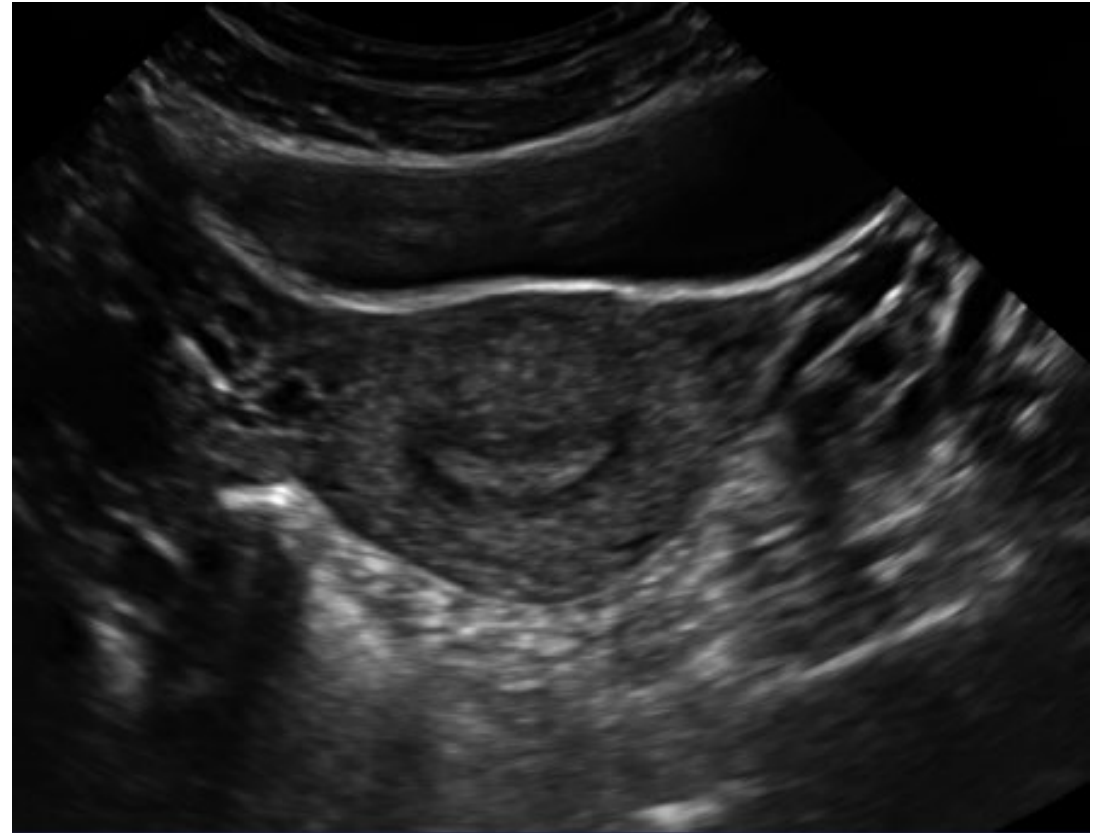


Gynecologic Ultrasound

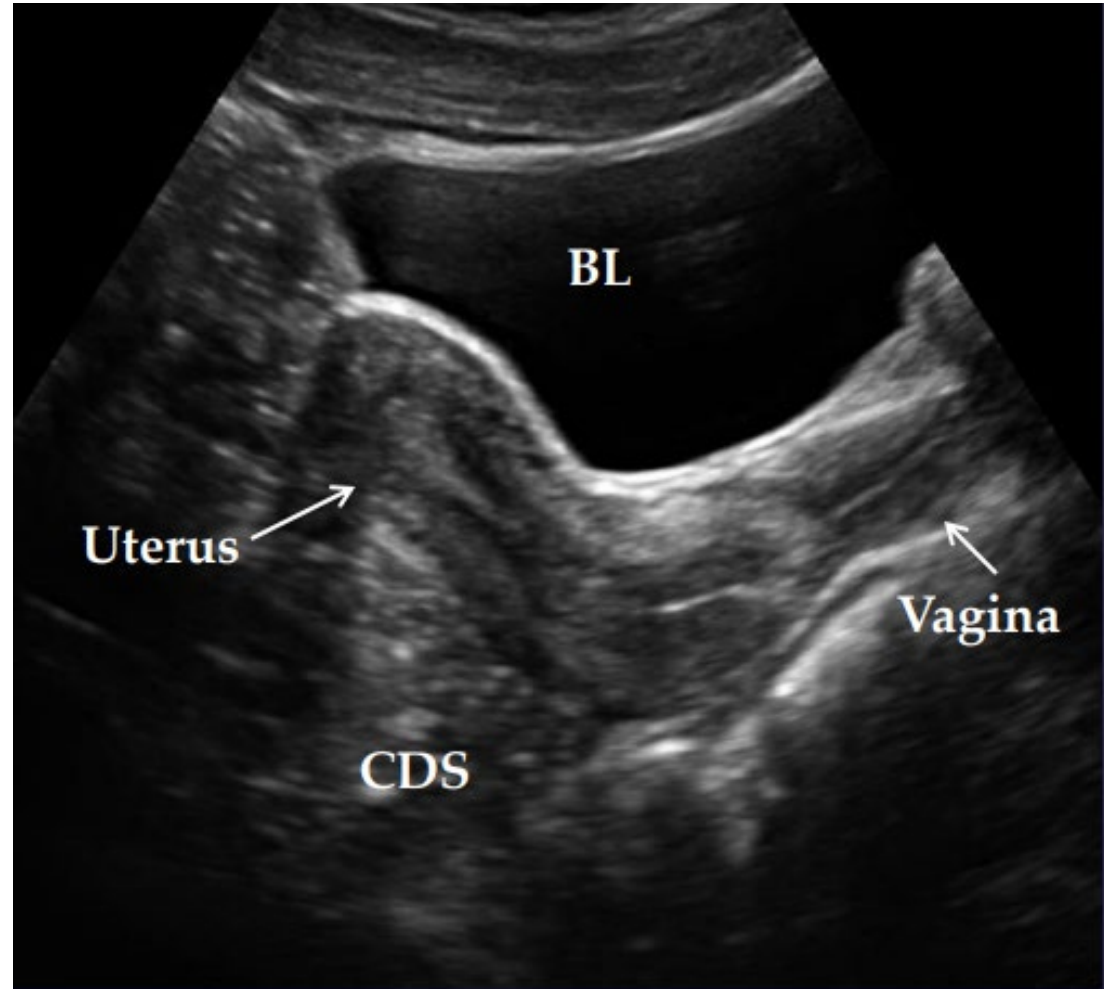
# Female Pelvis

# Sagittal and Transverse Uterus



# Transabdominal (TA) Ultrasound: General Preparation

- Bladder slightly distended to displace small bowel. Overdistention may compromise the examination.



# Overdistended Bladder

Not necessary or useful.

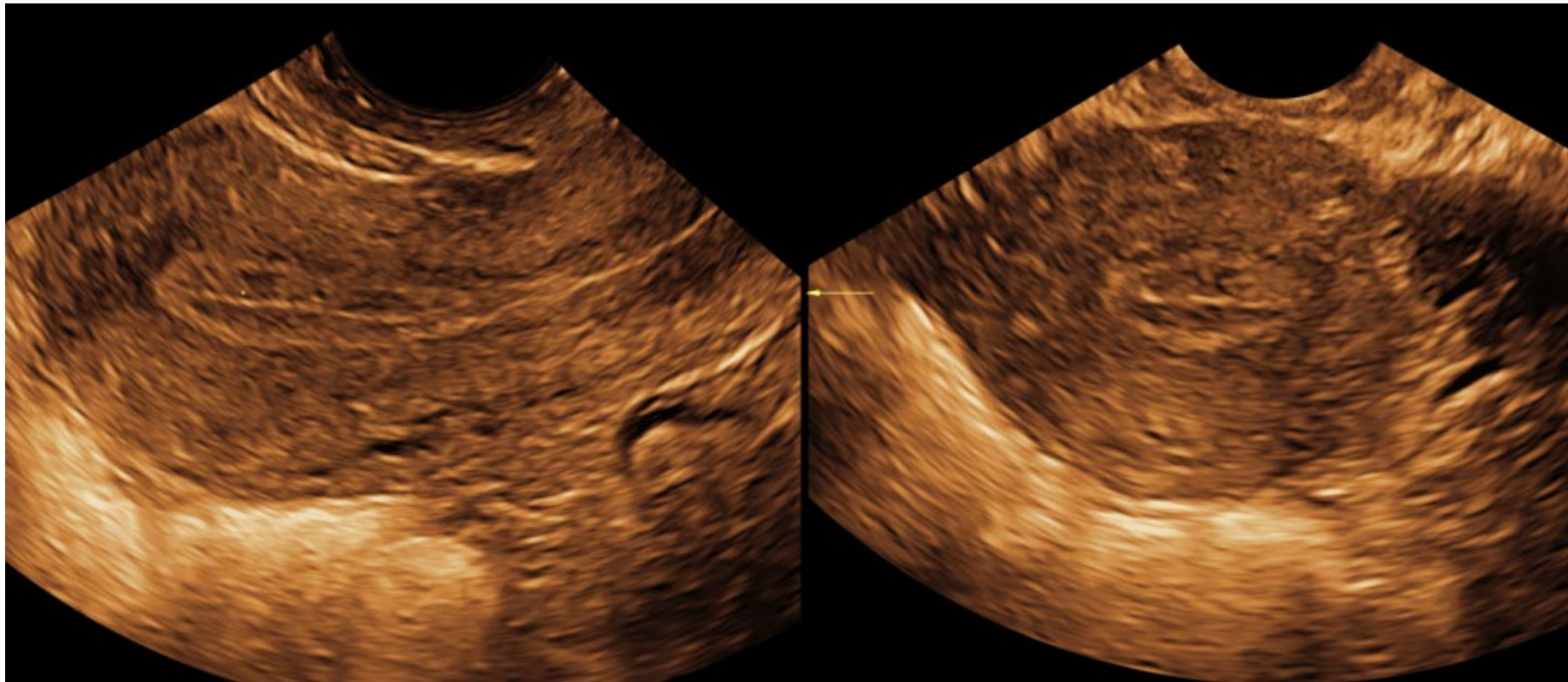
- TA ultrasound through an overdistended bladder demonstrating a sagittal view of the uterus.



# Transvaginal (TV) scan may be necessary to optimally visualize all relevant anatomy.

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- TV ultrasound demonstrating a sagittal and transverse view of a normal uterus and trilaminar endometrium. The bladder should be empty for a TV examination.

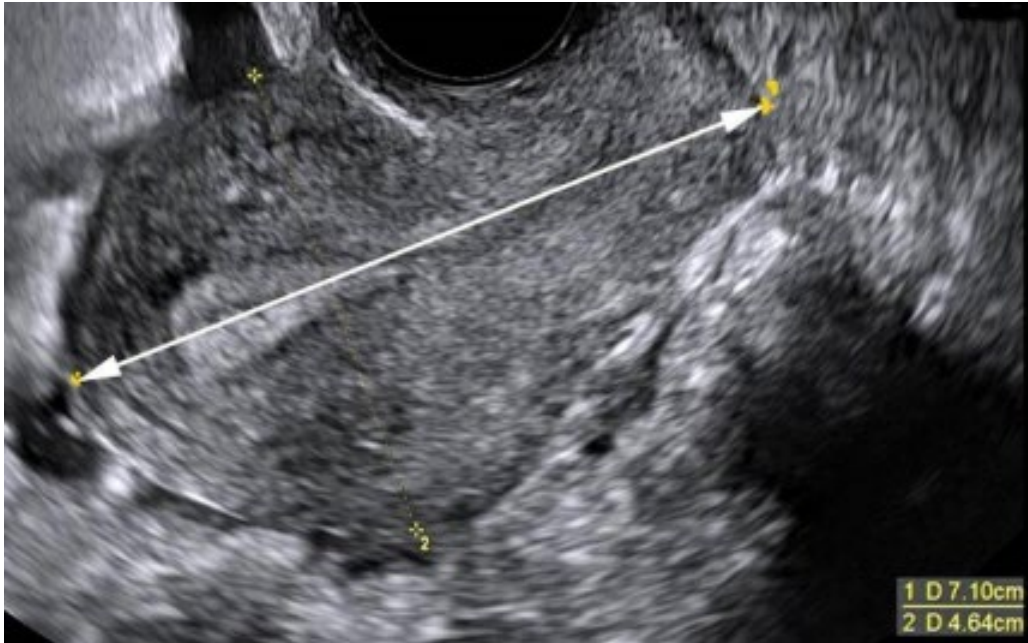


# Uterine Size

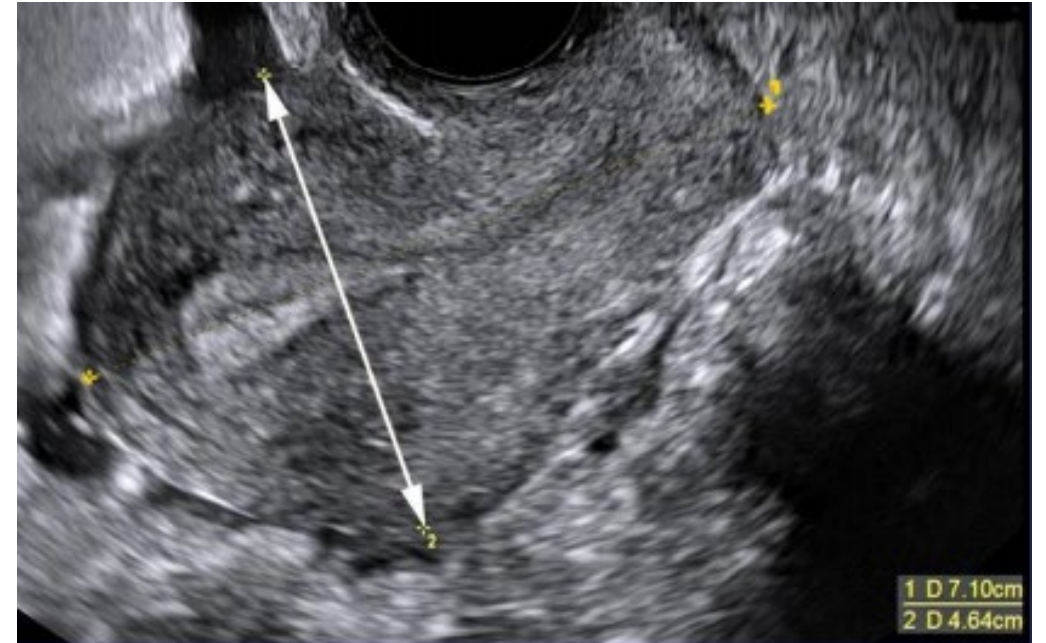
- TV scan showing an anteverted uterus. Overall uterine length is evaluated in the long axis from the fundus to the cervix. The depth is measured in the same view from anterior to posterior.



# Uterine Size



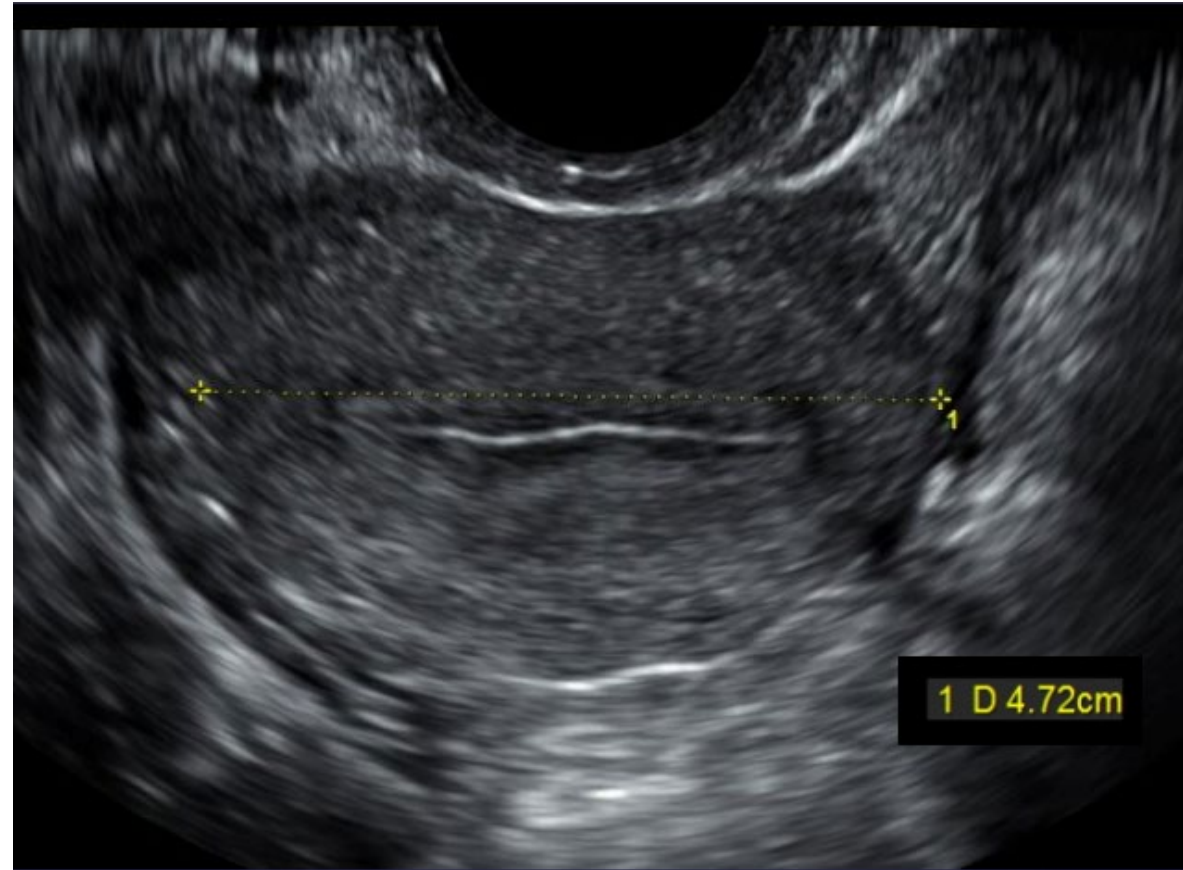
Length



Depth

# Uterine Size

- The maximum width is measured in the transverse view of the uterus.

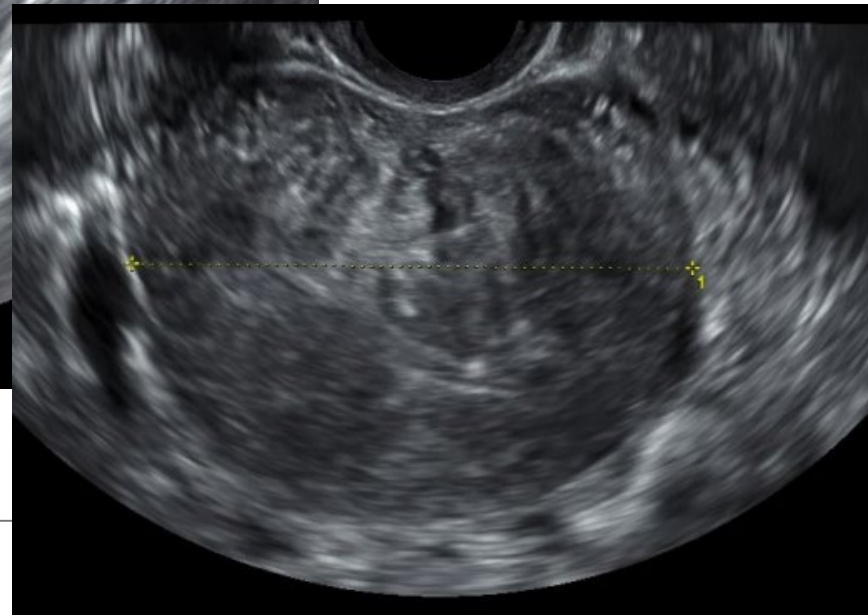
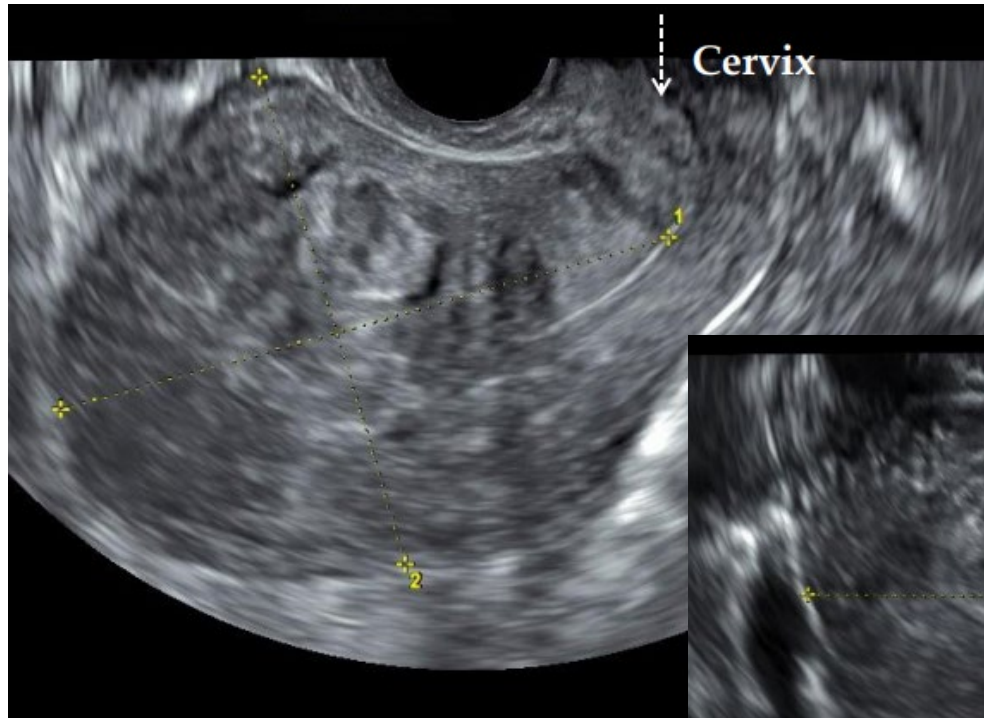




# Uterine Volume

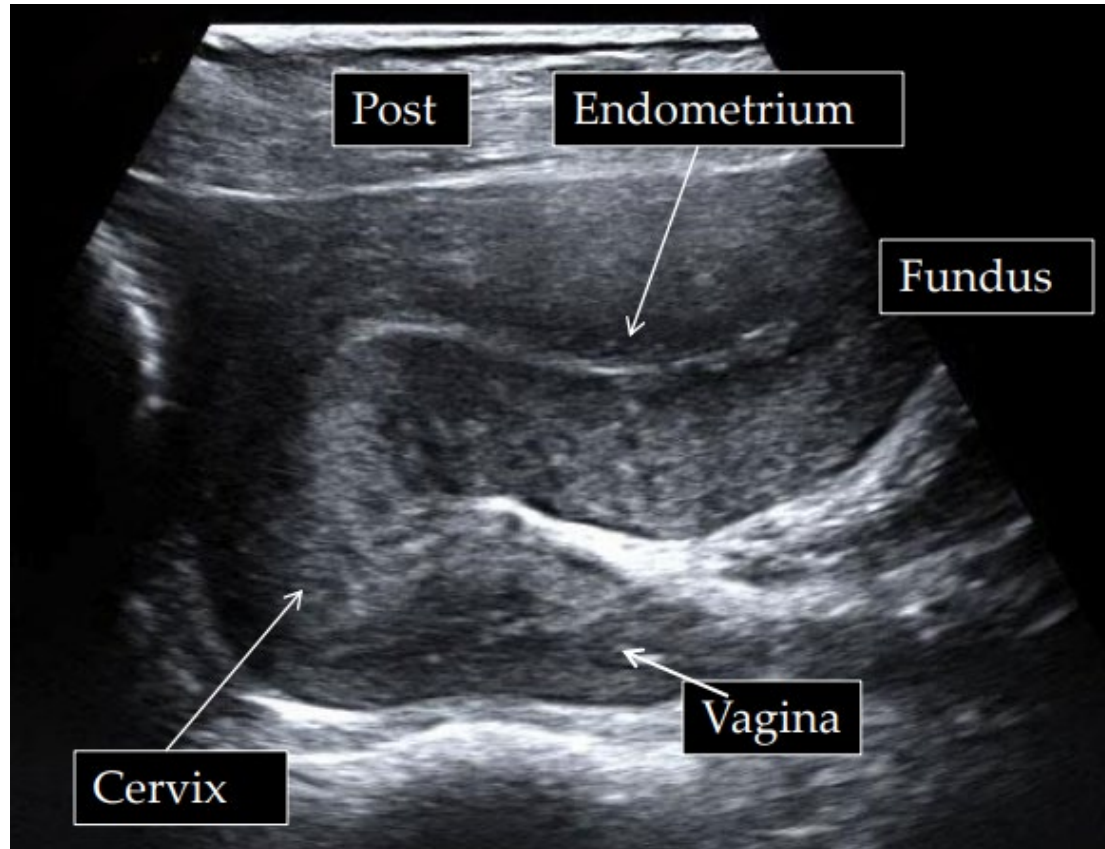
## Multiple Uterine Fibroids

- If volume measurements of the uterine corpus are performed, the cervical component should be excluded from the length measurement.



