

# The Normal Pelvis

## (Everything you need to know and more!)

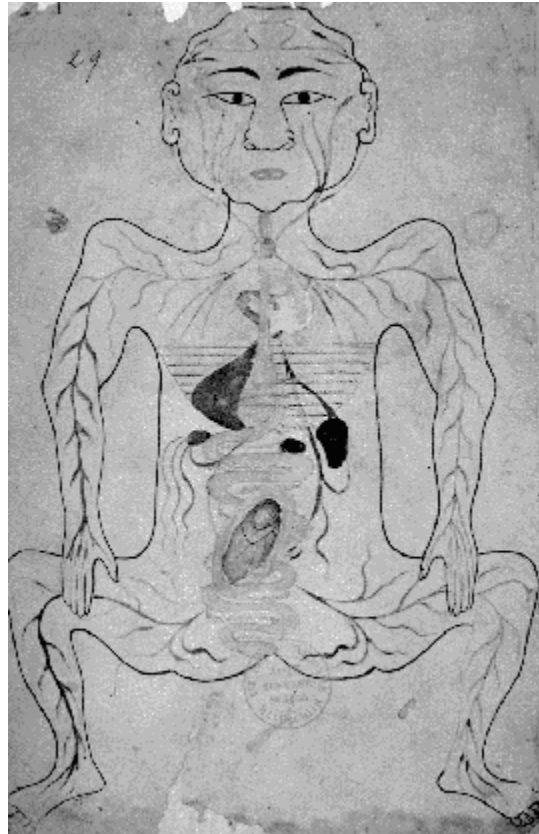


**Catherine Kirkpatrick**  
**Consultant Sonographer**  
**ULHT**

# Aims

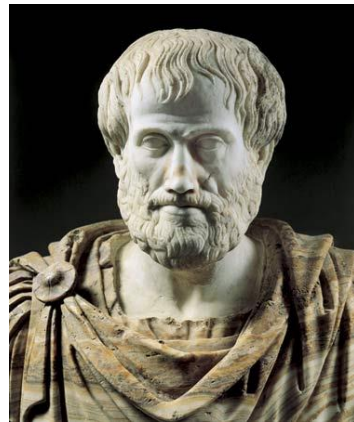
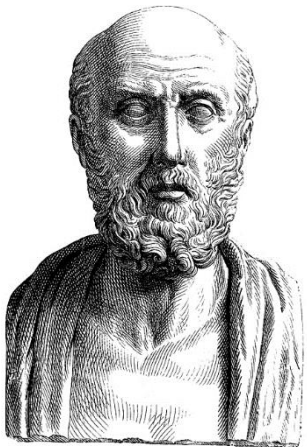
- A brief history of time!
- What you need to know before you pick up the probe
- Ultrasound Anatomy
- Normal physiological changes (!)

