pregnant
- Attended for cervical length at anomaly scan
- Hypoechoic mass noted, apparently adherent to the posterior cervical wall
- Highly vascular with colour Doppler
- What is it?



Cervical Malignancy

Cervical cancer is the 14th most common cancer in UK females

99.8% of cervical cancers in the UK are preventable

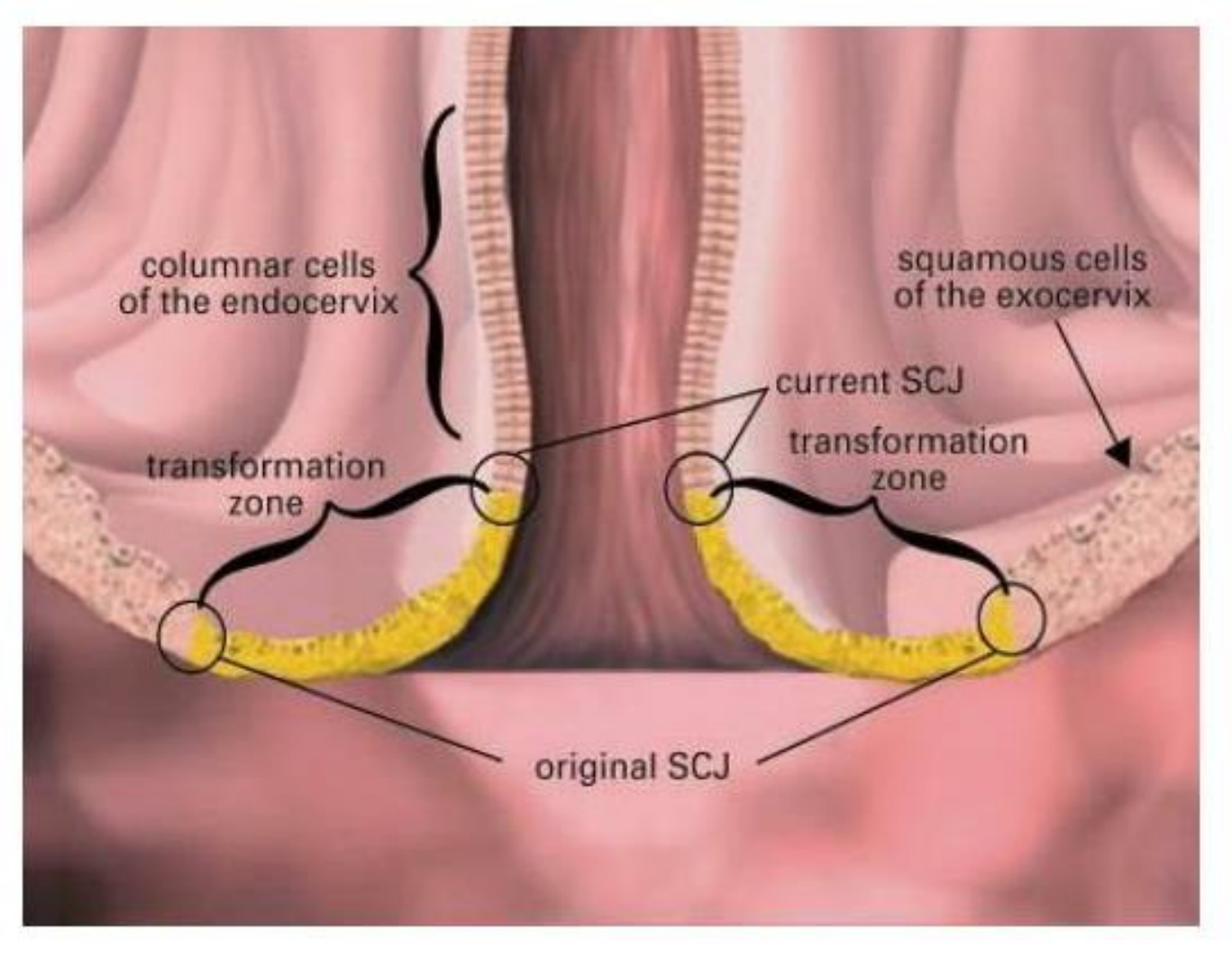
Approx 70% cervical cancer screening uptake in the UK (women aged 25-64 years)