# Uterine Orientation

- TA ultrasound showing an anteverted-anteflexed uterus.

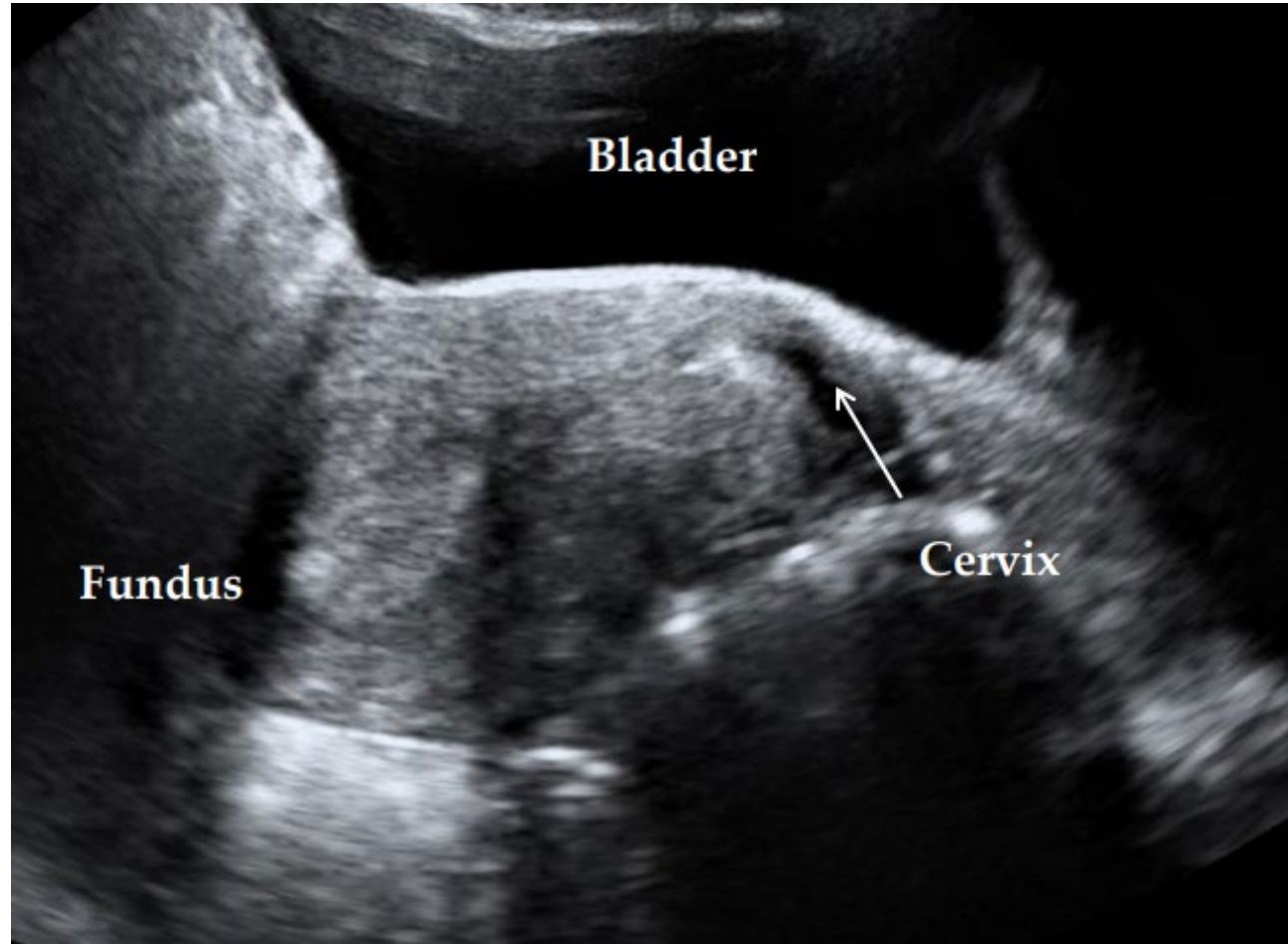


- TA ultrasound showing an anteverted uterus.



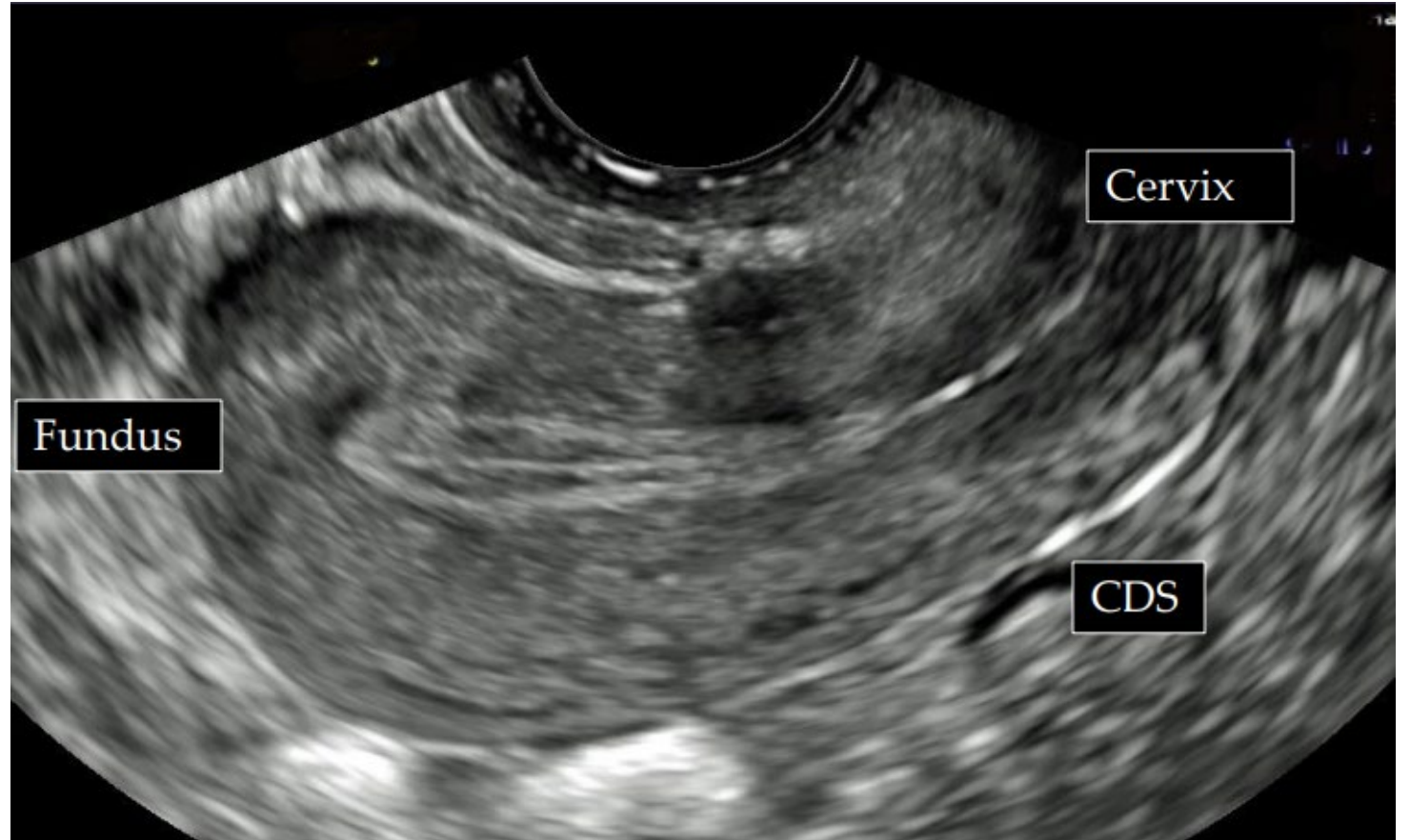
# Uterine Orientation

- TA ultrasound showing a retroverted uterus.



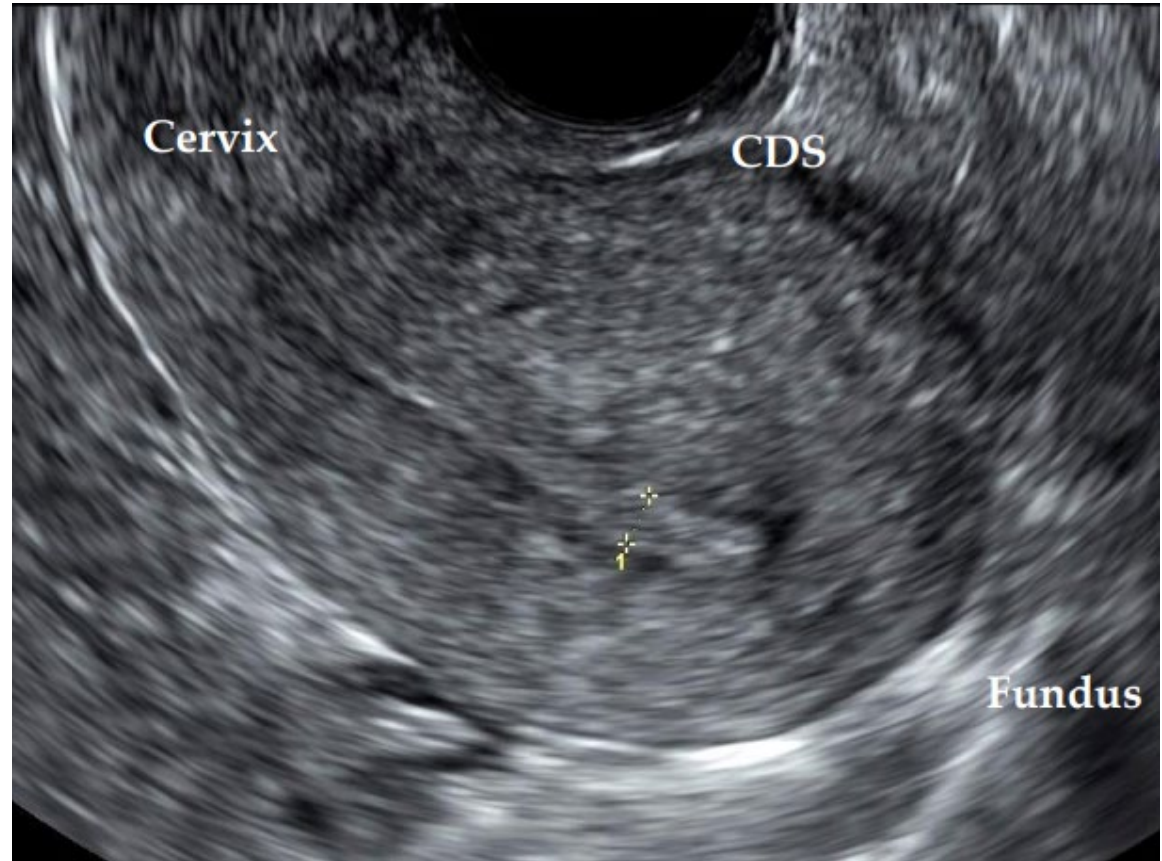
# Uterine Orientation

- TV ultrasound showing an anteverted uterus.



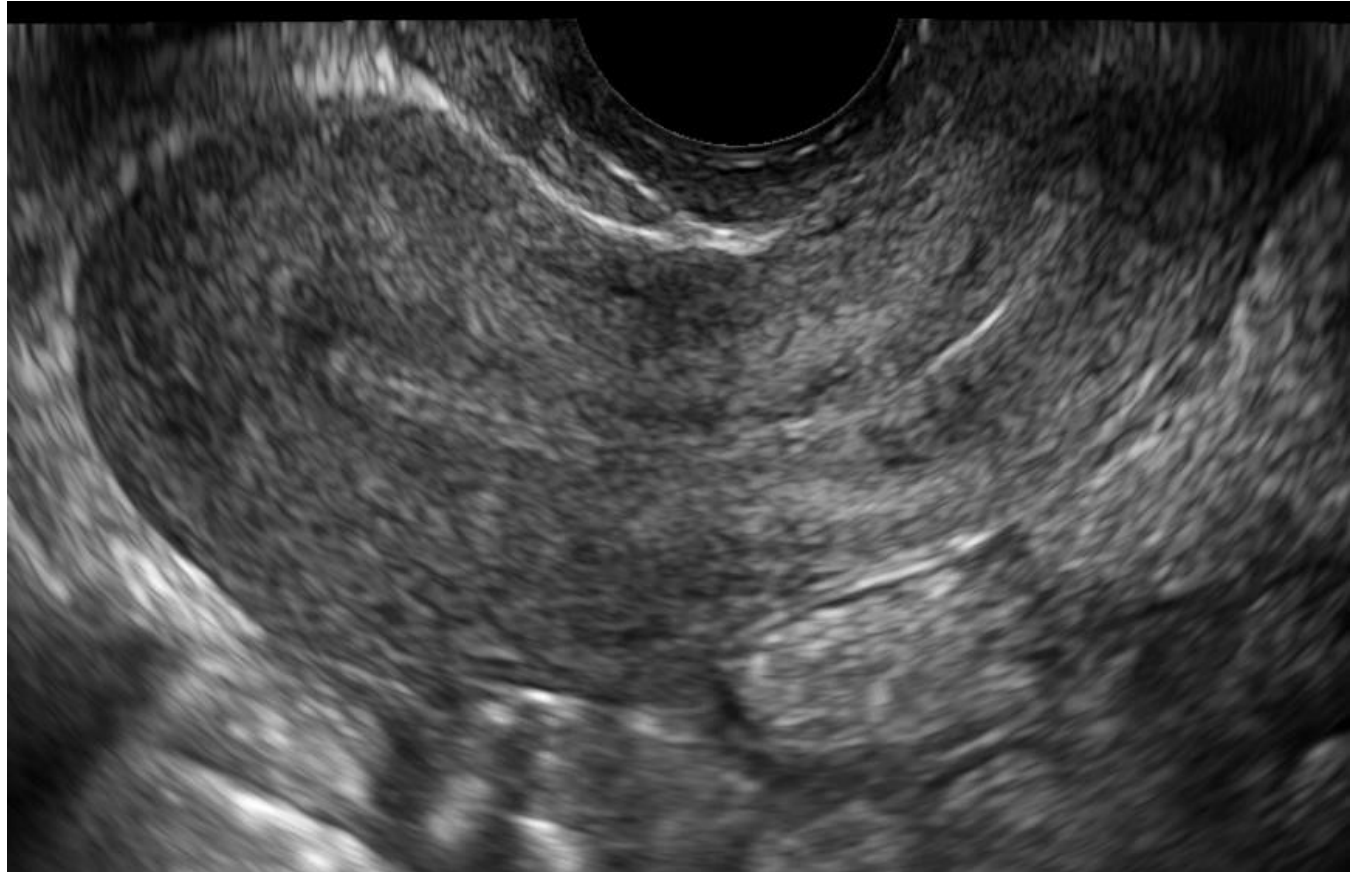
# Uterine Orientation

- TV ultrasound showing a retroverted uterus. The calipers measure the endometrium.



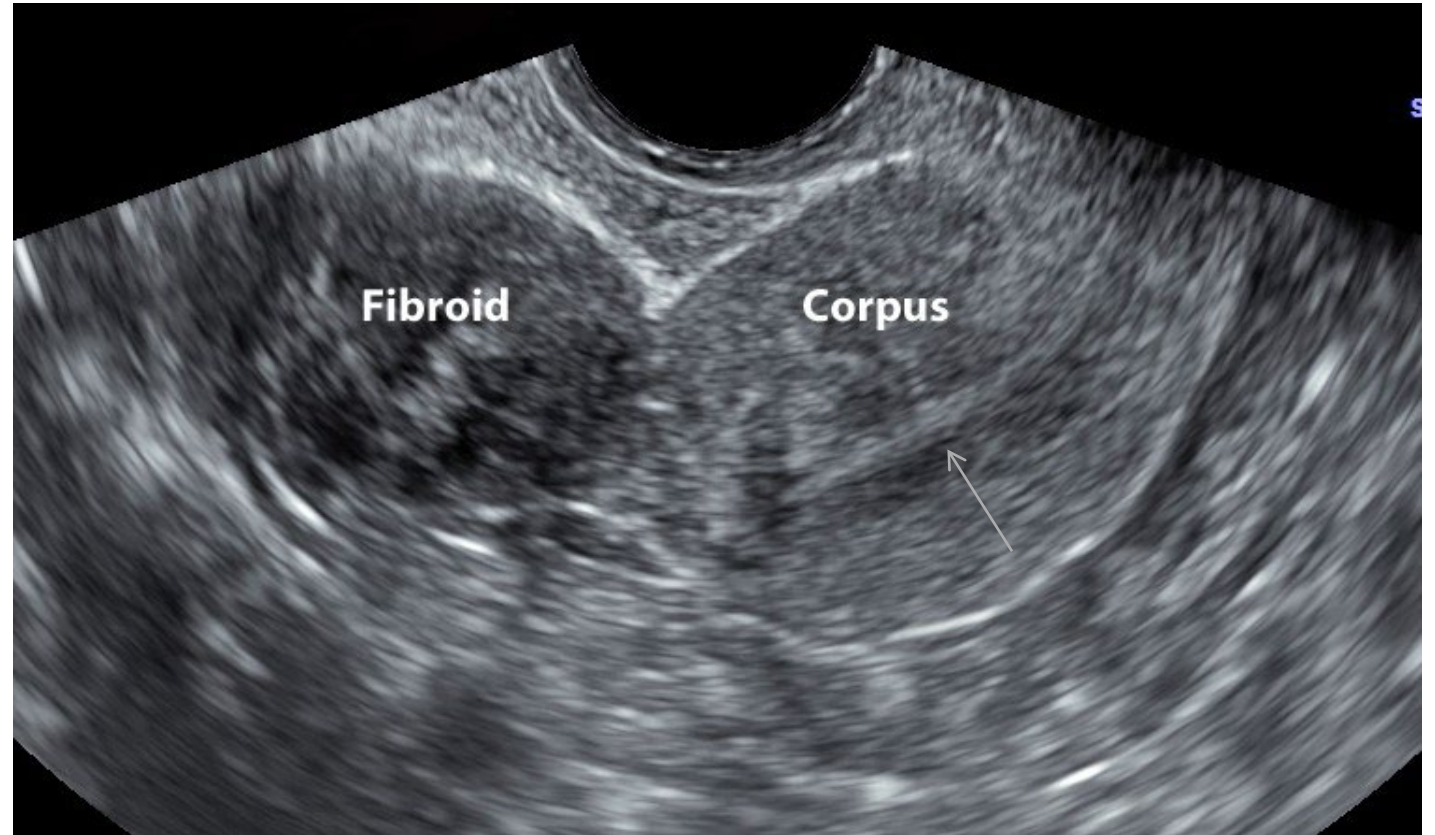
# Myometrium

- TV sagittal view of an anteverted uterus with a normal myometrium.



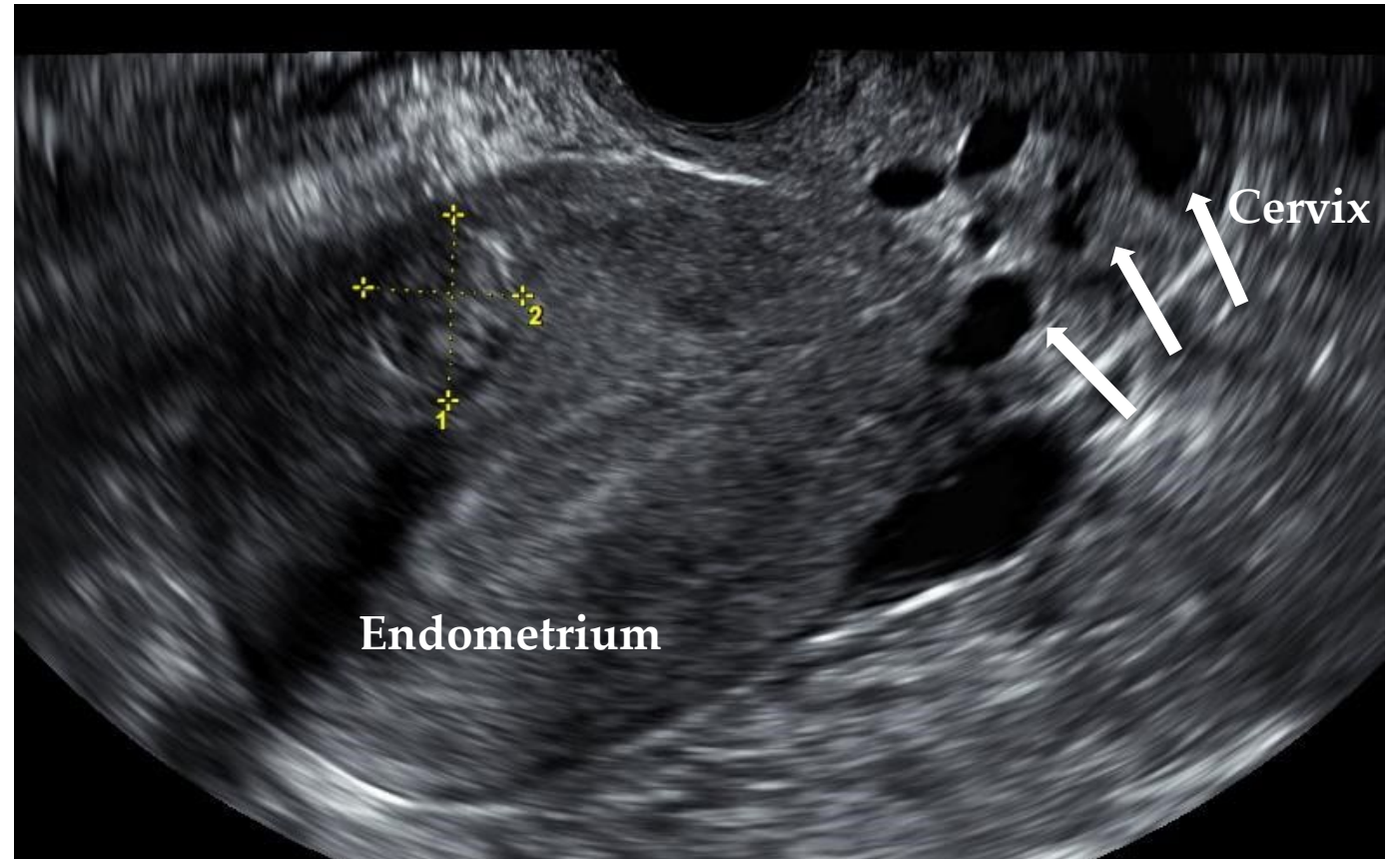
# Myometrium

- TV scan showing a pedunculated fundal fibroid. Note the normal endometrium (arrow).