# A brief history of the female condition



# A brief history of the female condition

- Hippocrates 400 (ish) BC
- Aristotle 330 (ish) BC
- Galen 175 (ish) AD



# Patient History

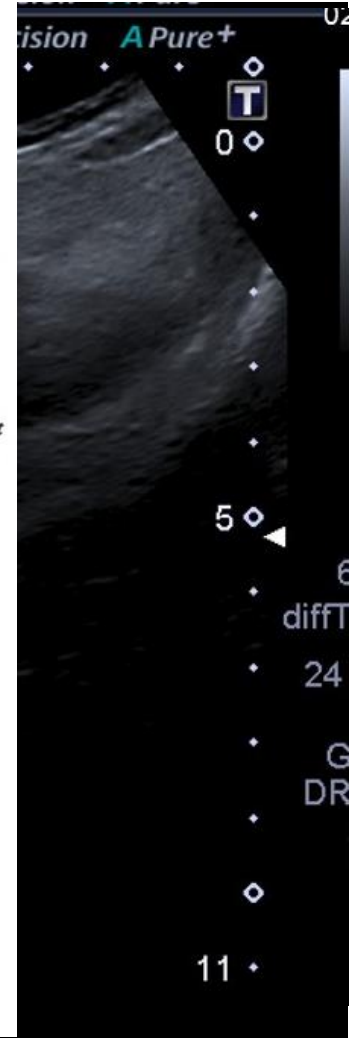
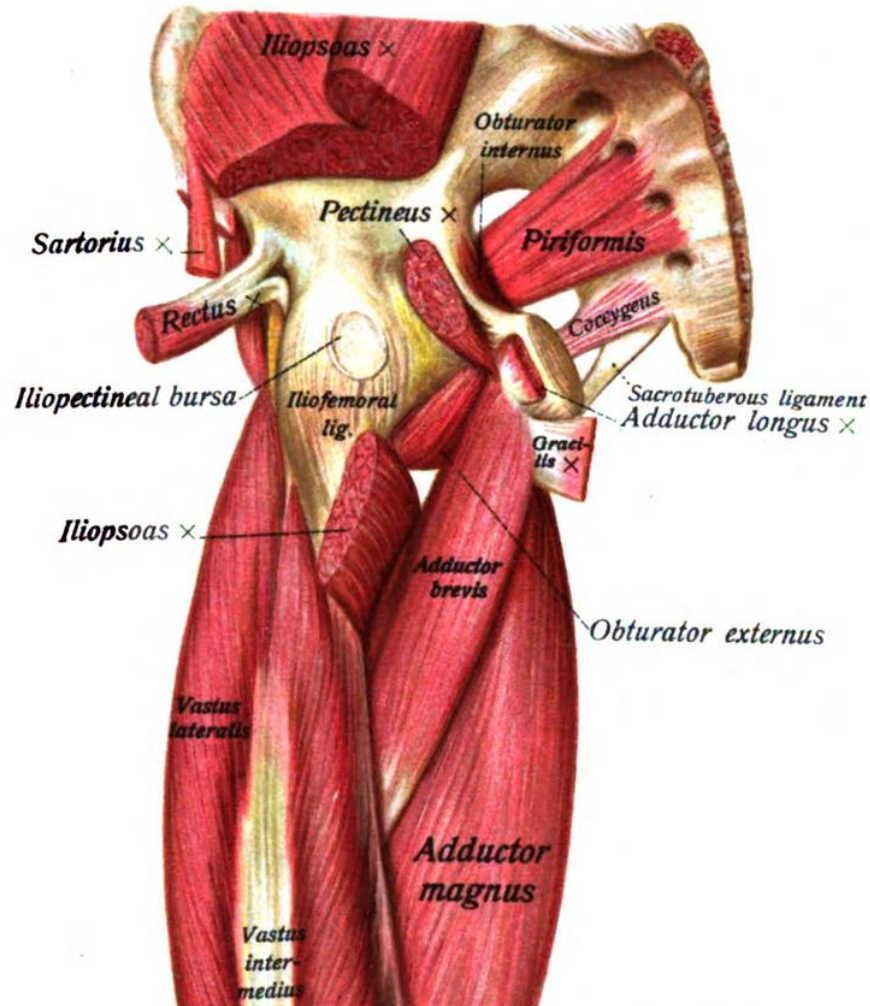
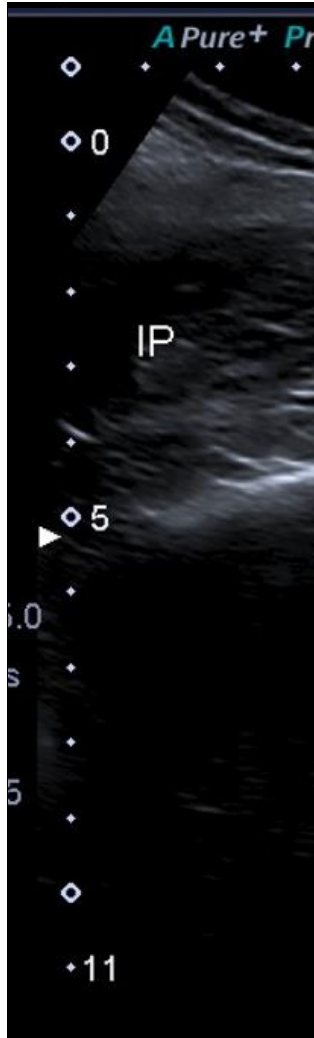
- Clinical Question/Information on the request card
- Return poor requests and ask for more clinical history
- Standard History taking from the patient