Cervical cancer rates are 65% higher in the most deprived populations compared with the least deprived

Approx 9% of cervical cancer occurs in women over 75 years in UK females

You *may* see cervical cancer with ultrasound

The Transformation Zone



- The transformation zone describes the region where the columnar and squamous epithelium meet.
- Its location varies by age; located in the ectocervix in young women but in only 2% of over 65-year-olds
- Almost all carcinomas of the cervix arise at the transformation zone.

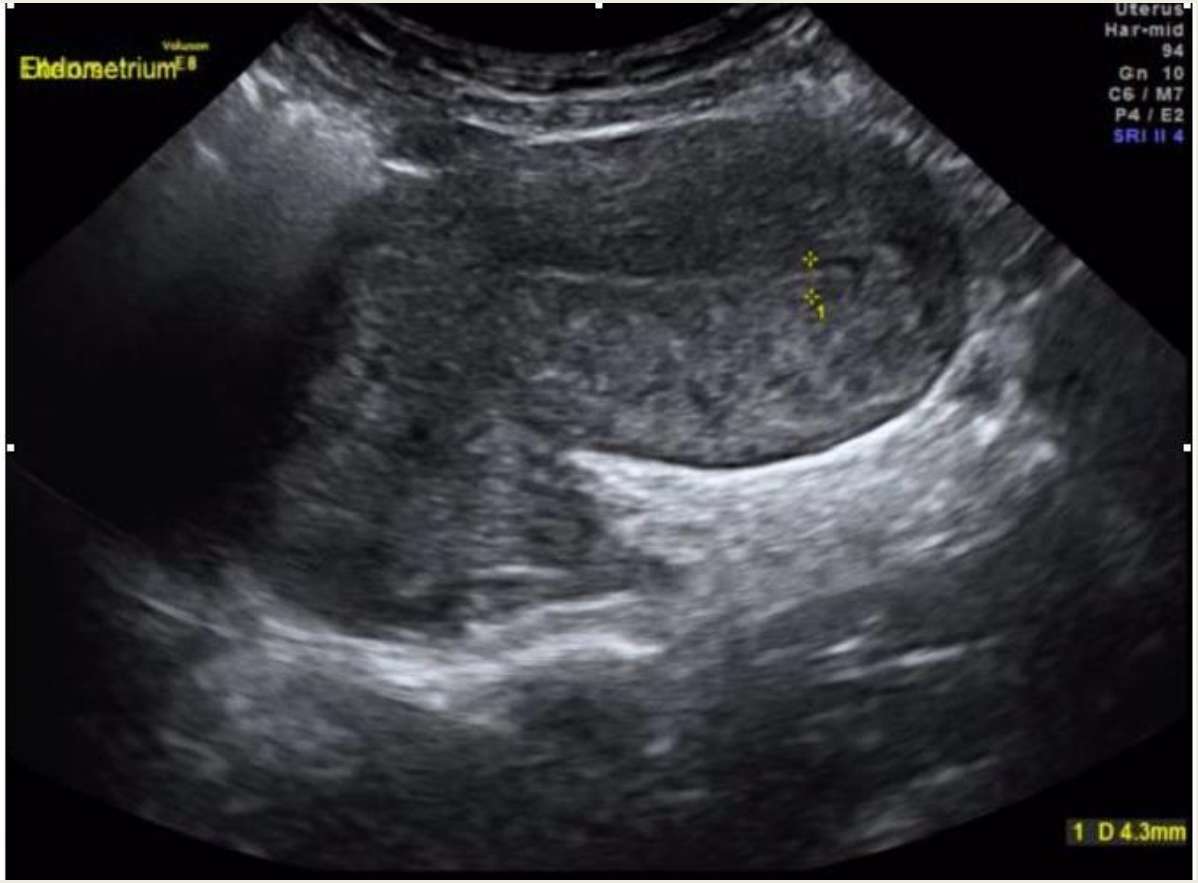
Cervical malignancy - Squamous cell carcinoma

