The Normal Pelvis
(Everything you need to know and more!)

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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

- Iliopsoas
- Pectineus
- Piriformis
- Sartorius
- Obturator internus
- Coayagus
- Iliopsoas bursa
- Iliofemoral lig.
- Iliopsoas lig.
- Adductor brevis
- Adductor longus
- Adductor magnus
- Obturator externus
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

- Pear-shaped organ
- Anterior to the rectum and posterior to the urinary bladder
- 4 parts: Fundus, corpus, isthmus, cervix
- 7 cm (length) x 4 cm (width) x 3 cm (AP/depth)
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: Unicorne 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

secretory
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
WE'RE GONNA SIT HERE, AND DRINK BEER

UNTIL WE UNDERSTAND WOMEN!
Conclusion

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

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