# Musculature of the Pelvis

- Support the pelvic viscera
- Parturition
- 4 muscle pairs
  - Levator ani (between the ischial spines)
  - Coccygeus
  - Piriformis
  - Obturator internus (lateral wall of each side of the pelvis inserting into the greater trochanter)

# Musculature of the Pelvis

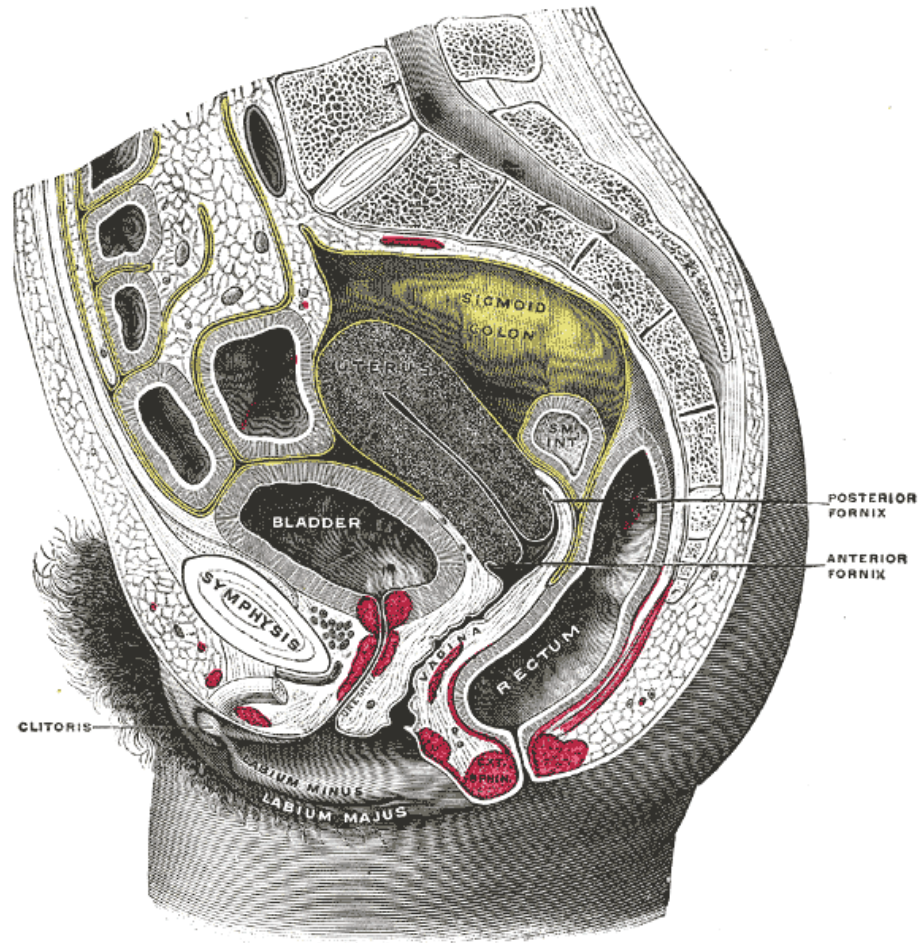


# Peritoneum

- Surrounds the body of the uterus
- Forms “pouches” anteriorly and posteriorly
- Anterior recess – Vesico-uterine fossa
- Posterior recess – Recto-uterine fossa/POD
- Broad ligaments – are double folds of peritoneum
- Round ligaments – are fibromuscular not extensions of the peritoneum



# Anatomy



# Vagina

- Vagina
  - Muscular structure
  - Internal rugae
  - Vaginal arteries branches of the internal iliac arteries
  - Upper portion contiguous with the uterine cervix, dividing into the fornices
  - Remember it can be long ! 8-9 cms