# Myometrium

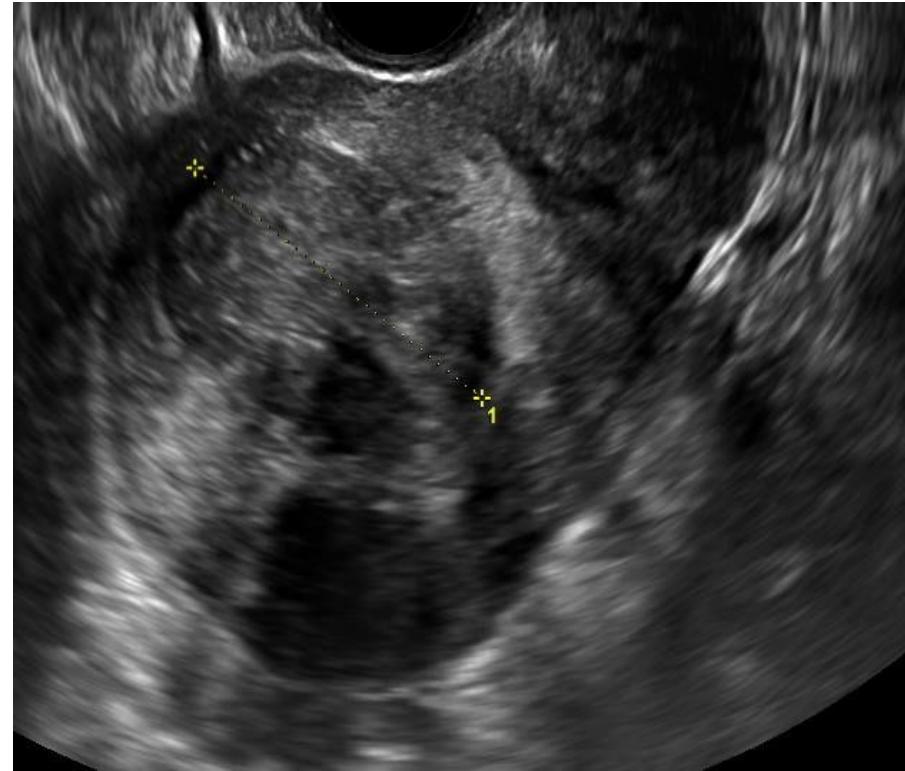
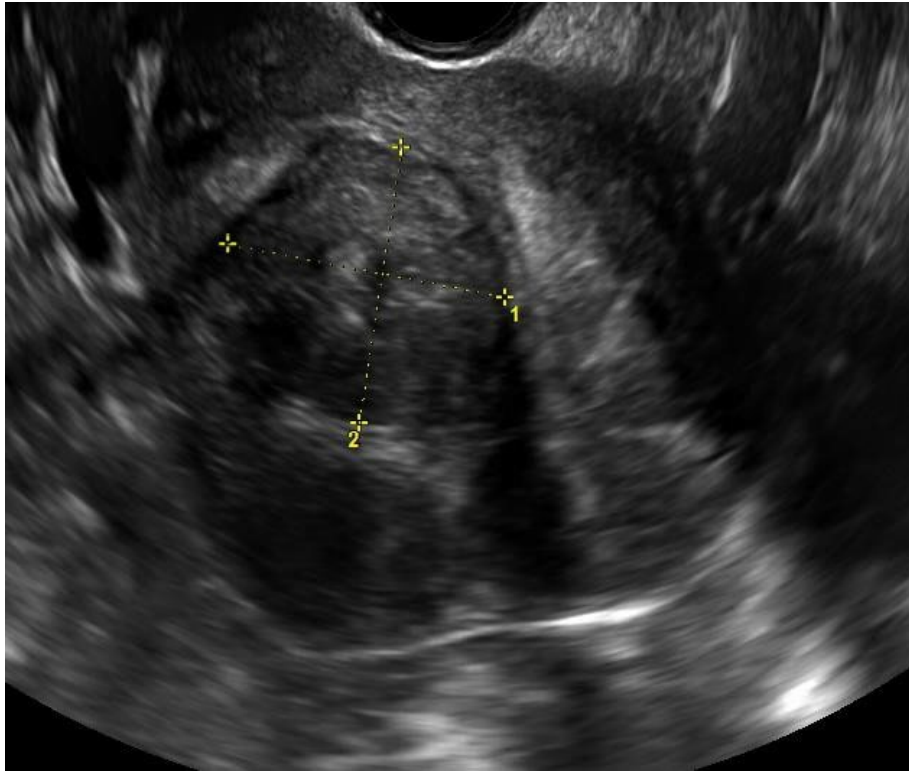
- TV sagittal view of the uterus showing an anterior intramural fibroid (calipers). Note the Nabothian cysts (arrows) in the cervix.





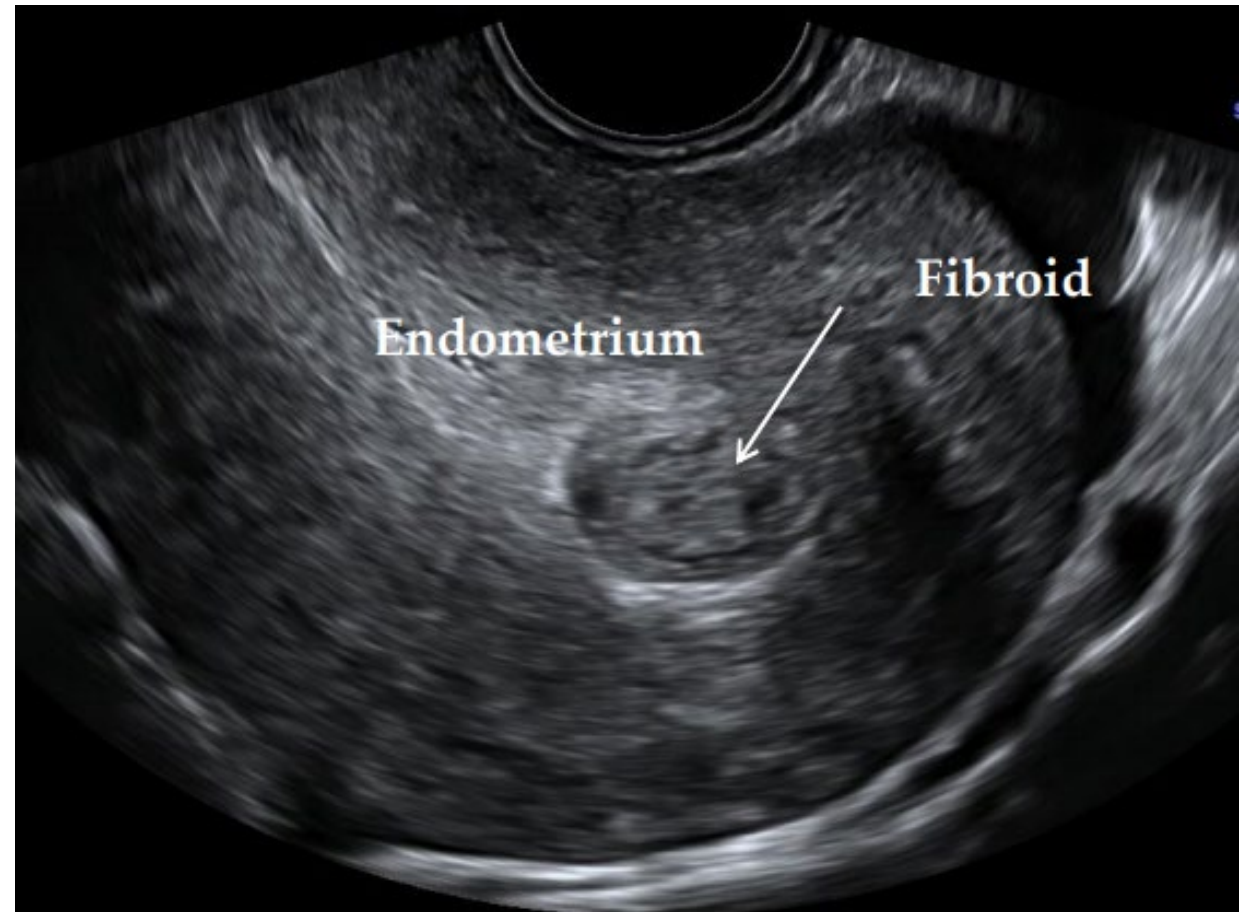
# Myometrium

- TV uterus with several intramural fibroids. The largest fibroids should be measured in at least 2 planes.



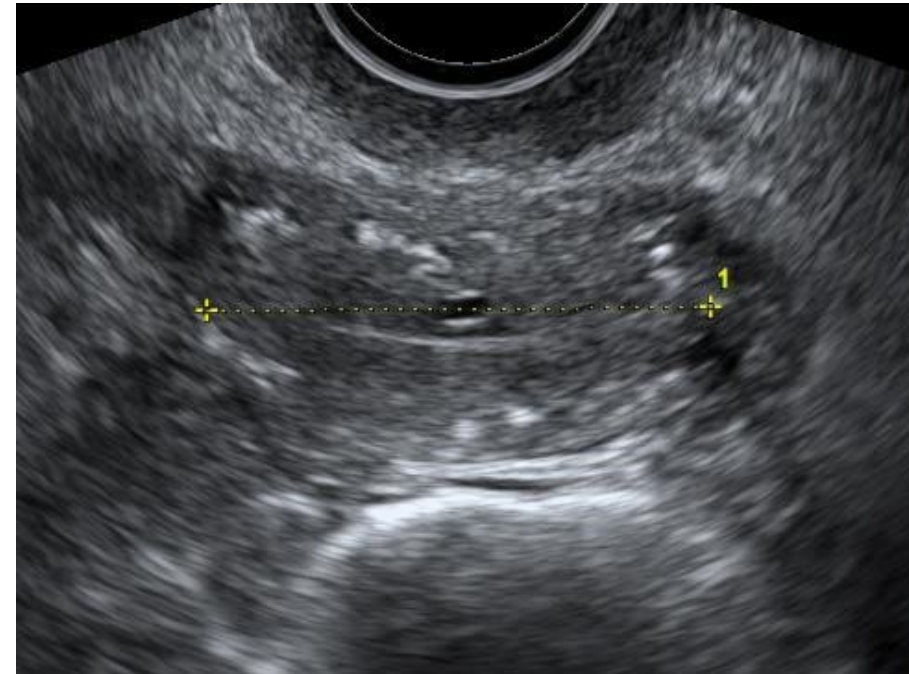
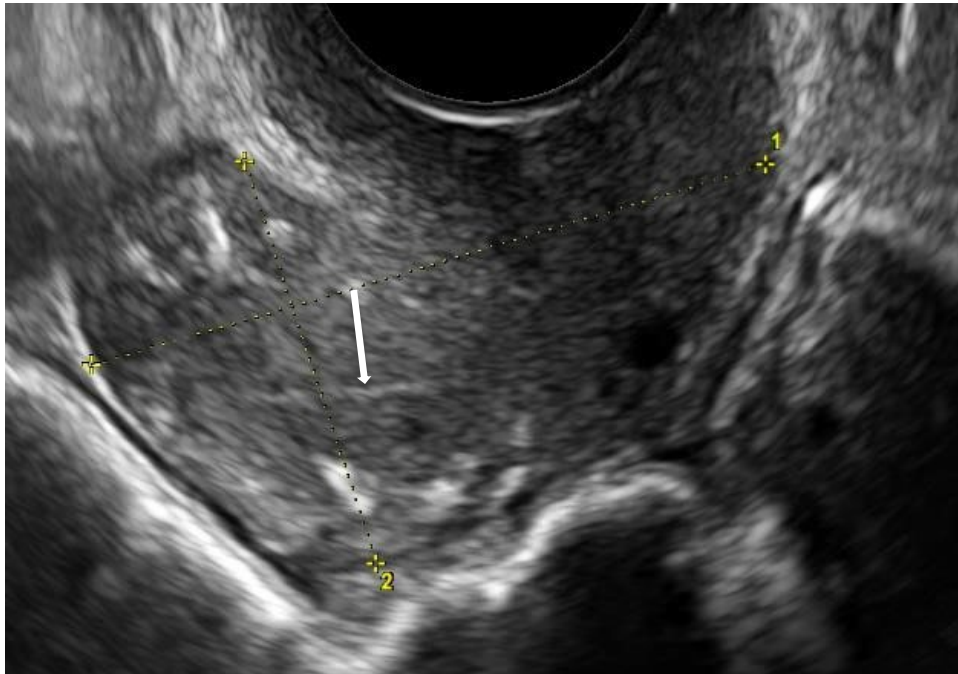
# Myometrium

- TV scan of a retroverted uterus showing a hypoechoic mass (arrow) originating from the posterior myometrium and protruding into the endometrium, characteristic of a submucosal fibroid.



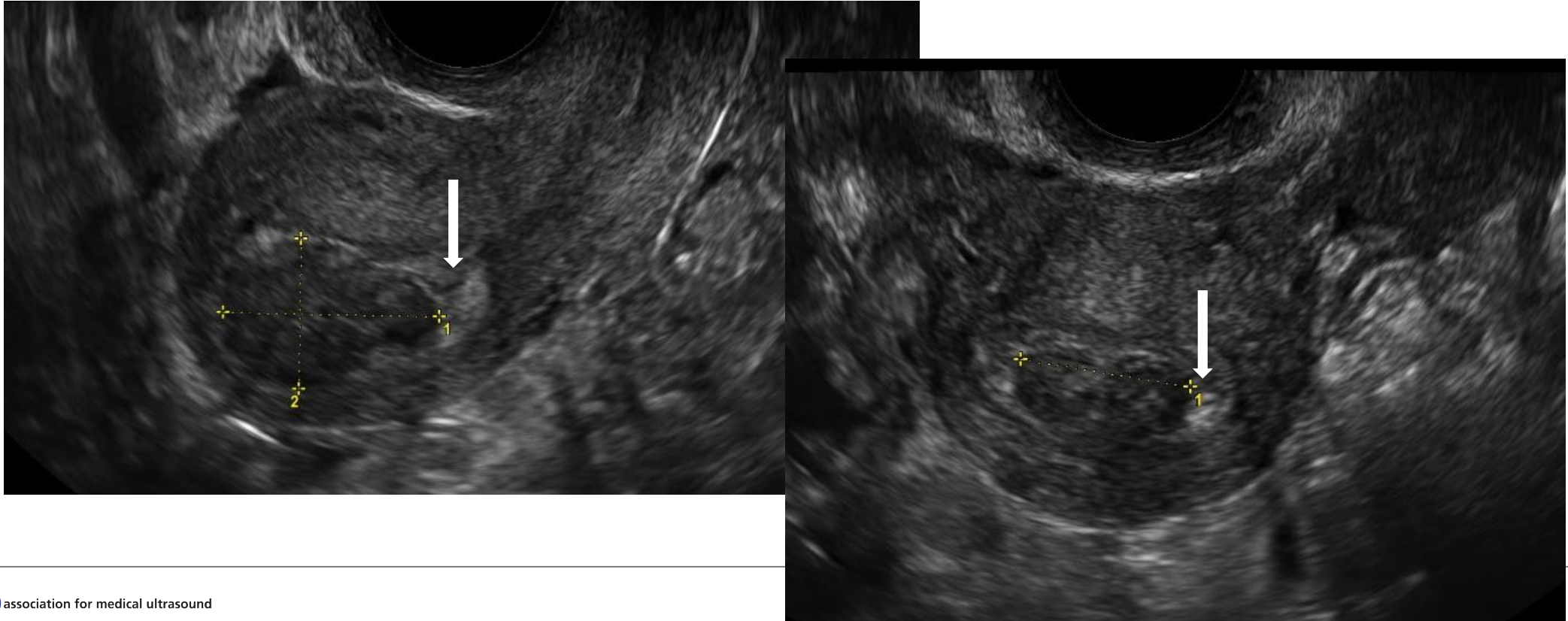
# Myometrium

- TV ultrasound of a uterus (sagittal and transverse) in a postmenopausal patient with calcified arcuate vessels. Note the thin endometrium demonstrated on the sagittal image (arrow).



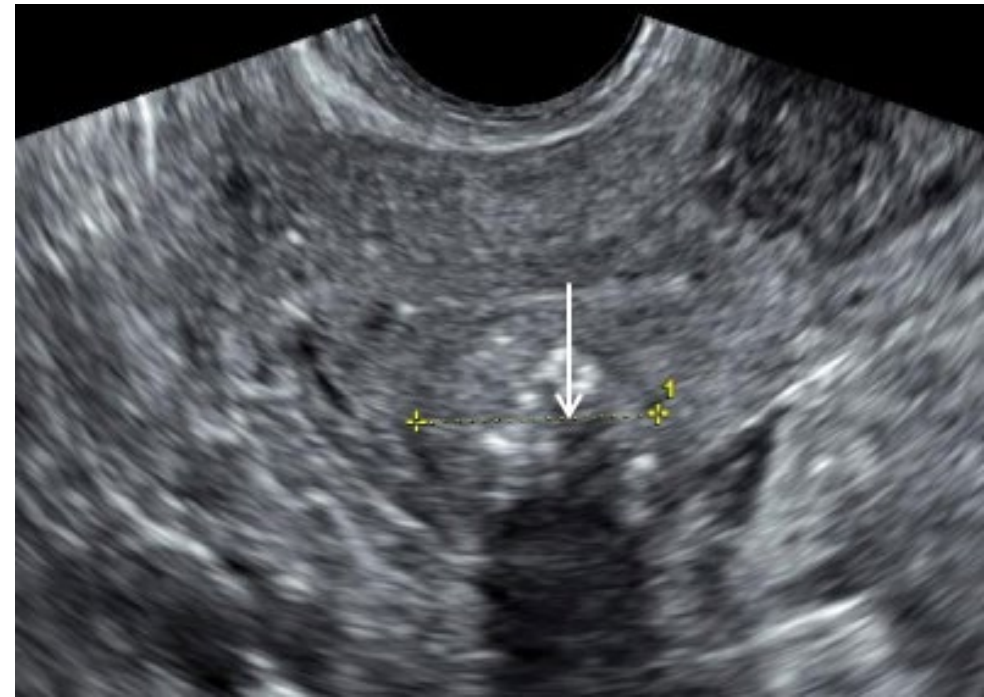
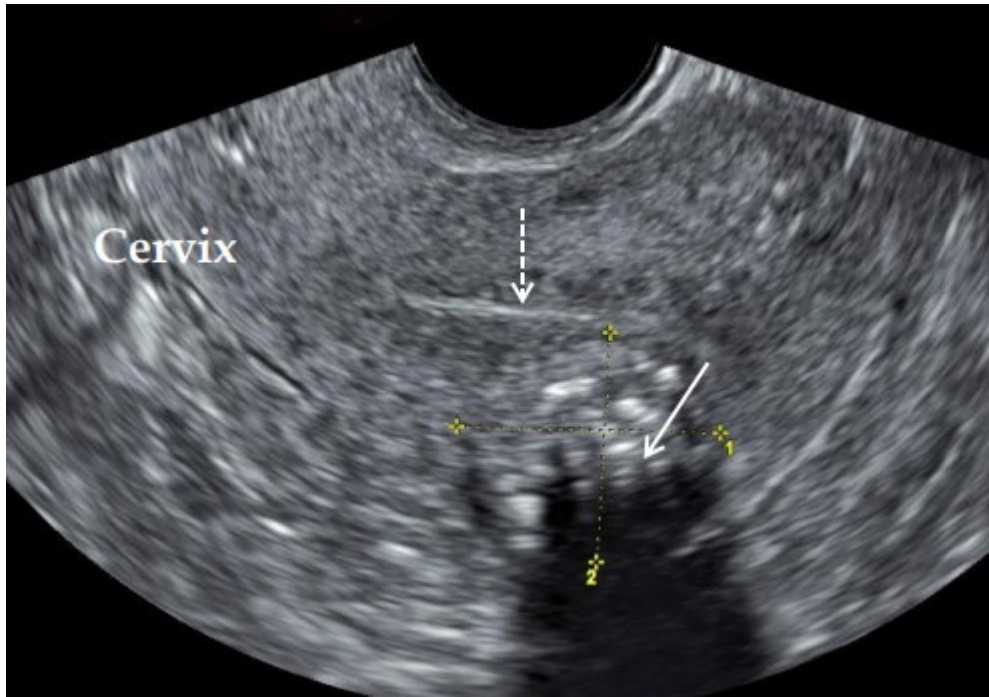
# Myometrium

- Sagittal and transverse views of the uterus demonstrating a large submucosal fibroid (+ calipers). Note the more echogenic endometrium (arrow).