- Squamous cell carcinoma accounts for the around 80-90% of cervical cancer cases

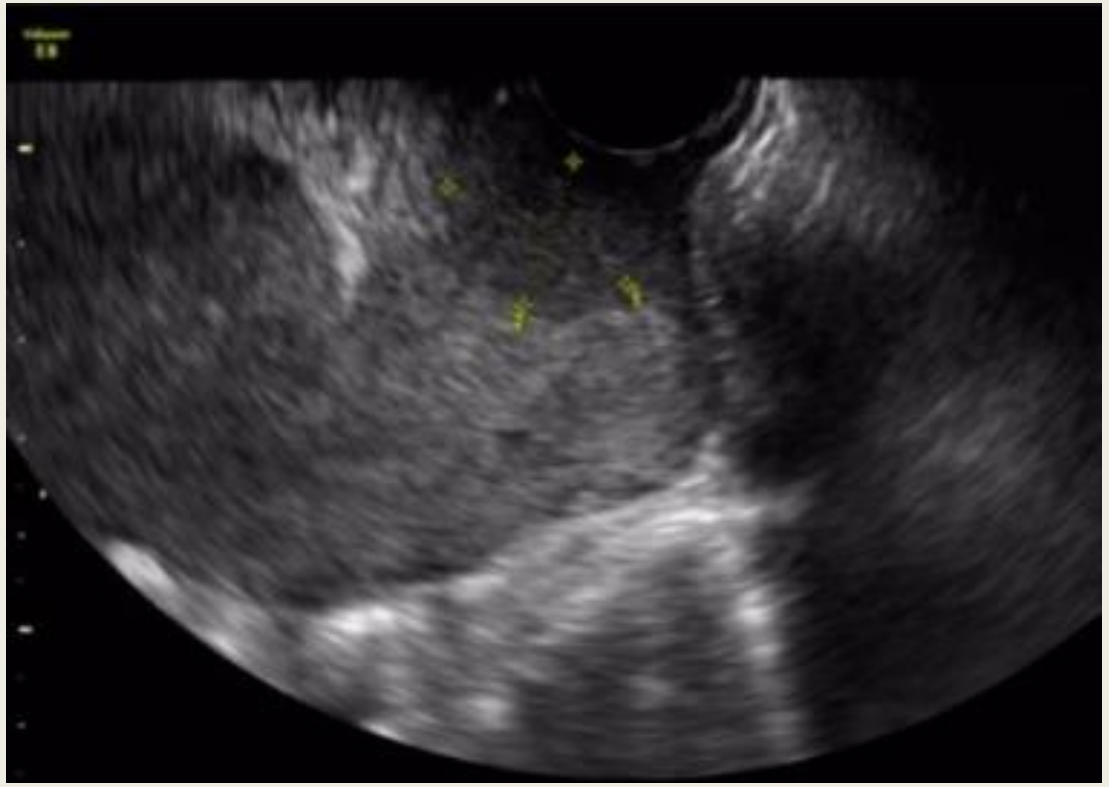
- Due to variable location of the transformation zone, cervical tumours tend to be exophytic in younger patients and endophytic with advancing age