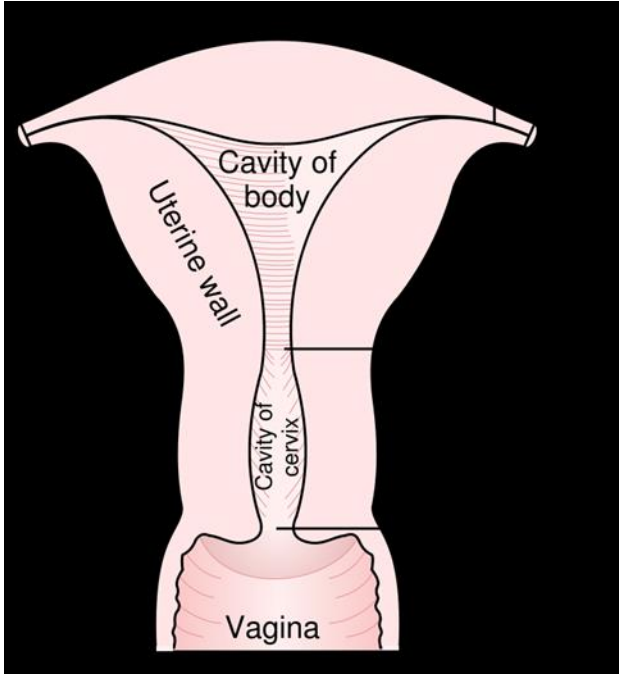
# Vagina



# Cervix

- Cervix Uteri
- 2-3 cms
- Connects the uterus and the vagina
- Internal and External Os