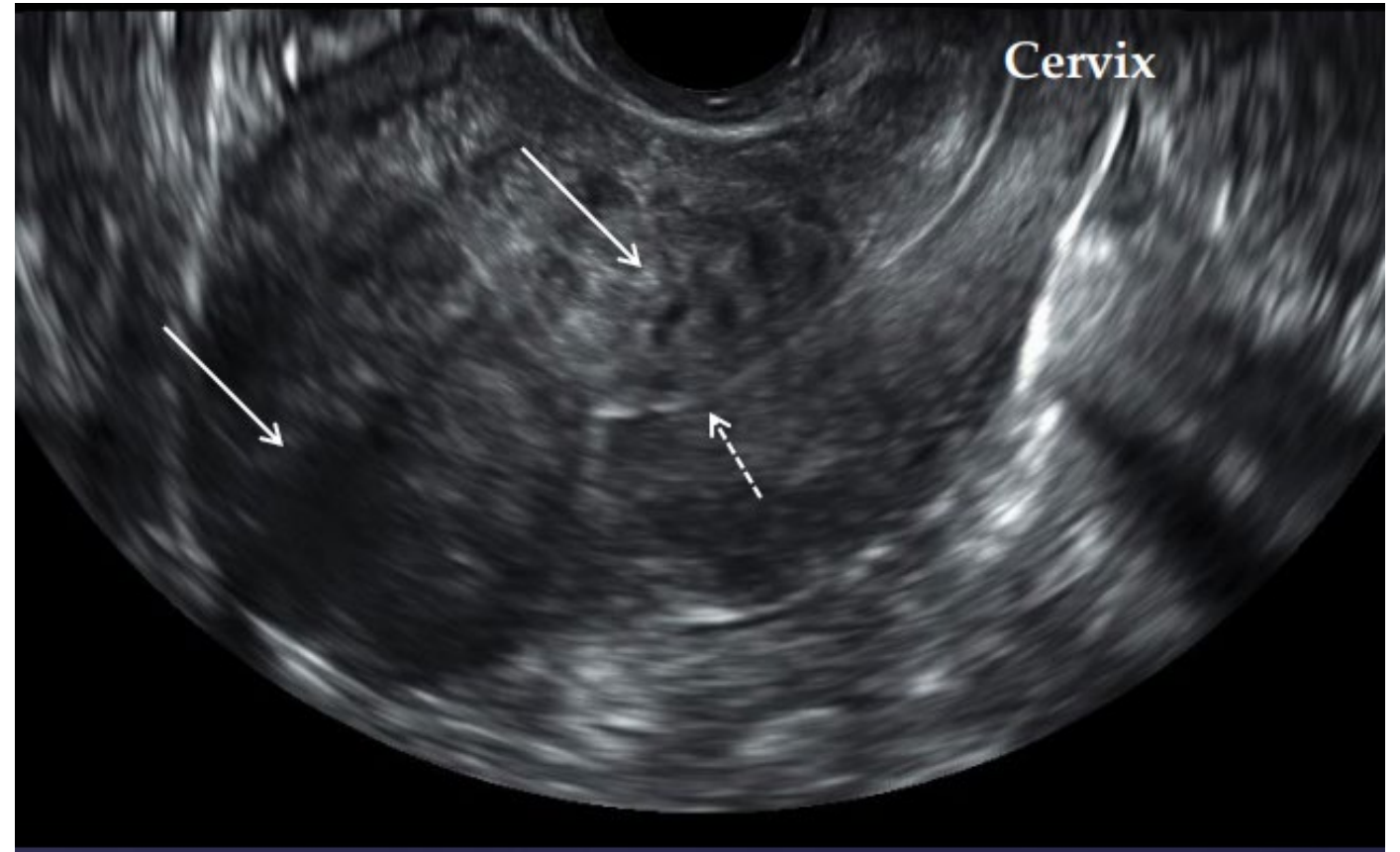
# Myometrium

- TV ultrasound of a retroverted uterus showing a speckled mass (arrow) in the anterior myometrium characteristic of a calcified fibroid. Note the thin endometrium (dashed arrow) in this postmenopausal patient.



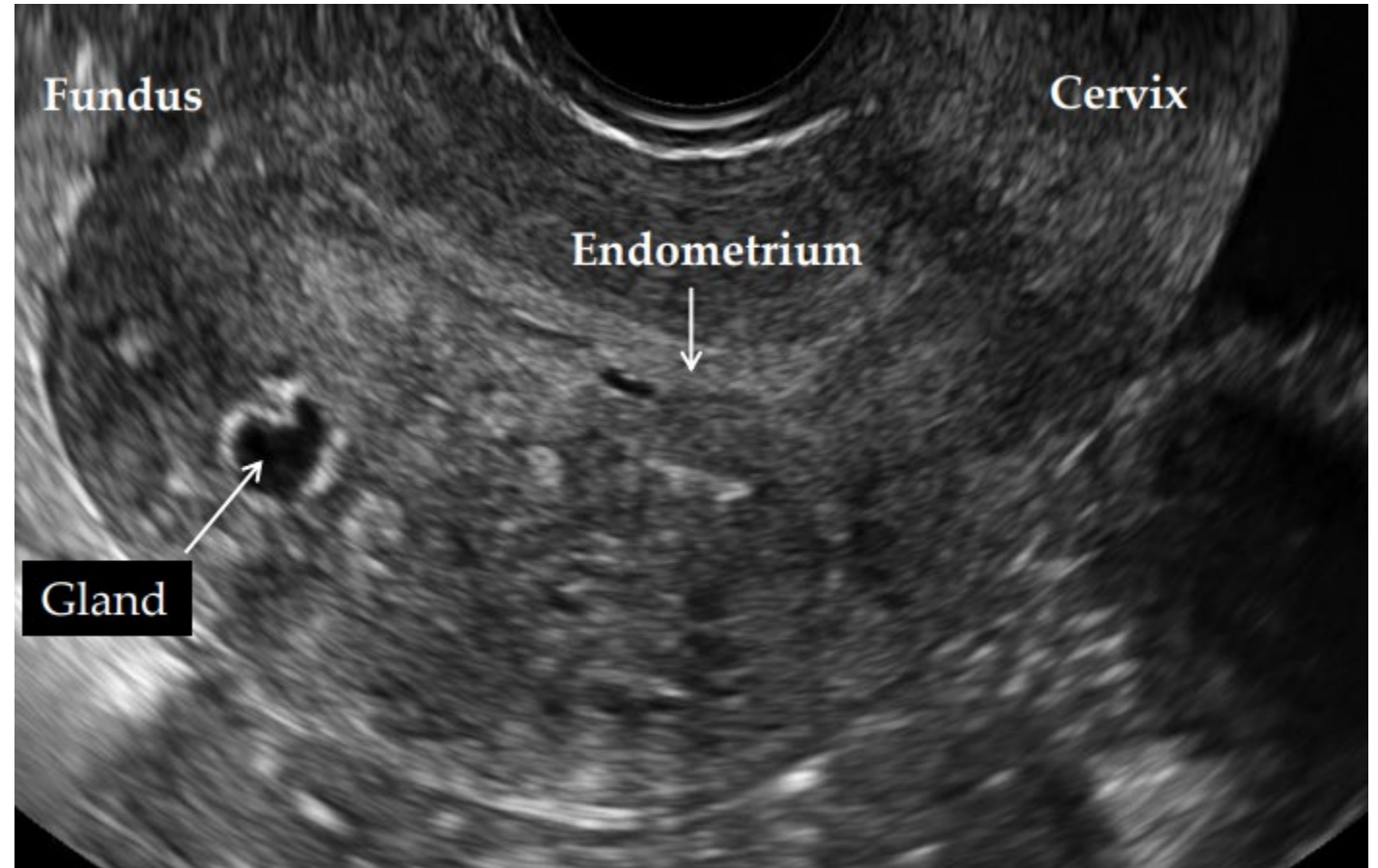
# Myometrium

- TV ultrasound of an anteverted uterus with multiple confluent fibroids (arrows). The endometrium (dashed arrow) is partially obscured by the fibroids.



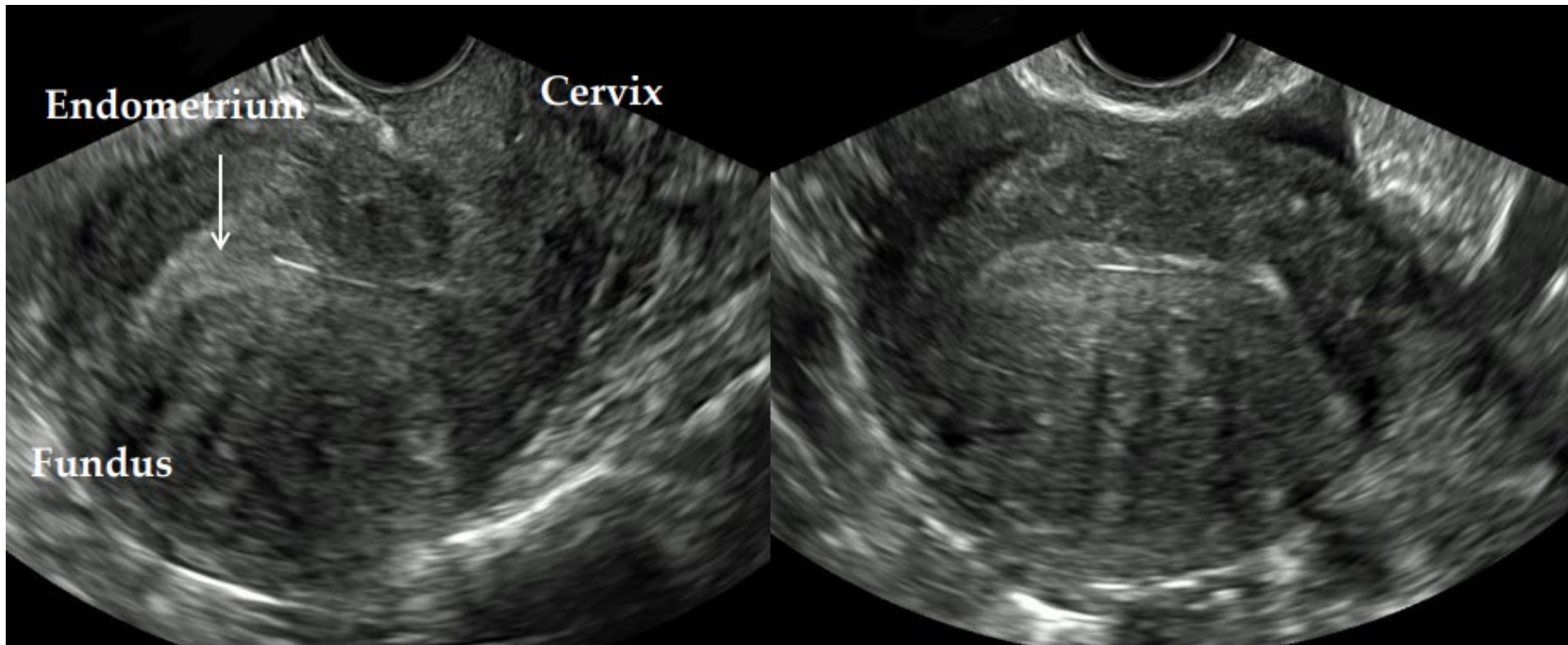
# Myometrium

- TV ultrasound of a globular asymmetric uterus with cystic areas characteristic of adenomyosis. The cystic areas represent endometrial glands.



# Myometrium

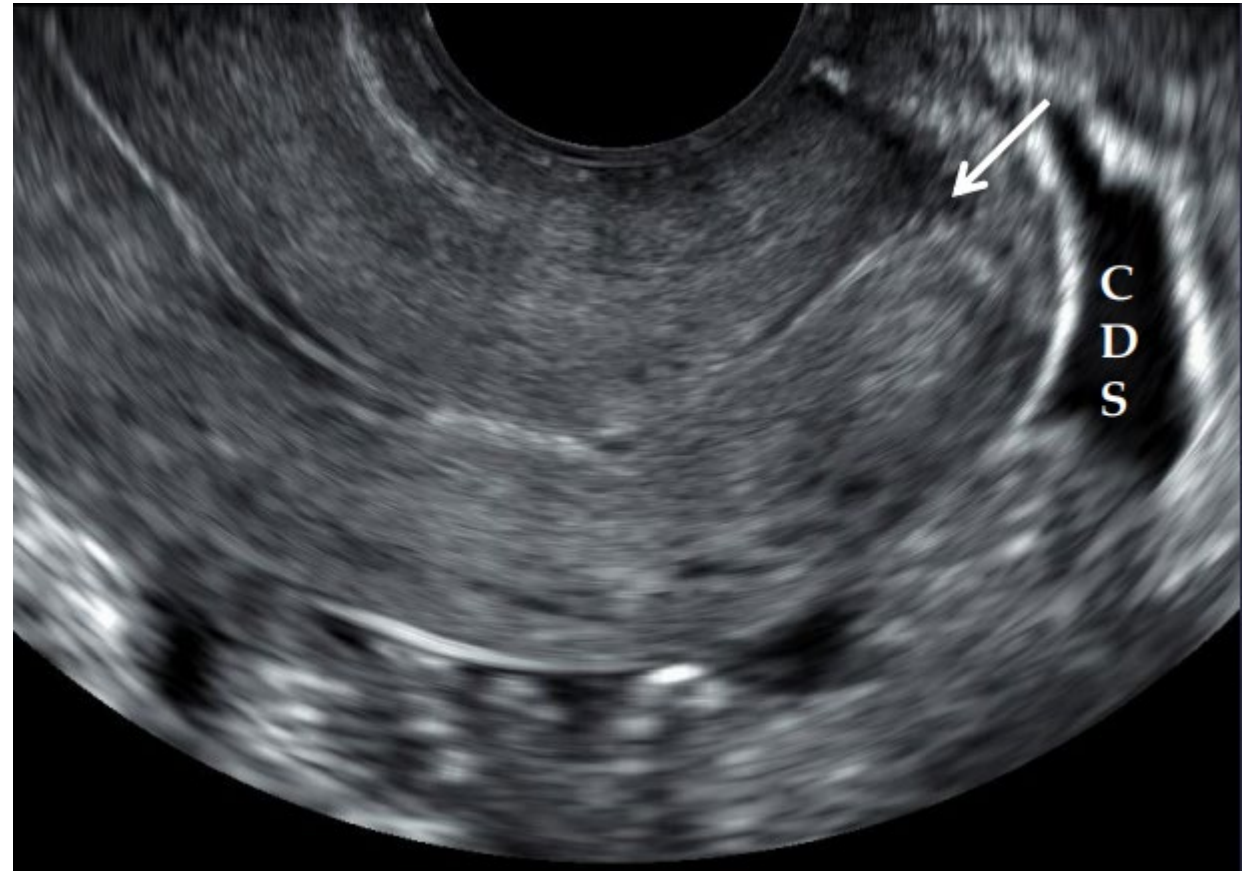
- TV ultrasound demonstrating sagittal and transverse views of a uterus. The mottled, asymmetric myometrium is characteristic of adenomyosis.





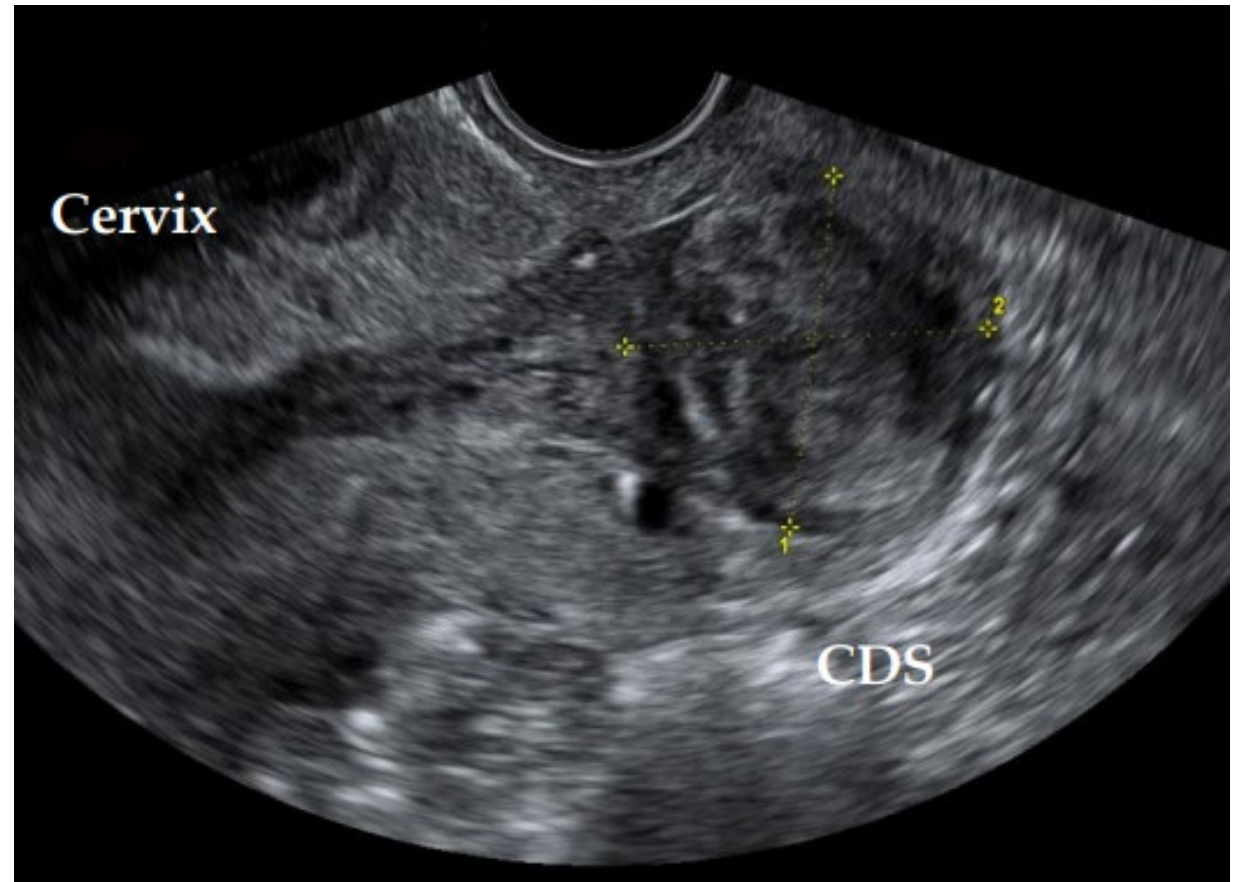
# Uterine Cervix

- TV ultrasound showing the cervix. The external os is demonstrated with an arrow. The corpus is not imaged in this view. There is fluid in the cul-de-sac.



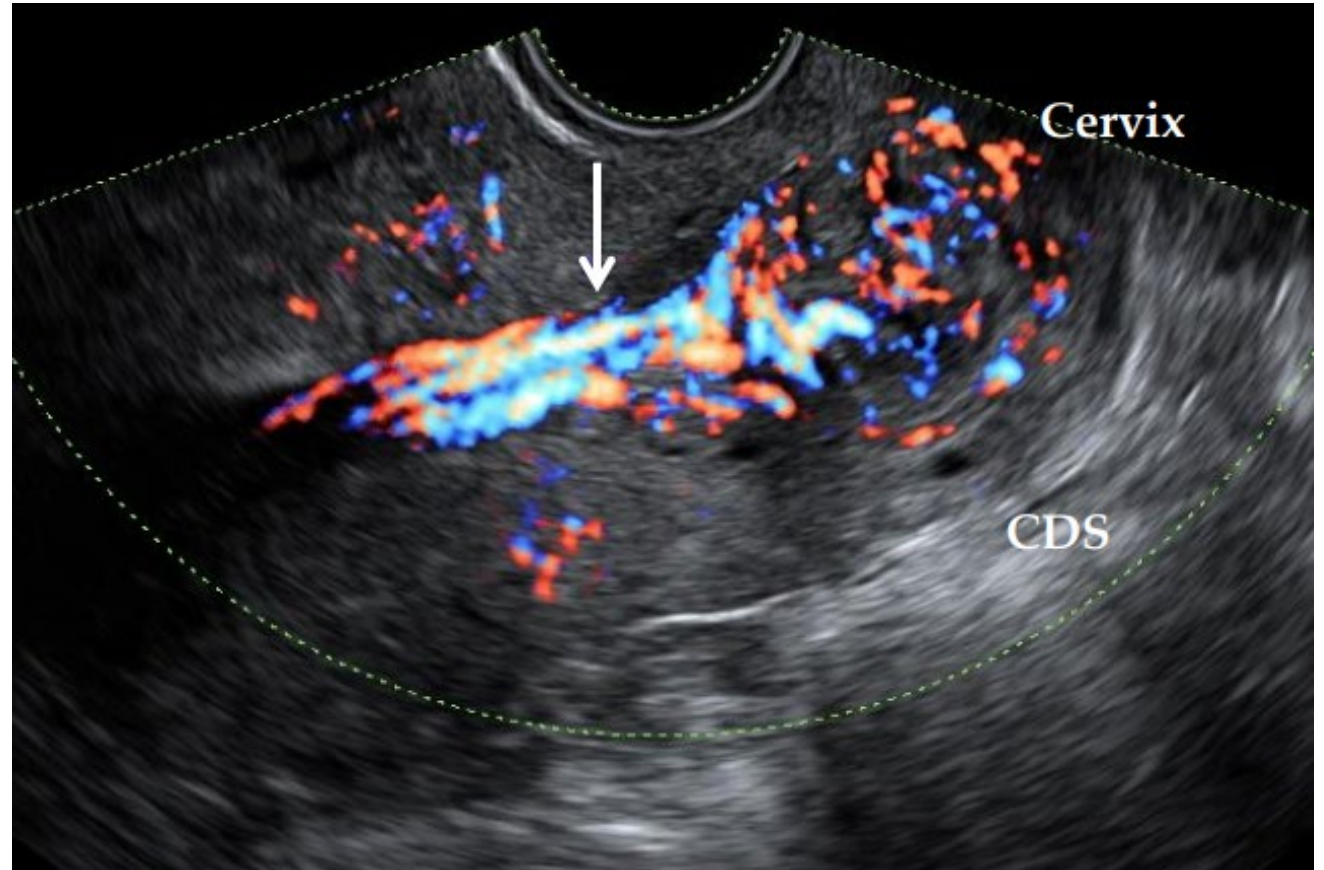
# Uterine Cervix

- TV ultrasound of the uterine cervix. The corpus of the uterus is not shown in the image. There is a solid mass protruding through the endocervical canal into the vagina (calipers). This mass was pathologically confirmed to be a fibroid.



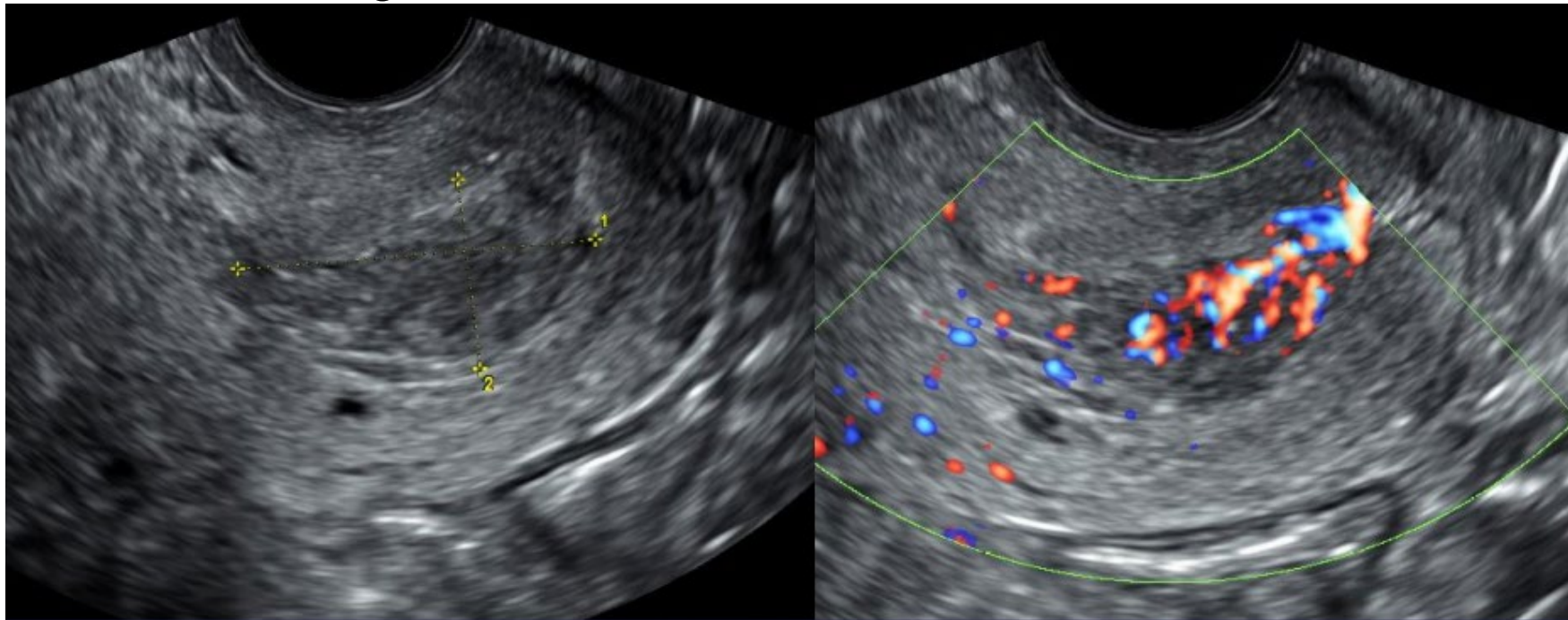
# Uterine Cervix

- TV ultrasound of the fibroid in the prior slide, demonstrating the vascular stalk (arrow) by color flow imaging.