Cervical SCC – A case study

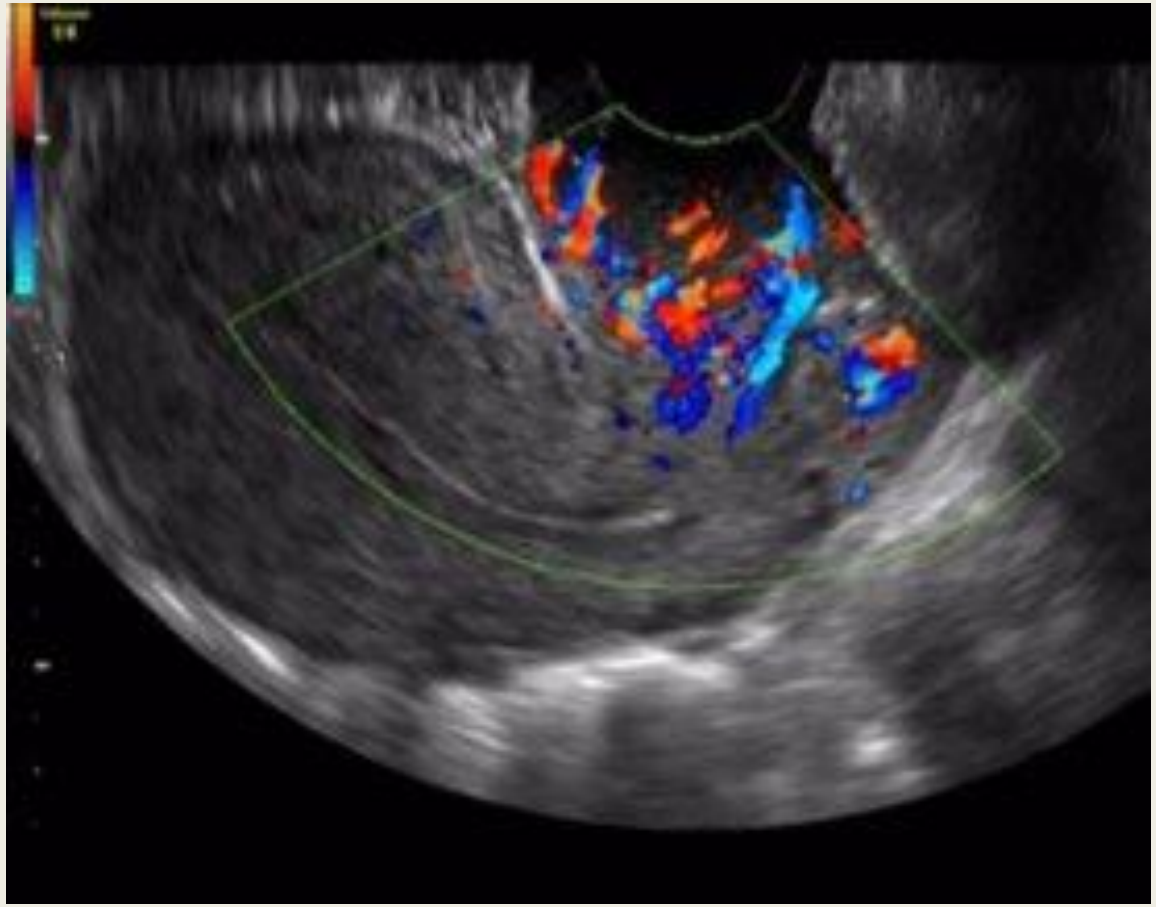
- A 33-year-old female, attended with persistent vaginal bleeding
- 8 weeks post vaginal delivery
- Never had a smear test