# Cervix





# Uterus

Anteverted



Axial/Mid



Anteflexed



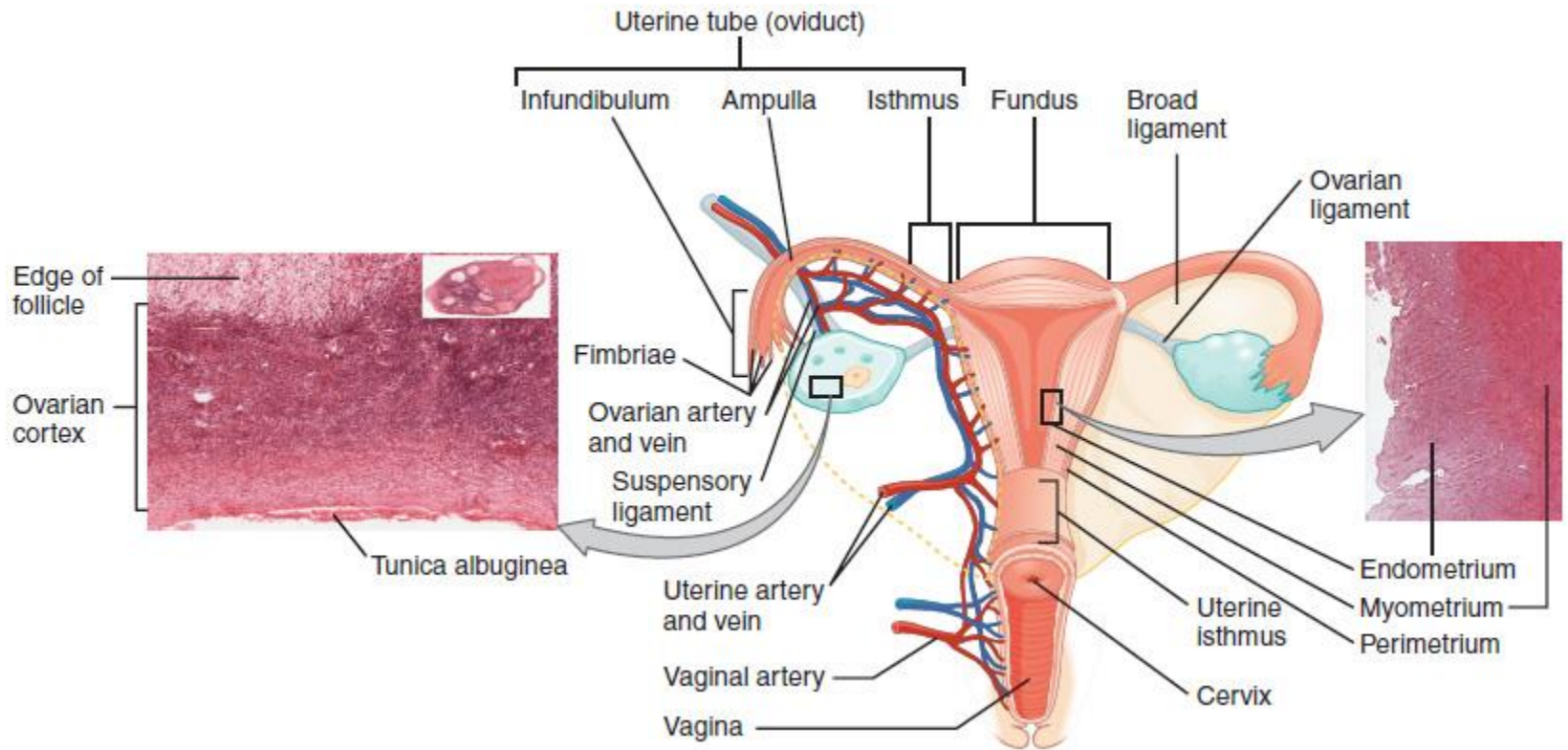
Retroflexed



Retroverted



# Uterus



# Uterus

- 3 layers
  - Parametrium
  - Myometrium
  - Endometrium

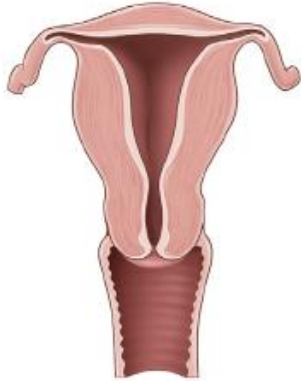
# Uterus



# Uterus

## Congenital Müllerian Anomalies

Normal uterus



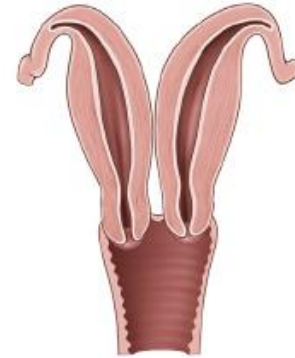
Class I: Uterine hypoplasia and/or agenesis