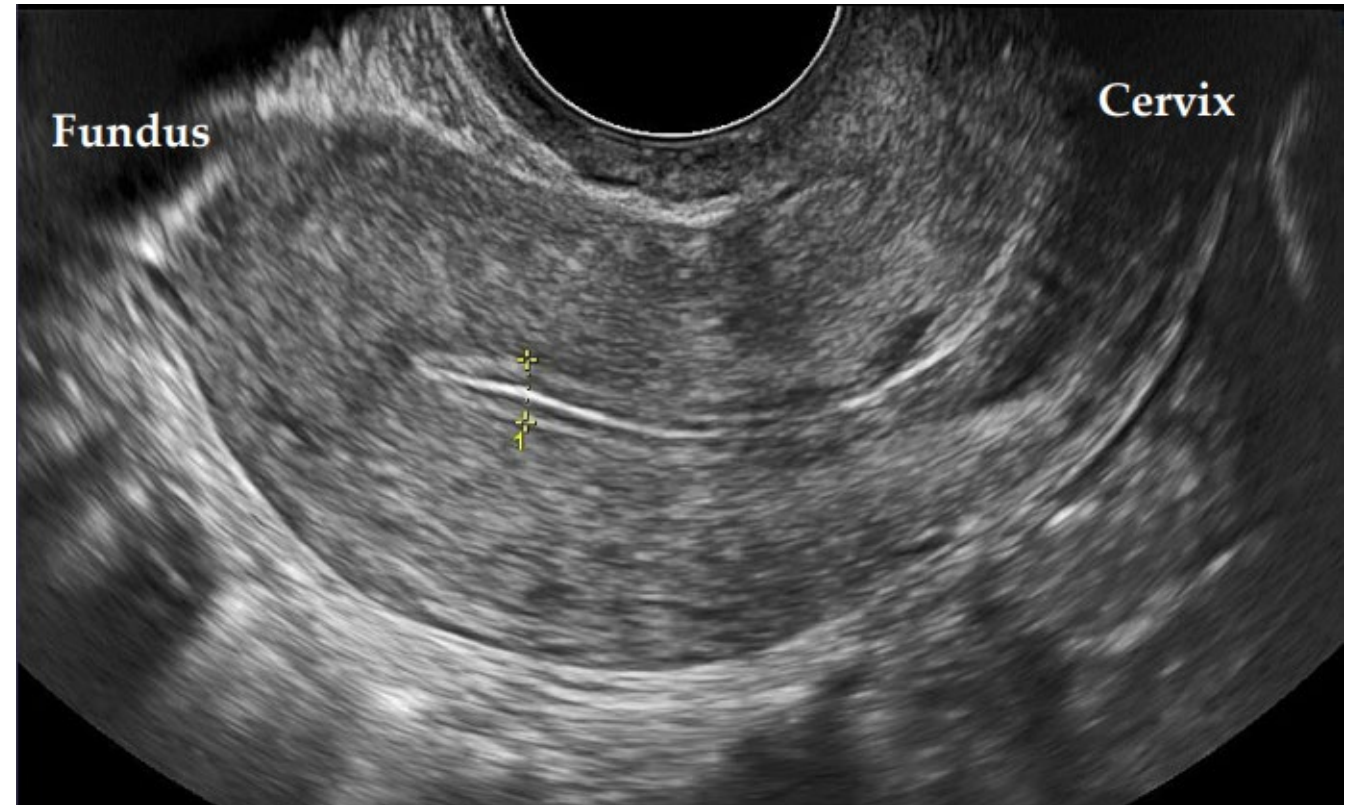
# Uterine Cervix

- TV ultrasound of the cervix demonstrating a hypoechoic mass (calipers) within the endocervical canal. Color flow demonstrates the vascular nature of this mass. The mass was pathologically shown to be an adenomyoma. The corpus of the uterus is not in the image.



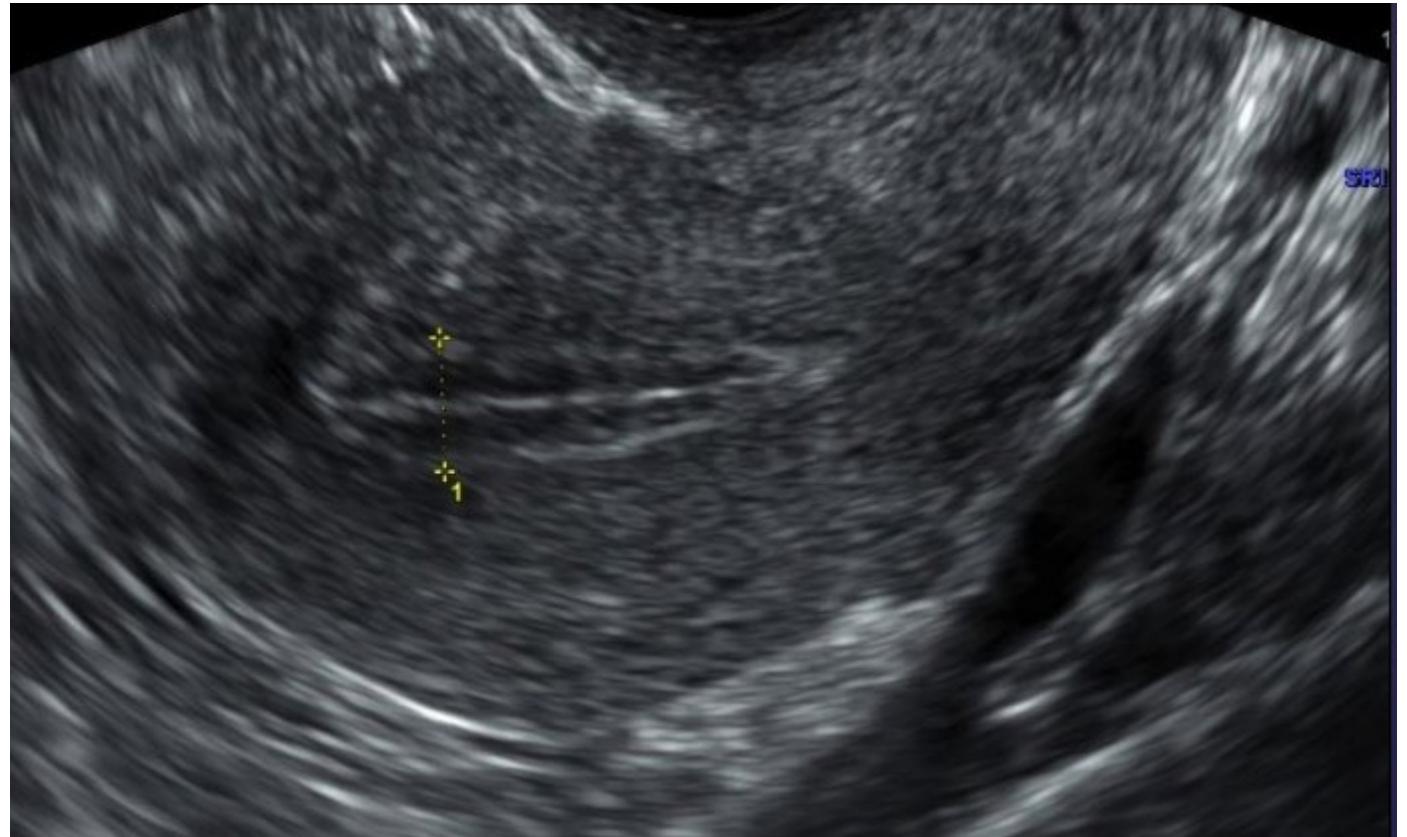
# Endometrium

- TV ultrasound showing a thin endometrium in a young patient on oral contraceptives. Note the anteverted uterine position.



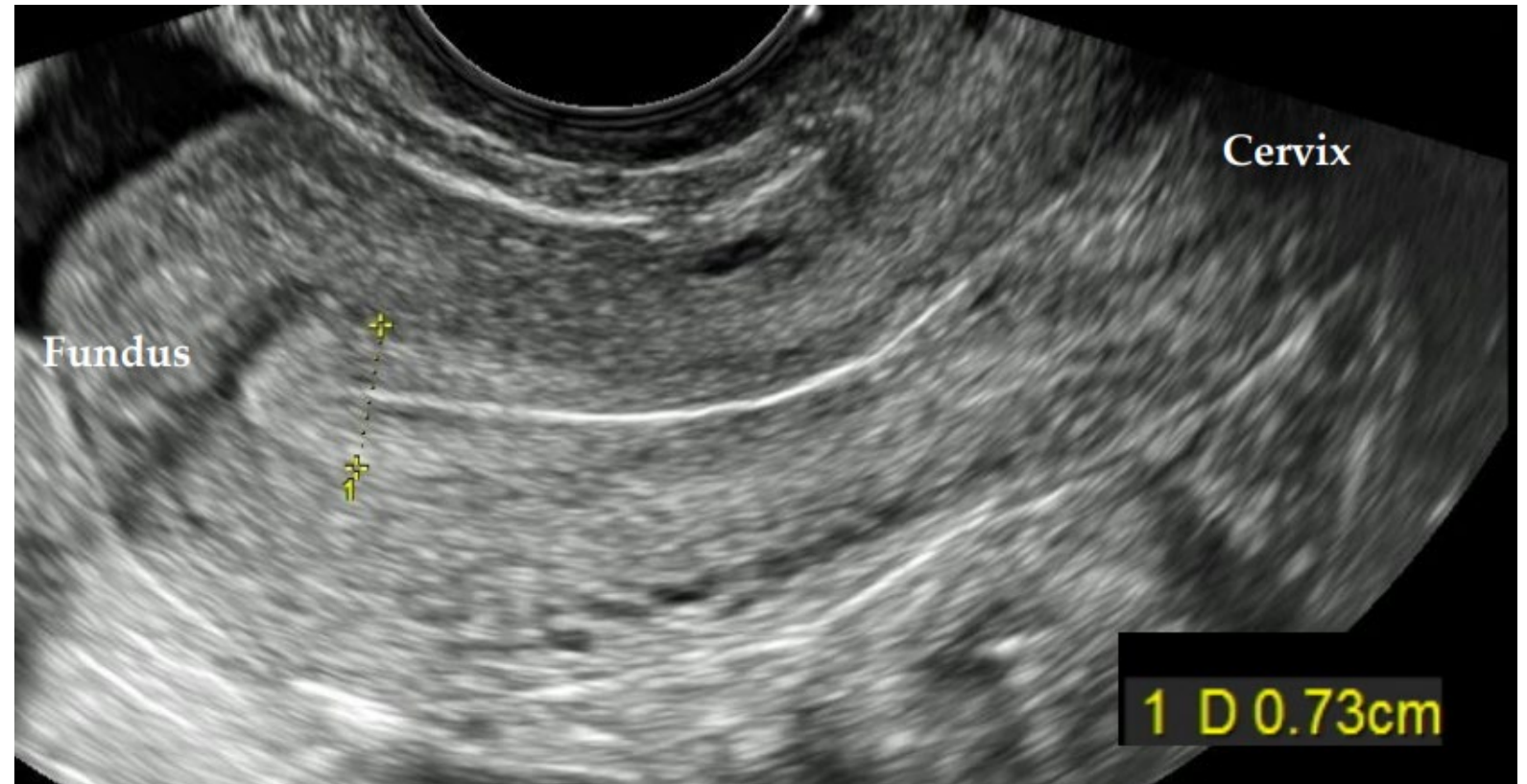
# Endometrium

- TV ultrasound showing a trilaminar endometrium early in the menstrual cycle.



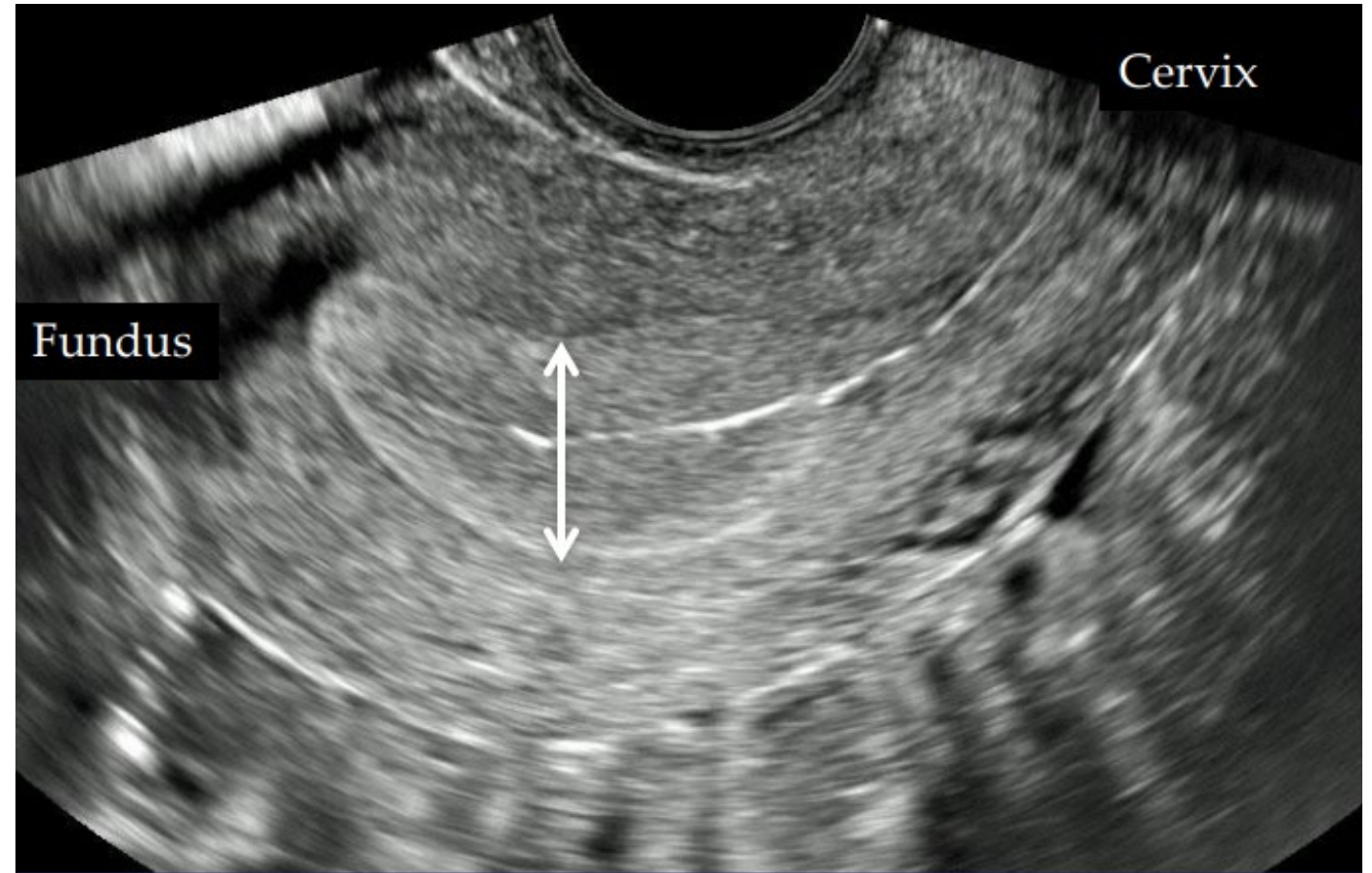
# Endometrium

- TV ultrasound showing the endometrium in the mid-cycle. Note the small amount of free fluid at the fundus.



# Endometrium

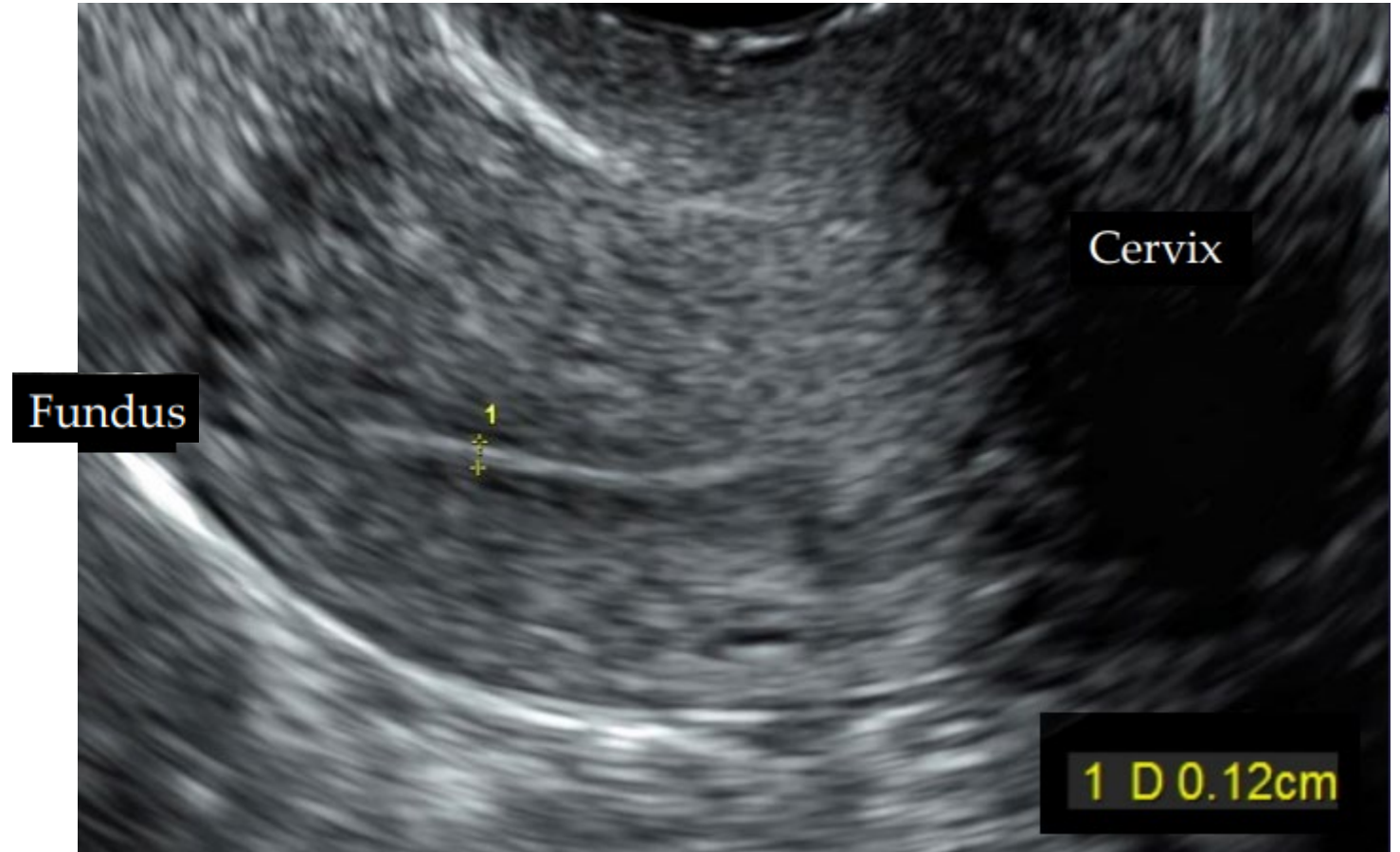
- TV ultrasound in the late luteal phase of the menstrual cycle demonstrating a homogeneous endometrium.





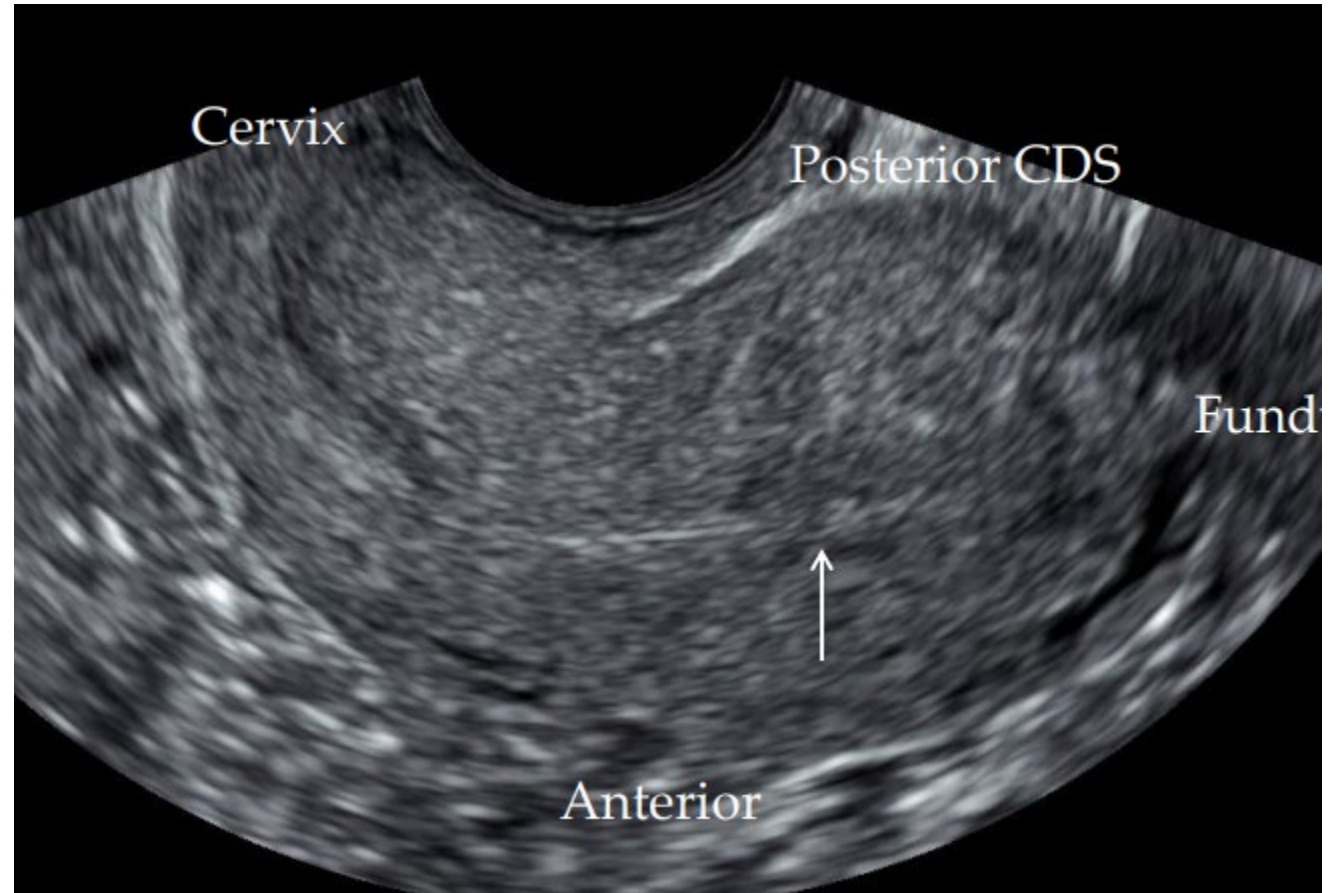
# Endometrium

- TV ultrasound in a postmenopausal patient demonstrating a thin endometrium.