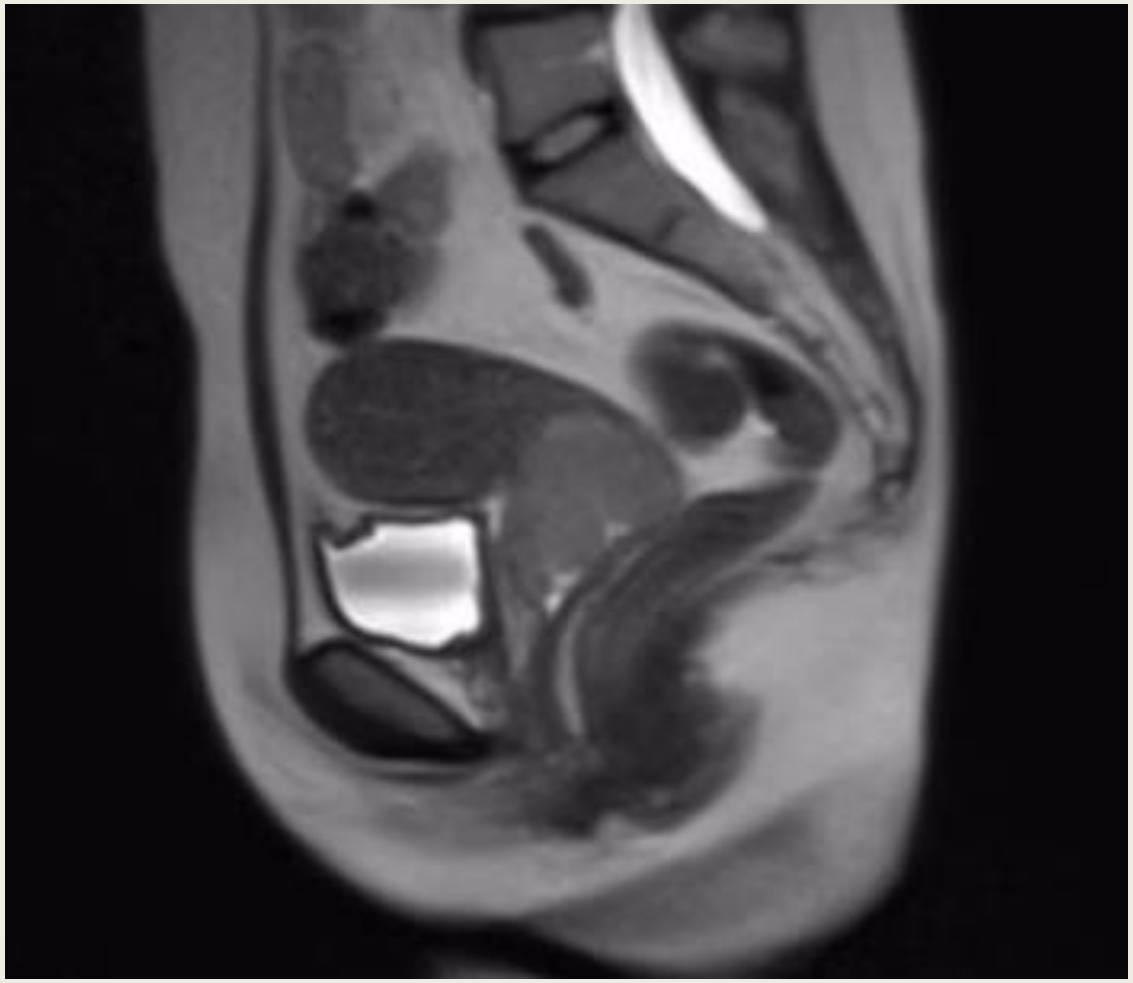


Cervical SCC – A case study



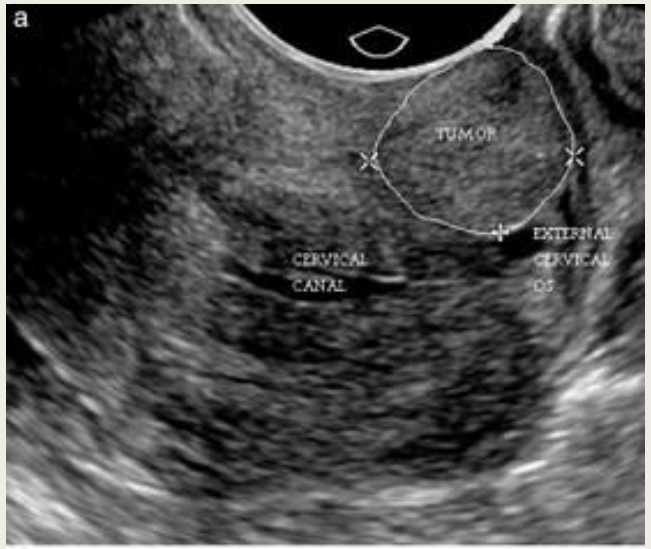
Cervical SCC – A case study

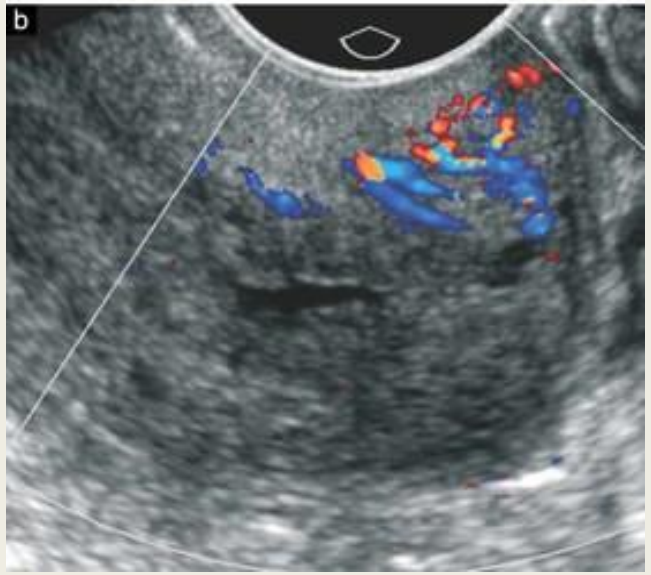


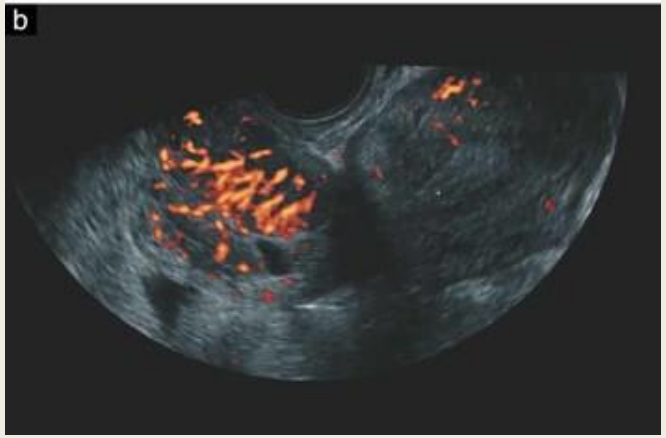


Cervical carcinoma – ultrasound features

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







Sonographic characteristics of squamous cell cancer and adenocarcinoma of the uterine cervix - Epstein - 2010 - Ultrasound in Obstetrics & Gynecology - Wiley Online Library

Good ultrasound technique

Optimise	Ensure a sufficiently optimised, dedicated image of the cervix
Assess	Learn to assess the normal contours and echotexture of the cervix
Colour	Always apply the colour Doppler box, ensure you include the external os
Smear	Ask your patient if they are up to date with their smear test – if not, encourage attendance

Final thoughts…

- Don't forget the cervix!
- Hypervascularity and solid abnormalities require further investigation
- Language matters

References

- US of the Nongravid Cervix with Multimodality Imaging Correlation: Normal Appearance,PathologicConditions,and Diagnostic Pitfalls | RadioGraphics (rsna.org)
- Cervical plicae palmatae | Radiology Reference Article | Radiopaedia.org
- Tunnel cluster | Radiology Reference Article | Radiopaedia.org
- Adenoma malignum of the uterine cervix: ultrasonographic findings in 11 patients - Park - 2011 - Ultrasound in Obstetrics & Gynecology - Wiley Online Library
- Adenoma malignum of the cervix | Radiology Reference Article | Radiopaedia.org
- Cervical polyp | Radiology Reference Article | Radiopaedia.org
- cervical polyp - General Practice notebook (gpnotebook.com)
- Cervical screening coverage - GOV.UK (www.gov.uk)
- The cervix Frequently seen and ignored (bmus.org)
- Cervical cancer statistics | Cancer Research UK
- Sonographic characteristics of squamous cell cancer and adenocarcinoma of the uterine cervix - Epstein - 2010 - Ultrasound in Obstetrics & Gynecology - Wiley Online Library


THANK YOU FOR
LISTENING...ANY QUESTIONS?