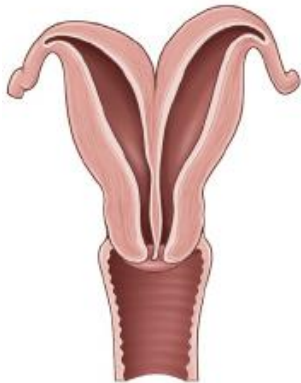
Class II: Unicornuate uterus



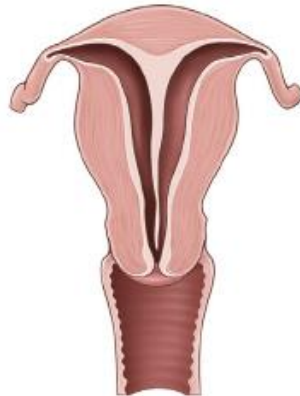
Class III: Uterus didelphys



Class IV: Bicornuate uterus



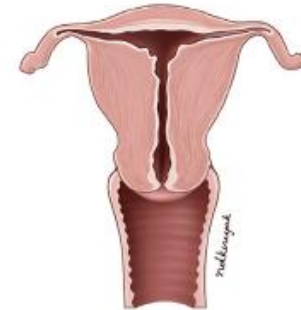
Class V: Septate uterus



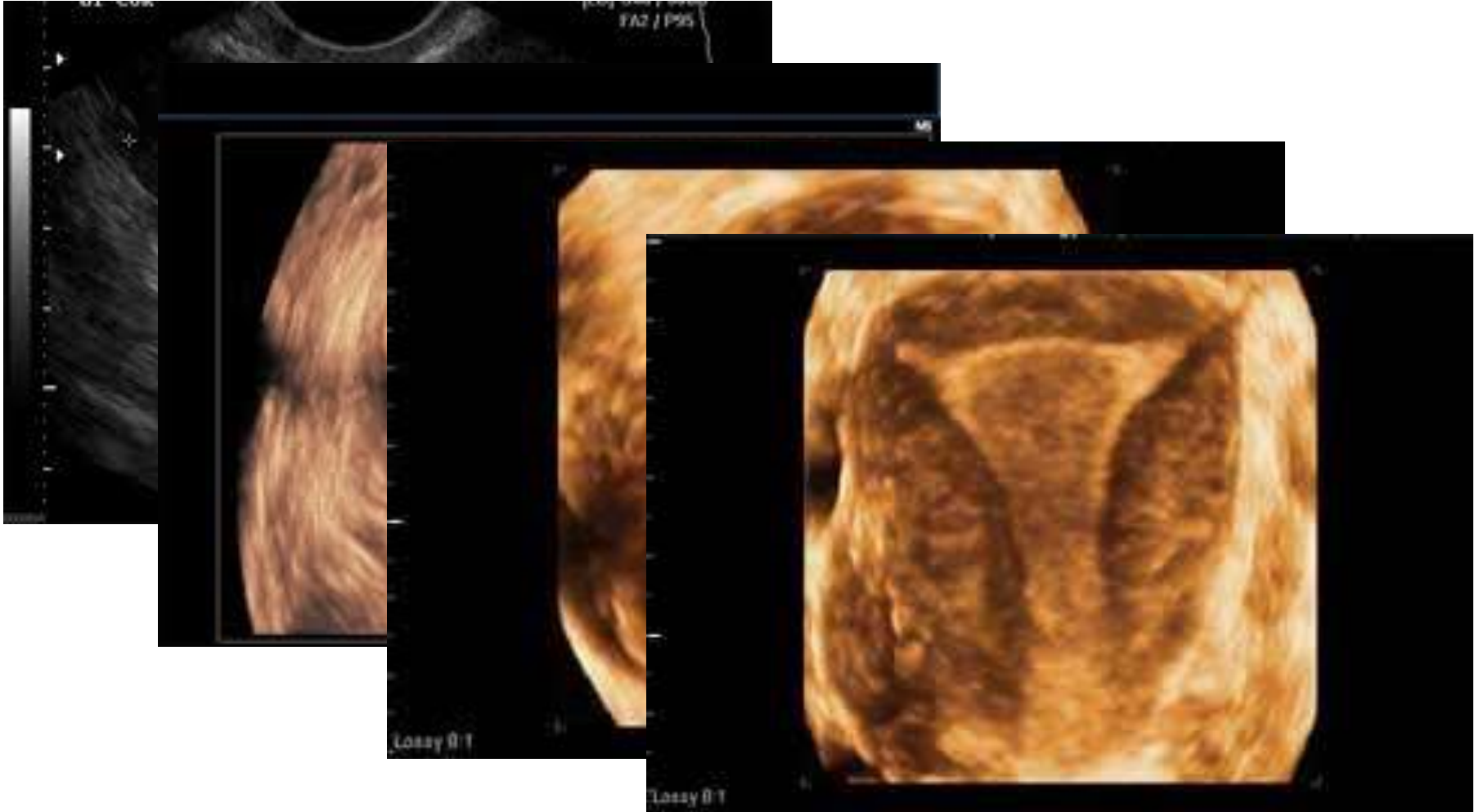
Class VI: Arcuate uterus



Class VII: Diethylstilbestrol (DES) drug related



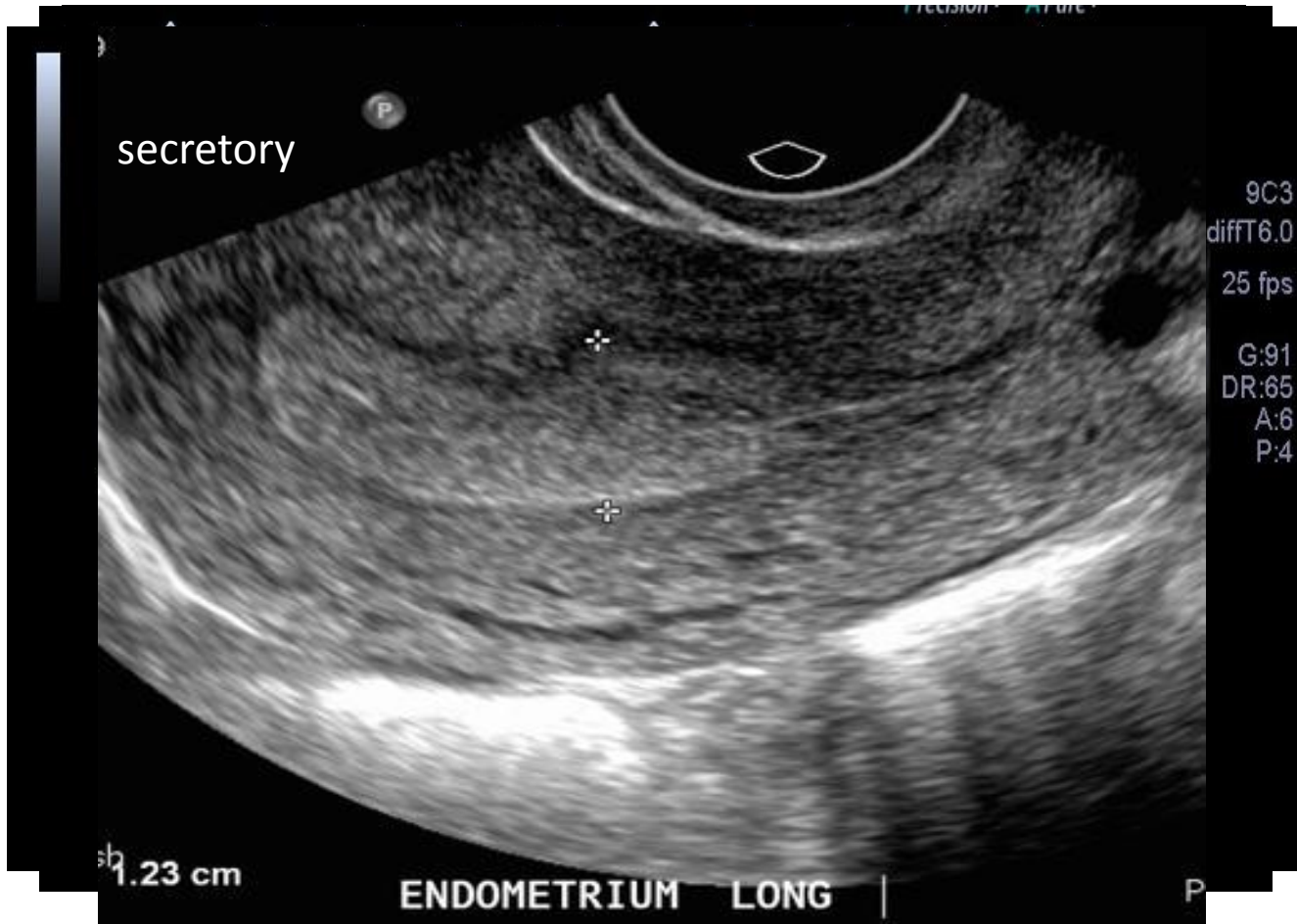
# Uterus



# Endometrium

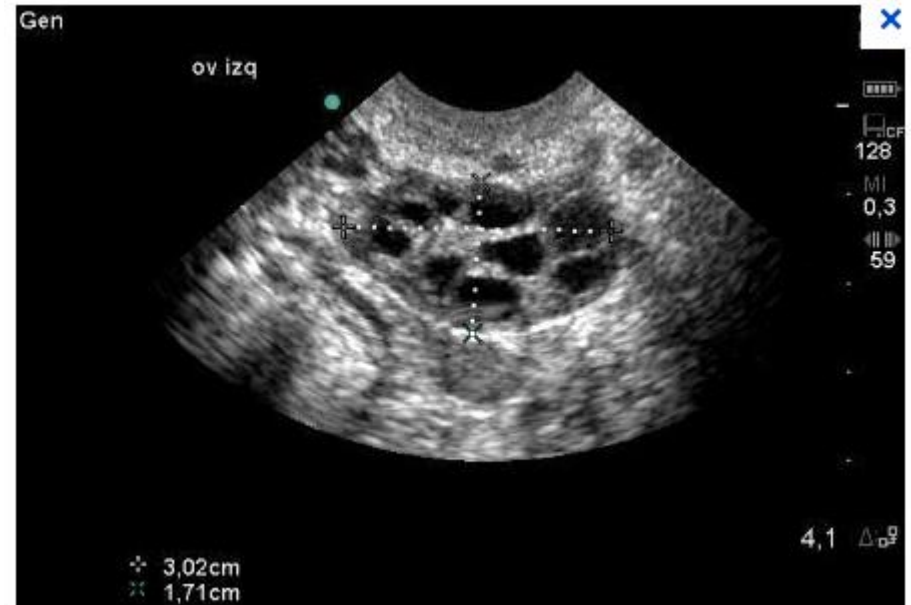
- Menstruation – Day 1-4 . Fluid/blood/Mucus can be seen within the endometrial cavity
- Regenerative/Early Proliferative – Day 5-8. Thin reflective line (ovaries several immature follicles seen)
- Late Proliferative – Day 9-12. Thickening and increasing hyperechoic (Dominant follicle starts to develop)
- Peri-ovulatory/Ovulatory – Day 12-15 hypoechoic with a hyperechoic rim, “triple line sign” (cumulus oophorus seen in dominant follicle)
- Secretory – Day 16- Menstruation. Irregular and hyperechoic (early secretory – corpus luteum/late secretory regression)