# Endometrium

- TV ultrasound of a retroverted, retroflexed uterus. The endometrium is very thin in this postmenopausal patient.



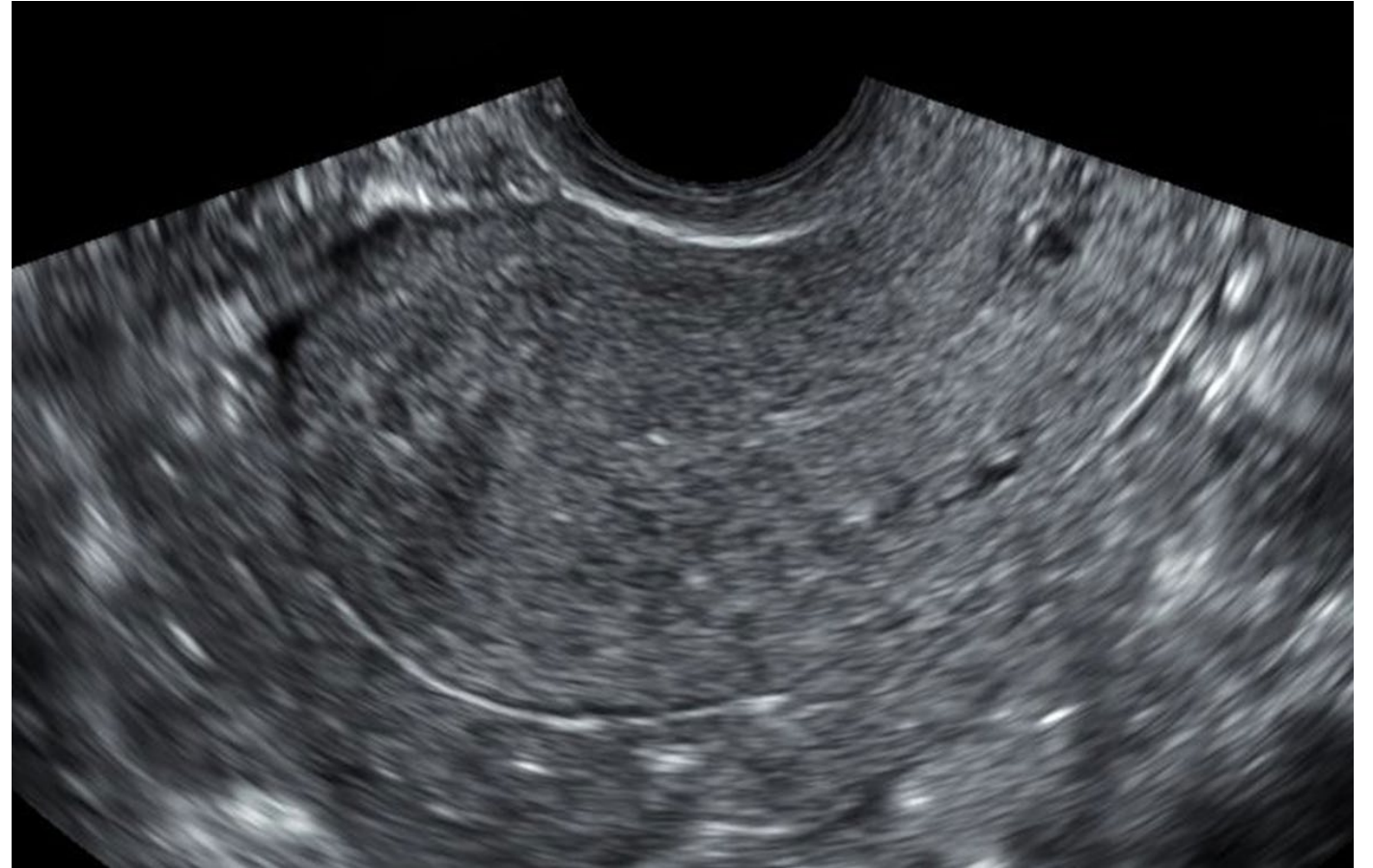
# Endometrium

- TV ultrasound showing a sliver of fluid within the endometrium of a postmenopausal patient. Note that the endometrial measurement is comprised of the two single endometrial widths and does not include the fluid.



# Endometrium

- TV ultrasound showing the uterus in sagittal position with an indistinct endometrium in a patient with menorrhagia.



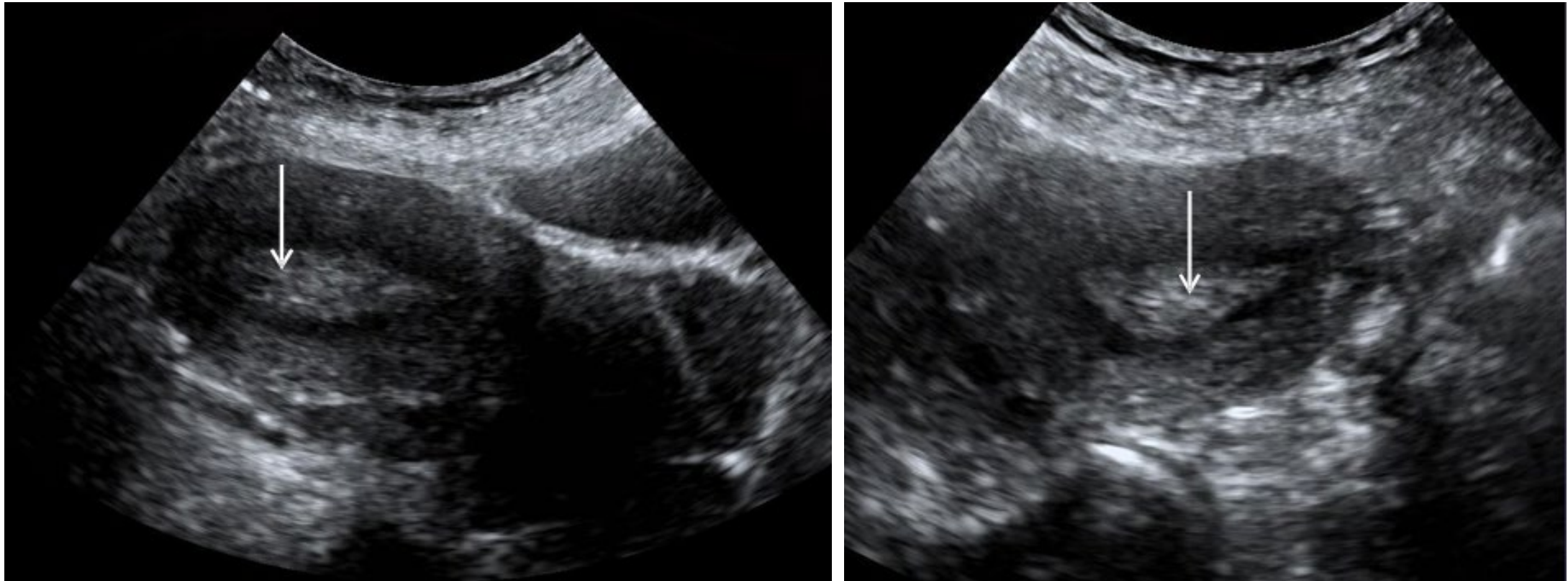
# Endometrium

- Sonohysterography was performed to evaluate the endometrium of the patient in the previous slide, revealing a polyp that was not seen during regular scanning.



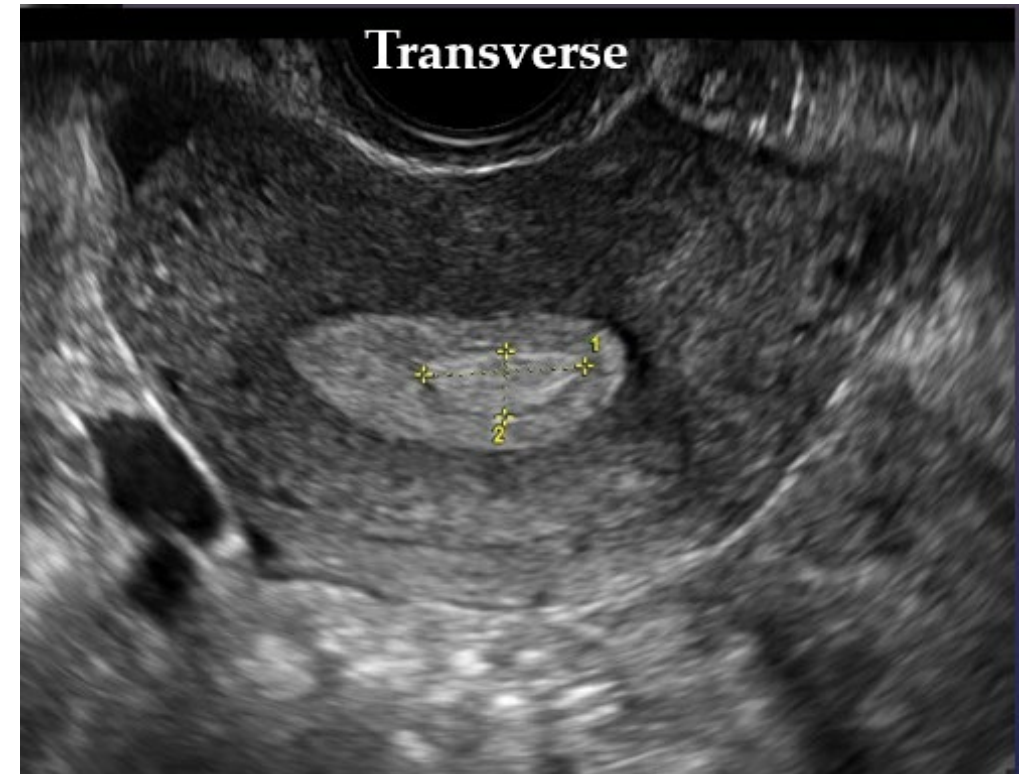
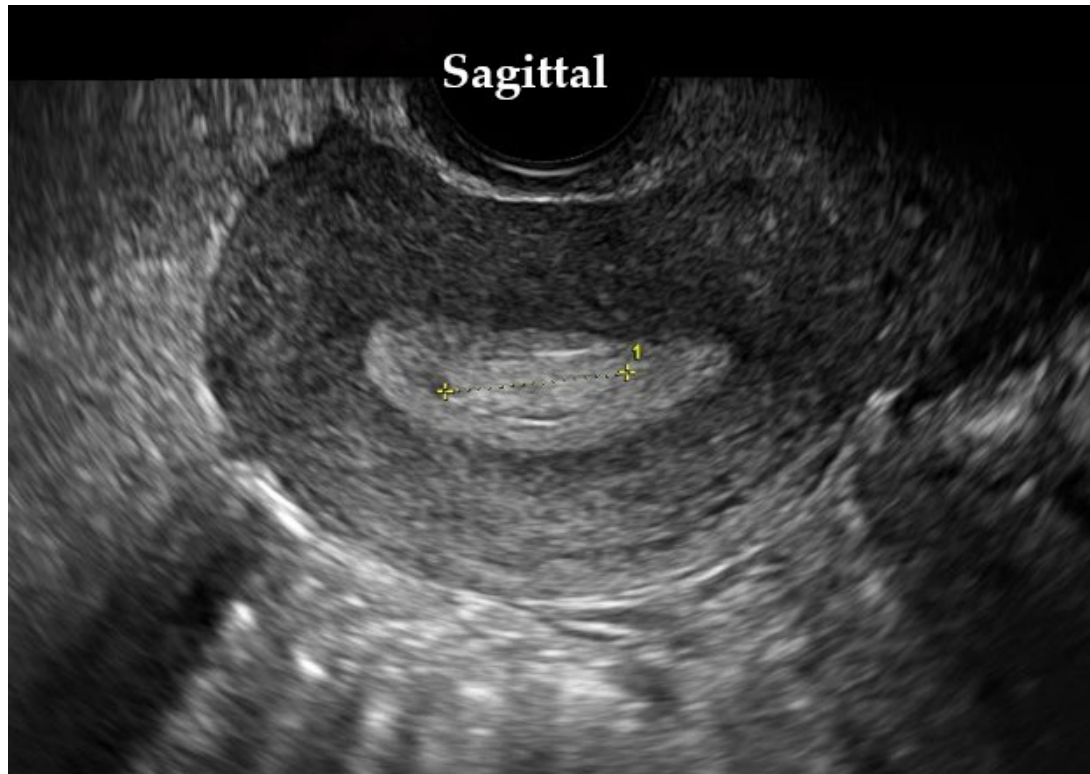
# Endometrium

- TA ultrasound of the sagittal and transverse uterus. Note the heterogeneity of the endometrium (arrows).



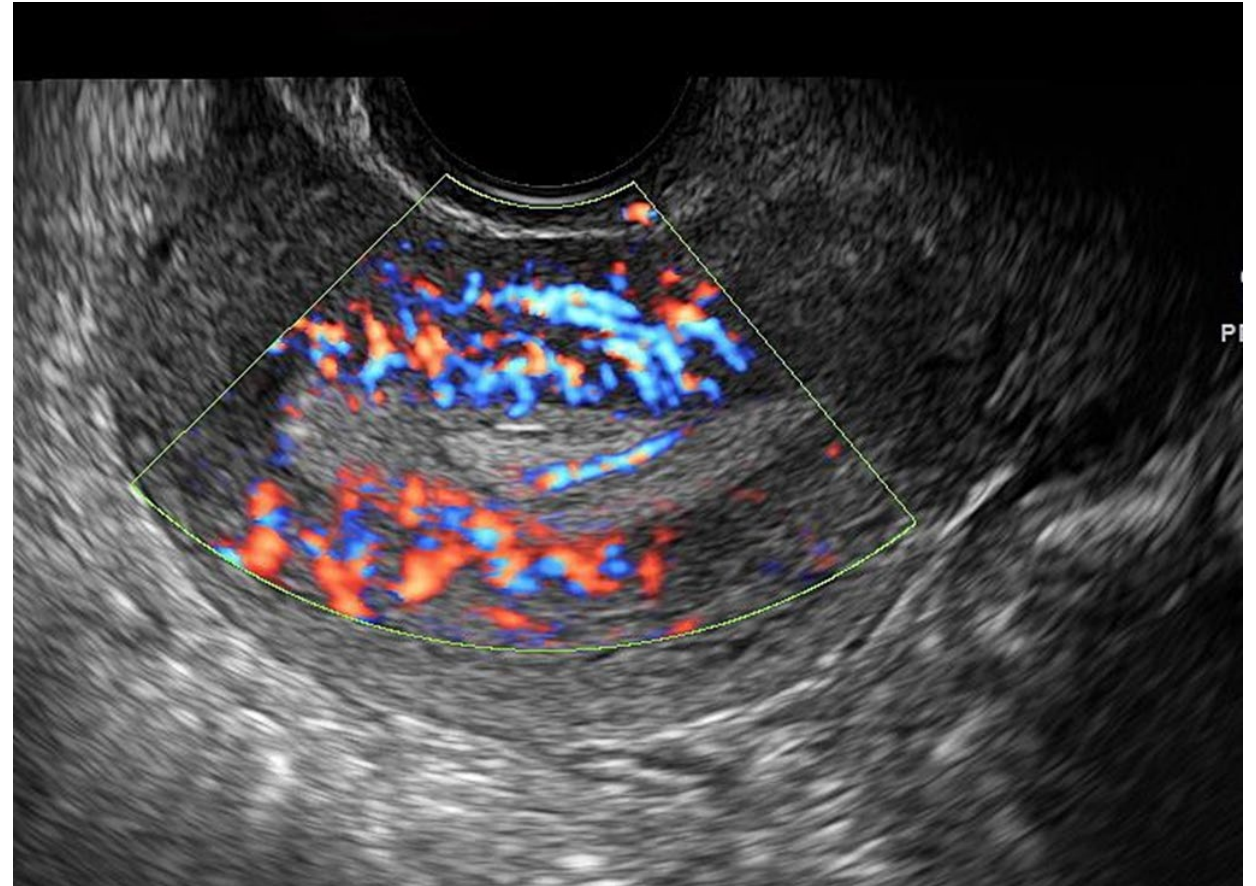
# Endometrium

- TV evaluation of the same patient as in the prior slide demonstrates a well-circumscribed echogenic area (+ calipers), suggestive of an endometrial polyp.



# Endometrium

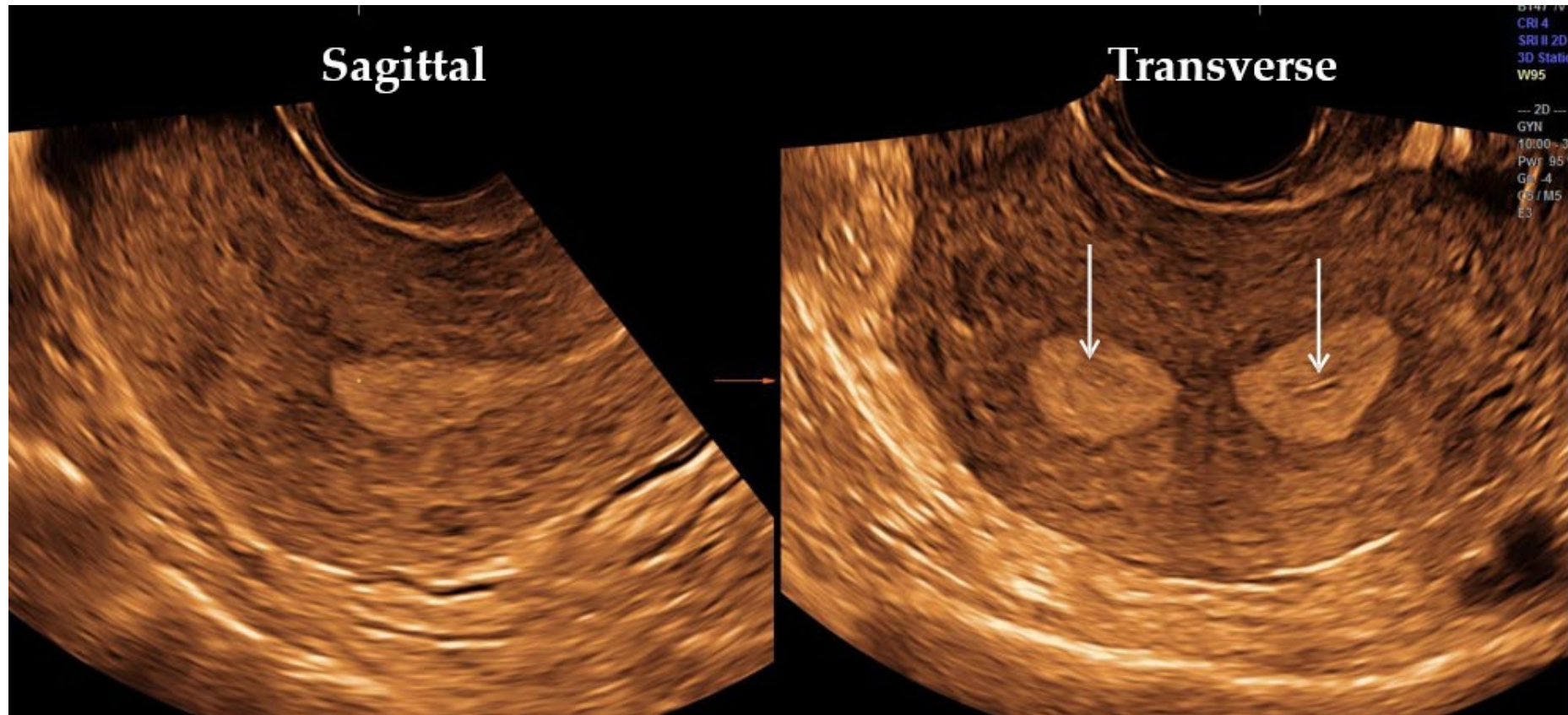
- Further evaluation of the endometrial polyp with color flow Doppler demonstrates a feeder vessel.





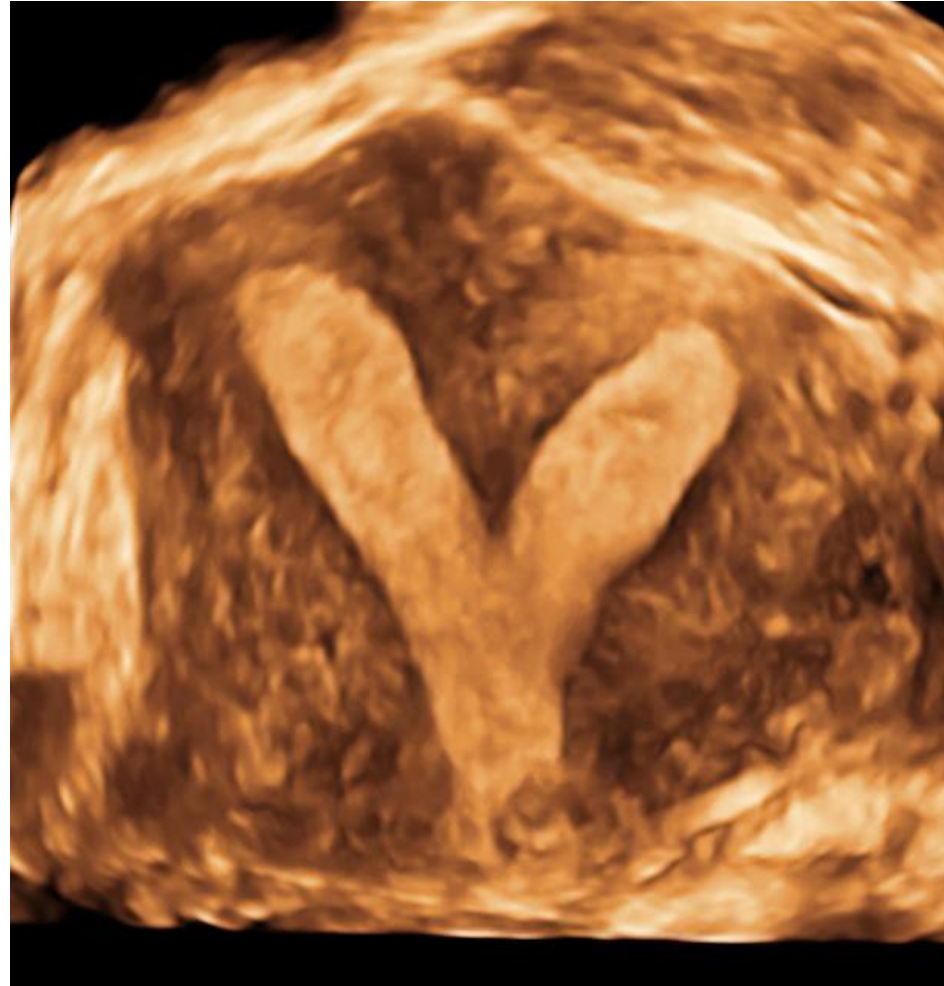
# Endometrium

- TV ultrasound demonstrates a splayed endometrium on the transverse view (arrows), suggesting a uterine anomaly.