# Endometrium

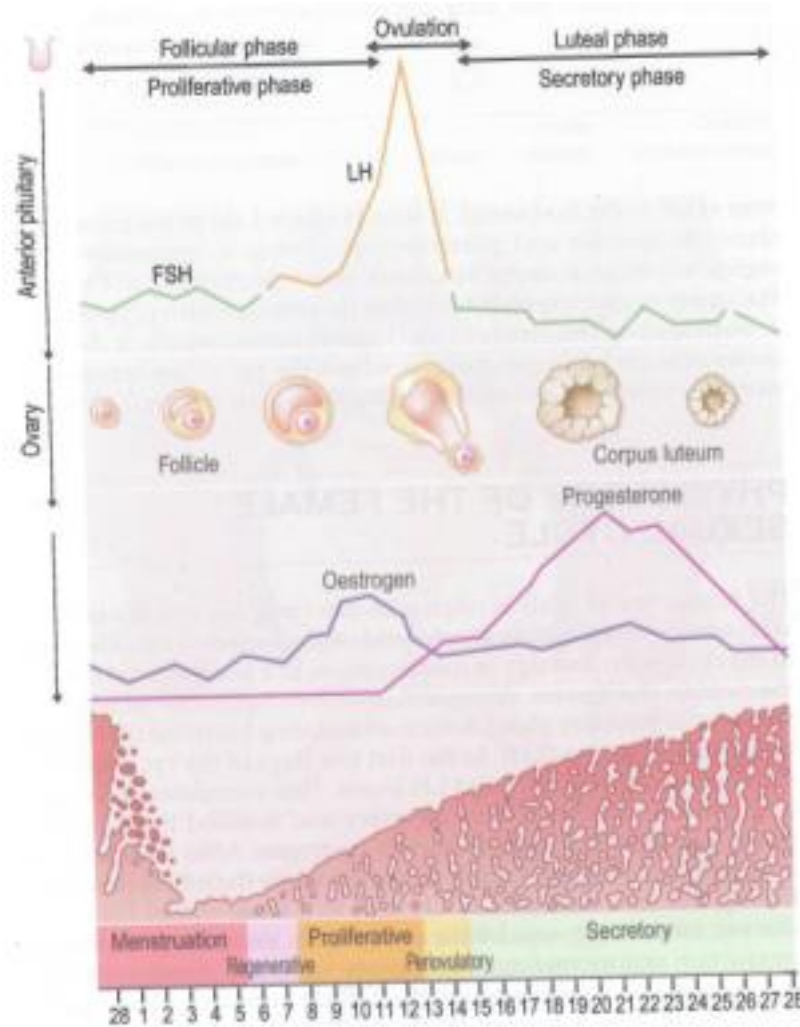


# Ovaries

- Posterior and lateral to the uterus
- Usually oval in shape and the size of a walnut
- Medulla and stroma



# Hormone Regulation



Taken from Clinical Ultrasound, 2011, adapted from J Bates 1997.

# Ovaries





# Conclusion

- Anatomy and Physiology are the key to knowledge
- Essential to a useful , accurate clinical radiology report
- Basis to allow progression into advanced techniques



BMUS   
**Ultrasound 2017**  
6 - 8th December 2017  
Cheltenham Racecourse



# References

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