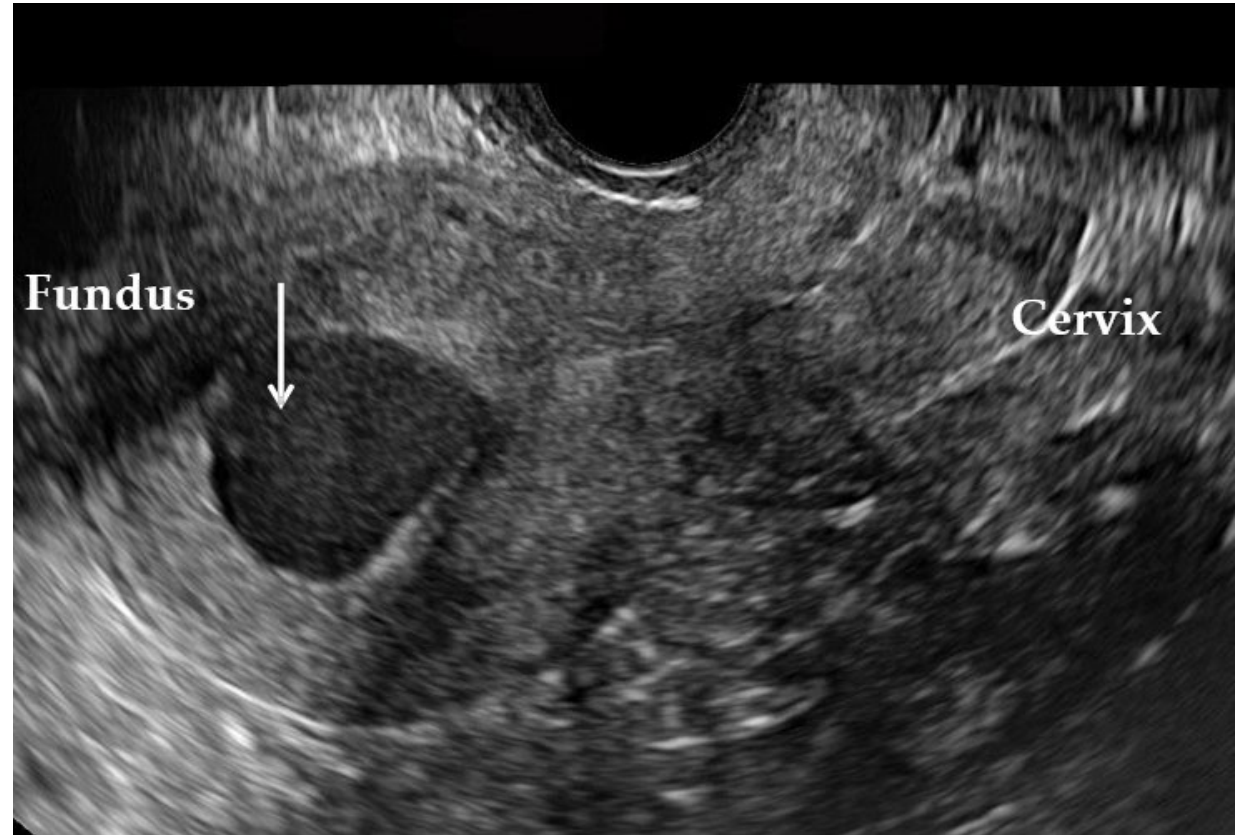
# Endometrium

- 3D reconstruction of the uterus in the same patient reveals a subseptate uterus.



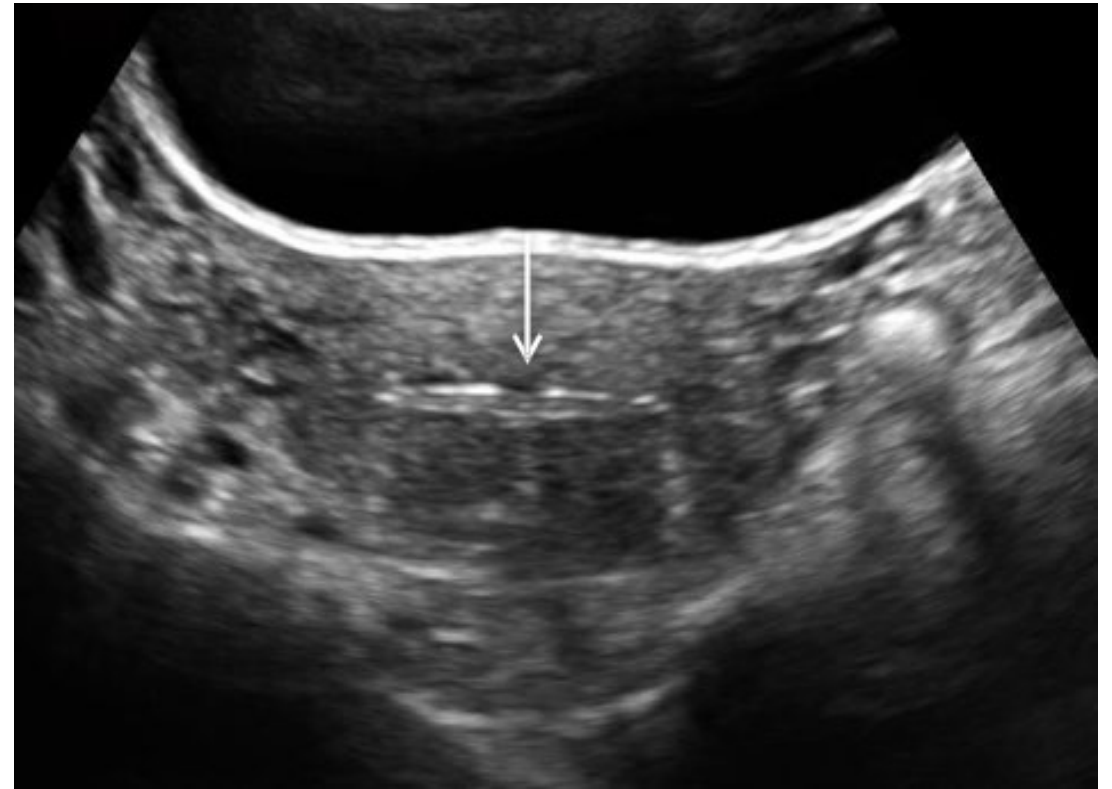
# Endometrium

- TV sagittal view of the uterus demonstrating a fluid collection with low-level echoes within the endometrial cavity (arrow) characteristic of a hematometra.



# Intrauterine Contraceptive Device (IUCD)

- TA ultrasound showing an IUCD (arrow) within the sagittal and transverse images of the endometrium.



# Intrauterine Contraceptive Device

- 2D and 3D transvaginal ultrasound showing an IUCD properly positioned in the endometrium.



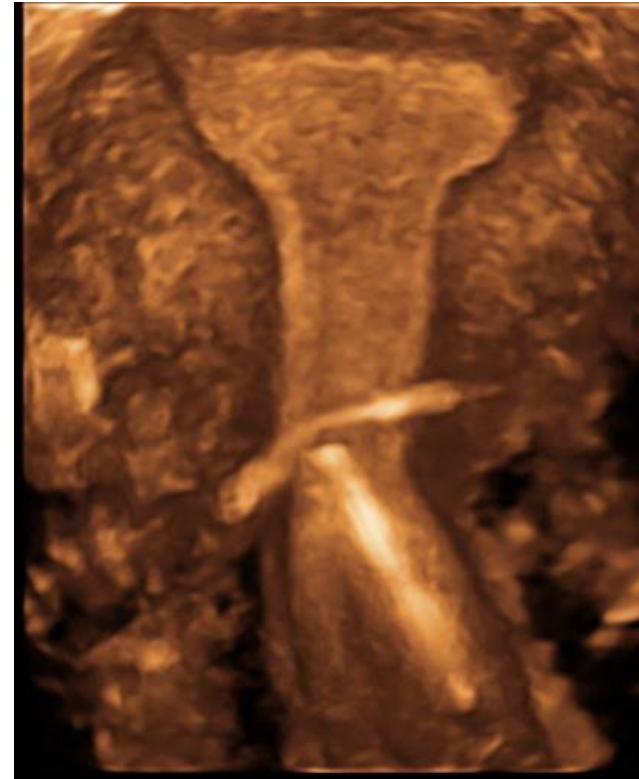
# Intrauterine Contraceptive Device

- TV sagittal view of the uterus with an IUCD in the endocervical canal.



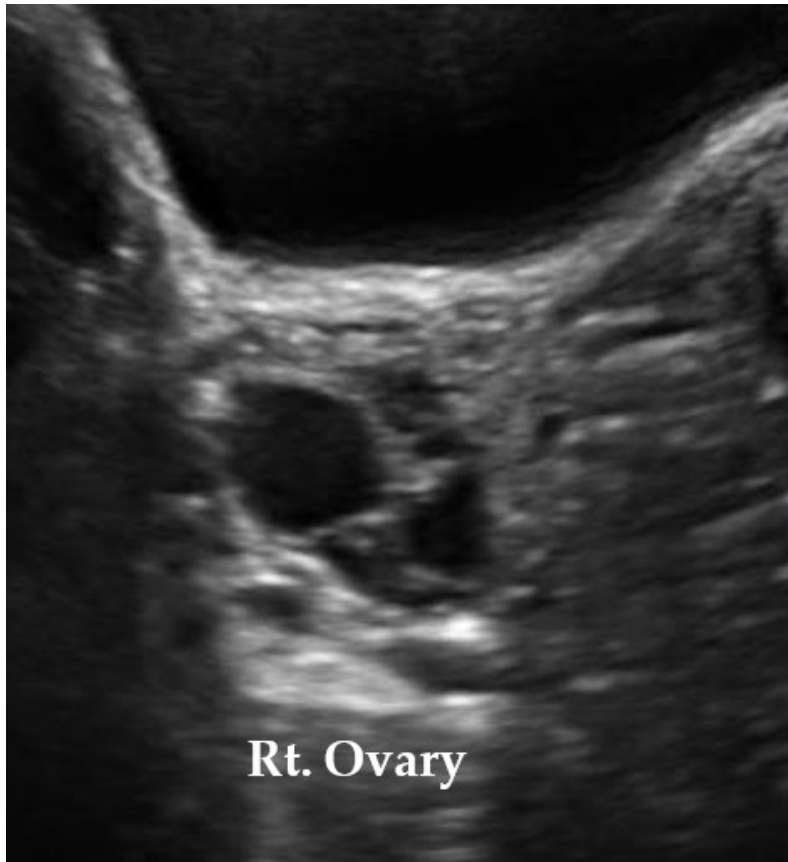
# Intrauterine Contraceptive Device

- TV ultrasound of the same patient showing IUCD tines in an axial section of the upper cervix, and the corresponding rendered 3D image demonstrating embedded tines.



# Ovaries

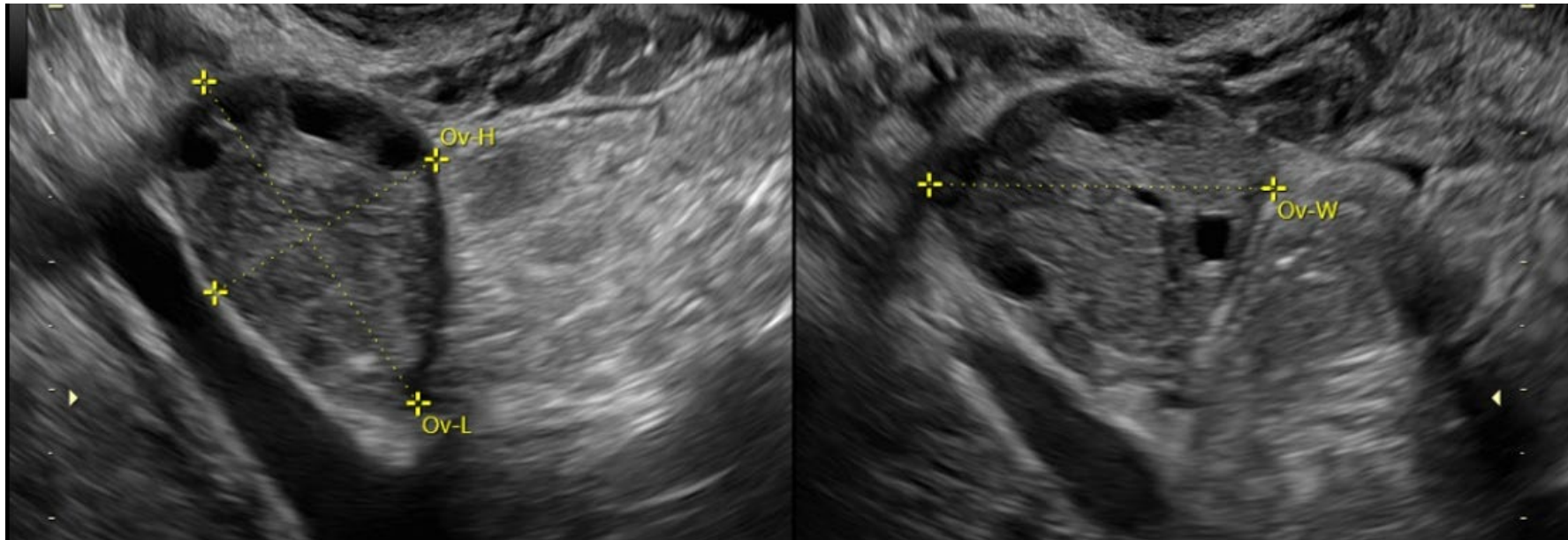
- TA ultrasound through a slightly distended bladder showing normal ovaries.





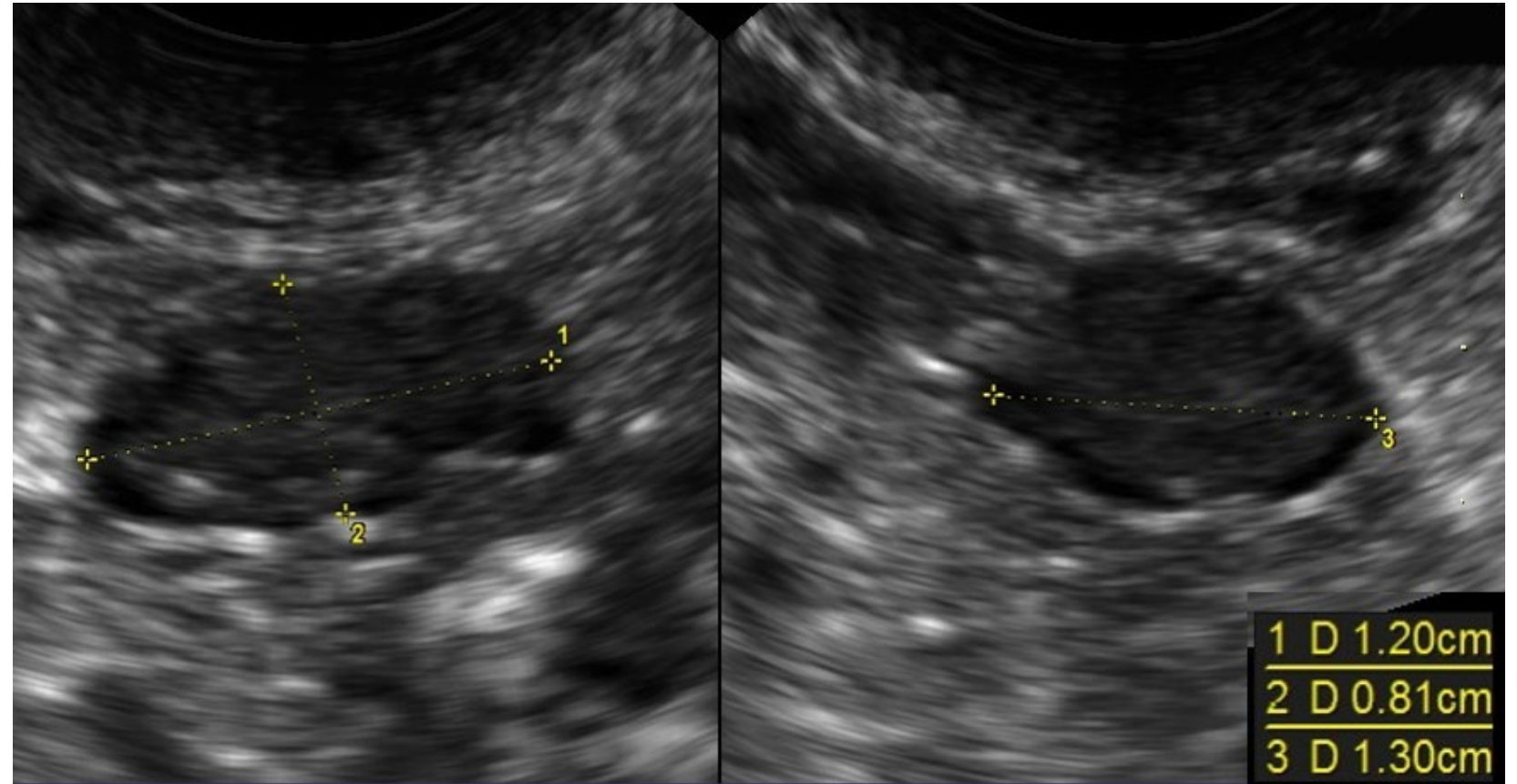
# Ovaries

- Normal left ovary measured in three orthogonal planes.



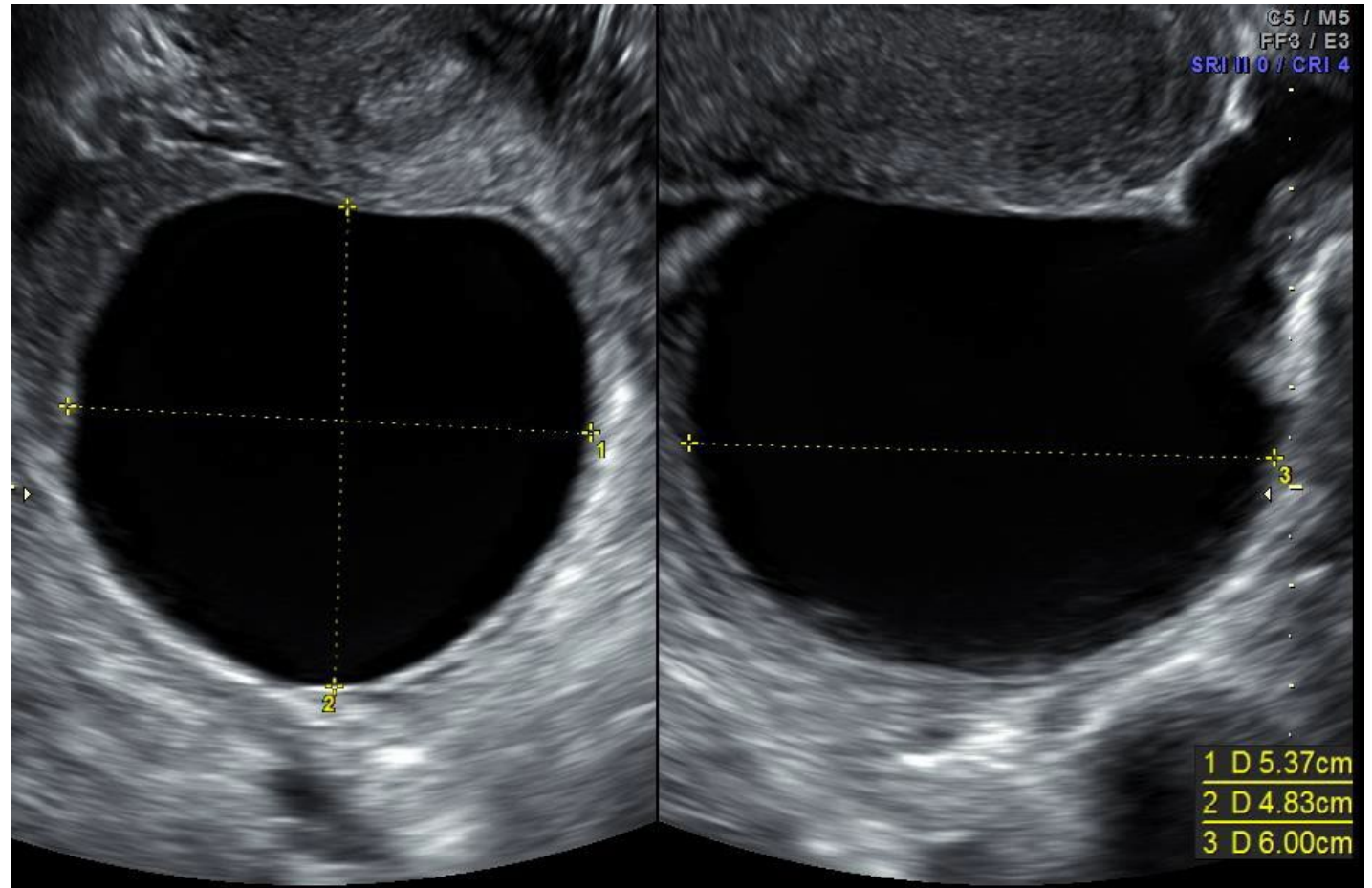
# Ovaries

- Normal ovary in a postmenopausal patient. Ovary measured in three orthogonal planes.



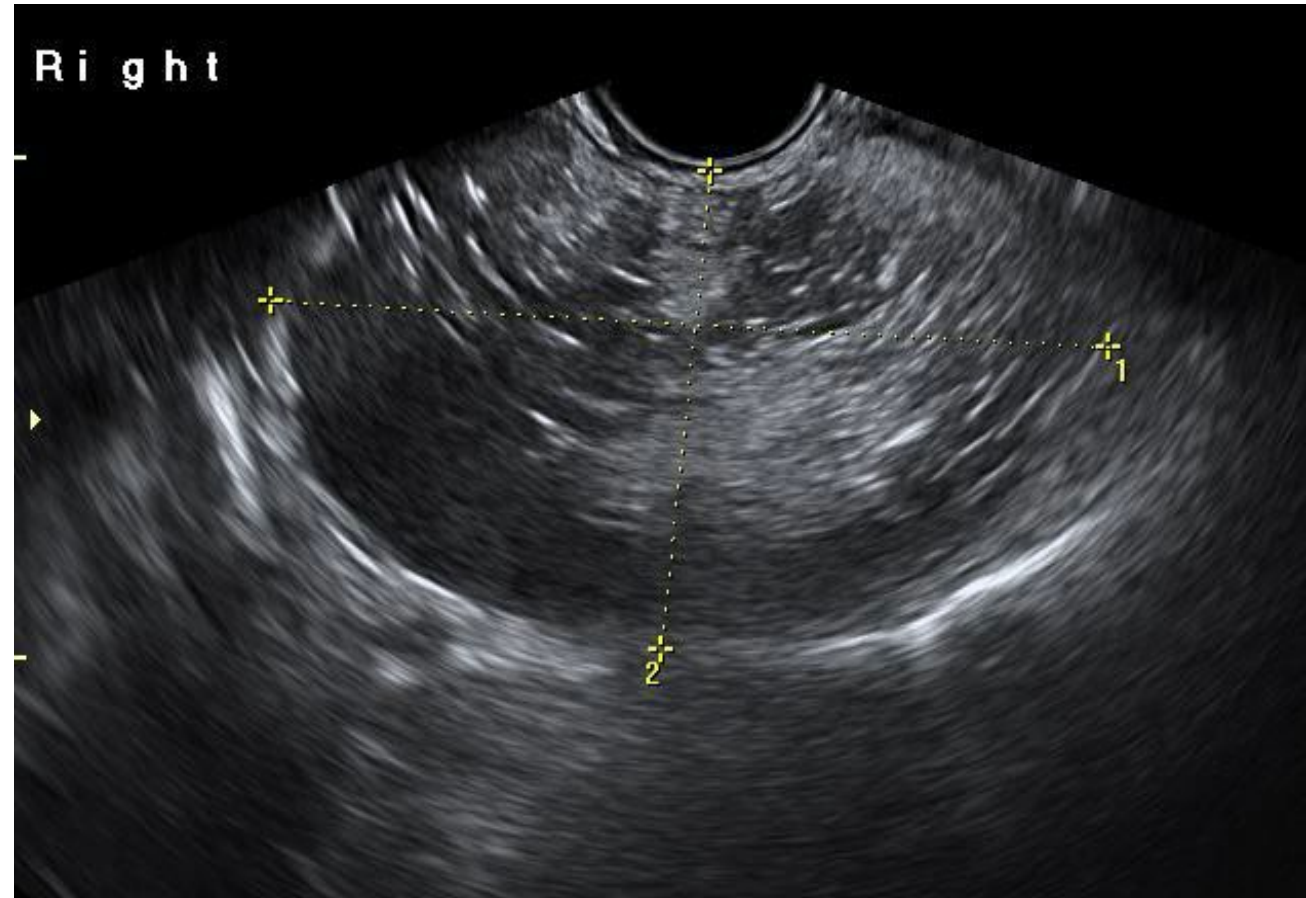
# Ovaries

- TV ultrasound demonstrating the measurement of a follicle in three orthogonal planes.



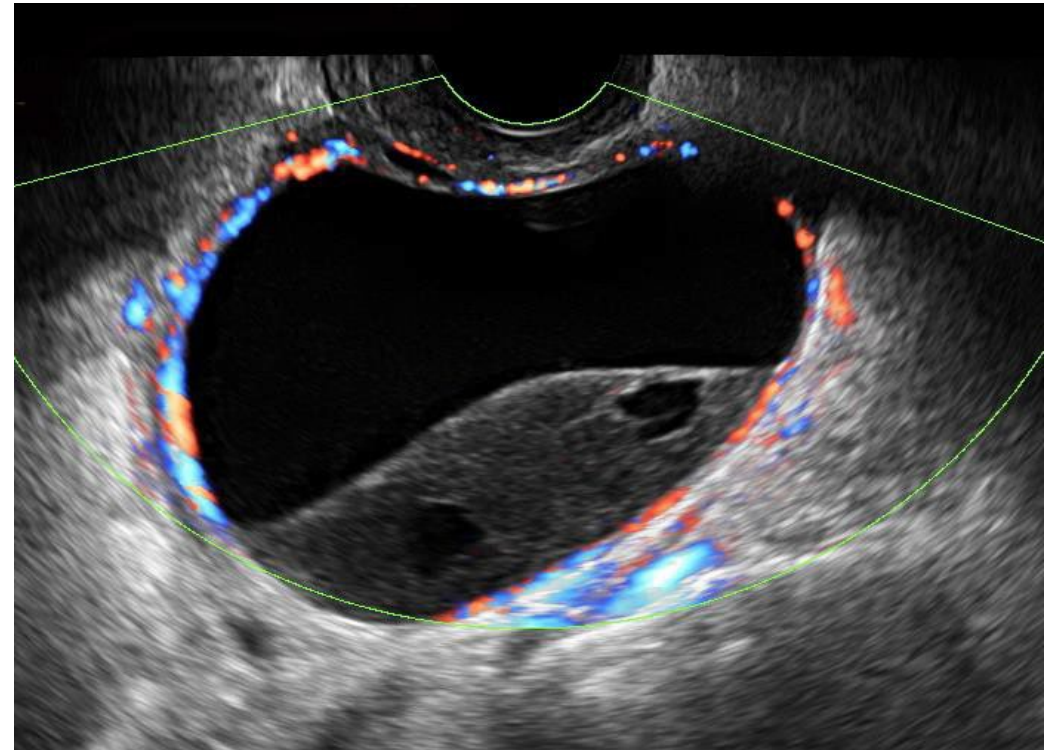
# Ovaries

- Echogenic mass in the right ovary with strandy echoes characteristic of a dermoid cyst. The strandy echoes represent hair.



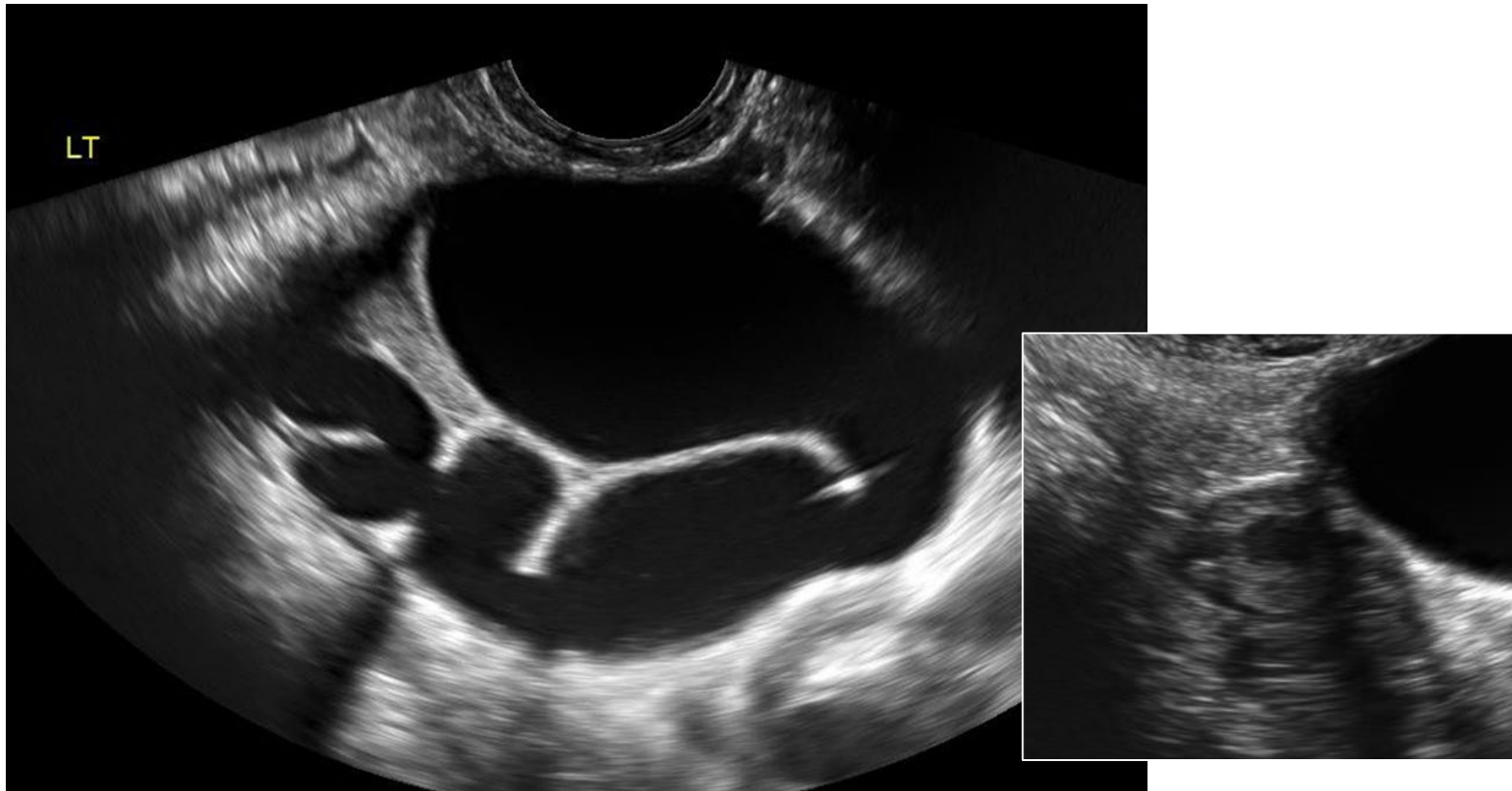
# Ovaries

- Cyst with strandy layered echoes and a smooth contour characteristic of a hemorrhagic cyst. Note the circumferential color flow with no flow to the internal echoes.



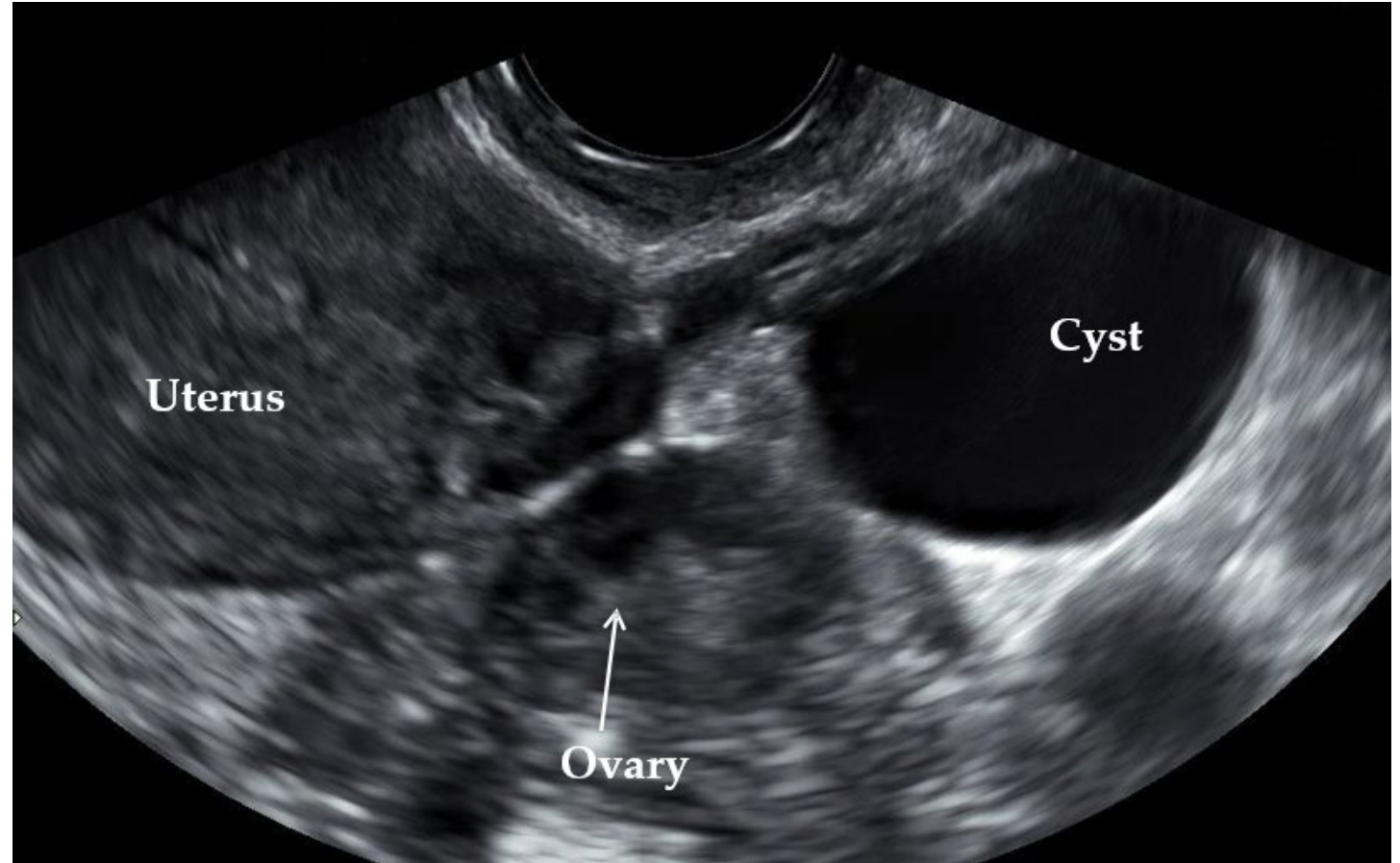
# Adnexa- Hydrosalpinx

- Left tubular fluid collection with incomplete septations characteristic of a hydrosalpinx. The normal left ovary is shown within the boxed image.

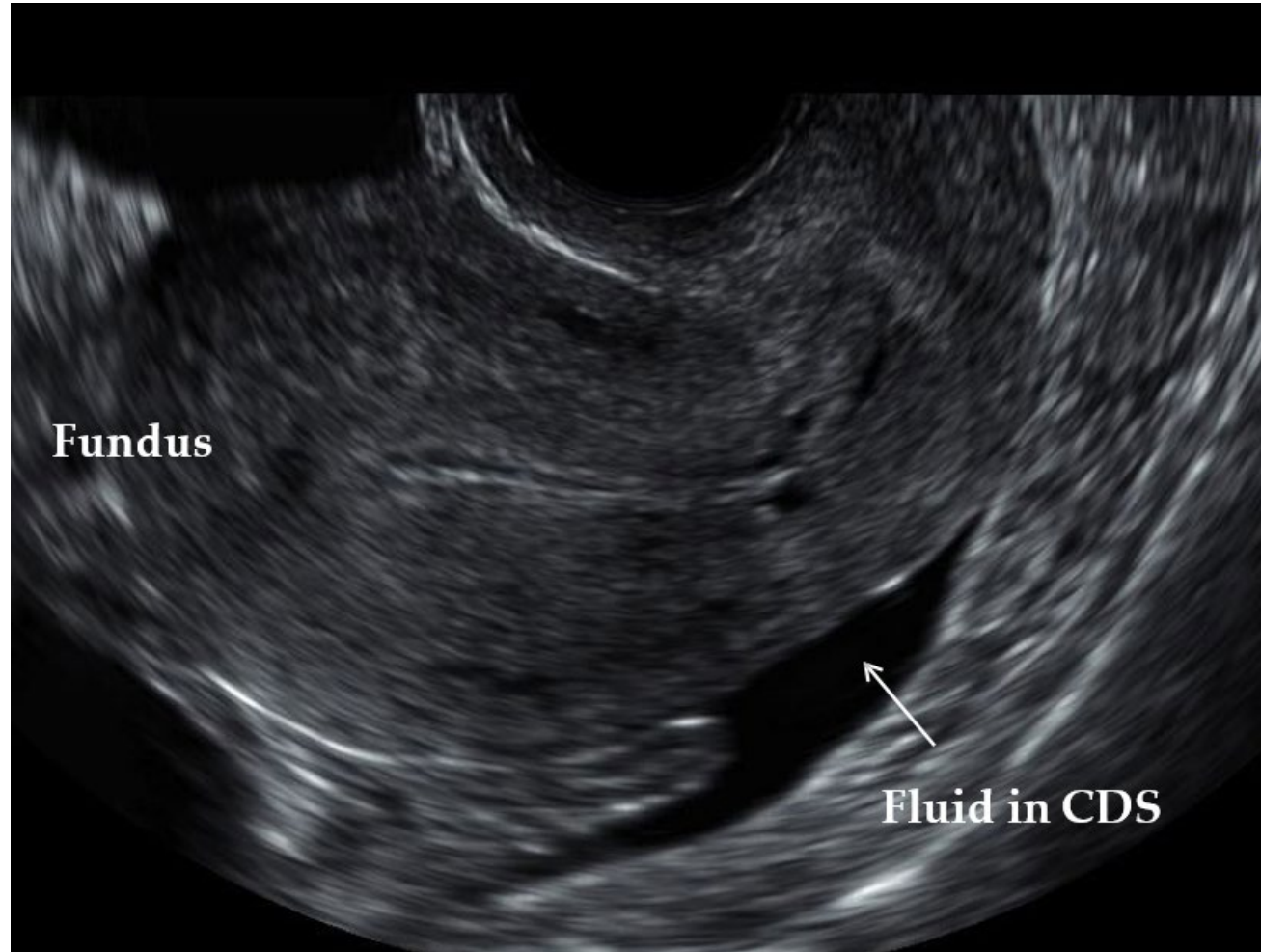


# Adnexa- Para-Ovarian Cyst

- Left para-ovarian cyst. Note the adjacent normal ovary (arrow) and uterine fundus.



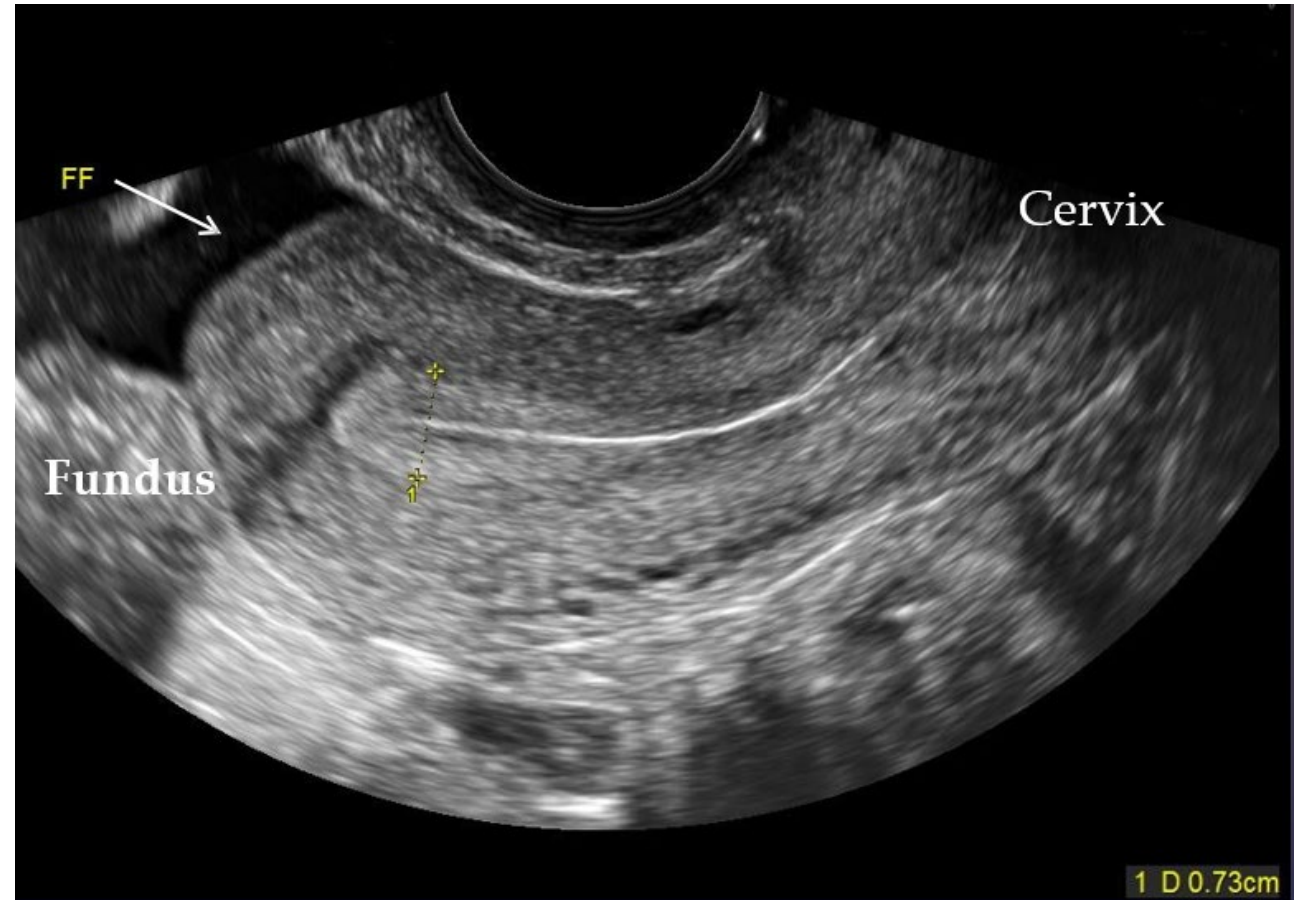
# Cul-de-Sac





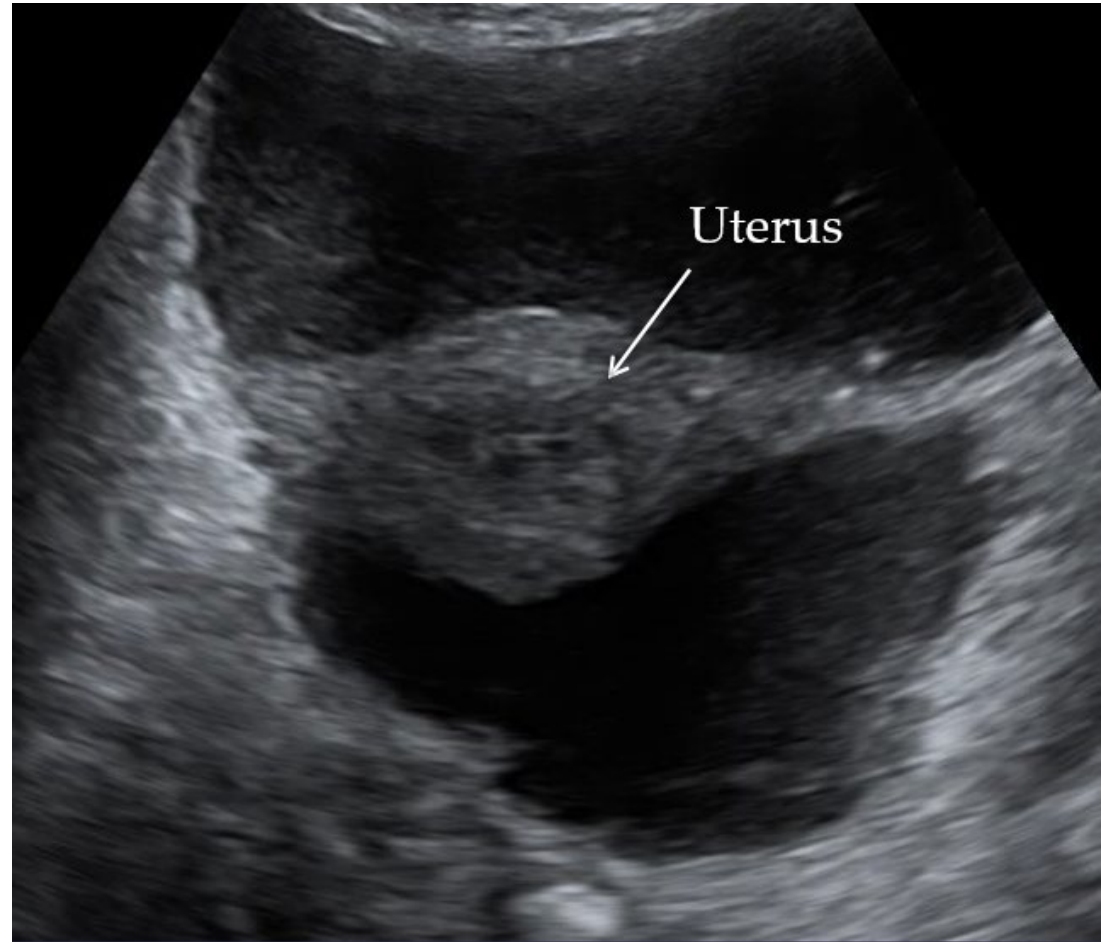
# Free Fluid

- TV sagittal view of the uterus in the luteal phase showing a small amount of free fluid adjacent to the fundus.



# Free Fluid-Ascites

- TA view of a uterus surrounded by ascites in a patient with peritoneal carcinomatosis.



A transrectal or transperineal approach may be useful in patients who are not candidates for introduction of a vaginal probe

- Transrectal sagittal view of the uterus in a patient where the vaginal probe could not be introduced.

