ISUOG Basic Training

Making a Decision – Normal or Not?

Learning objectives

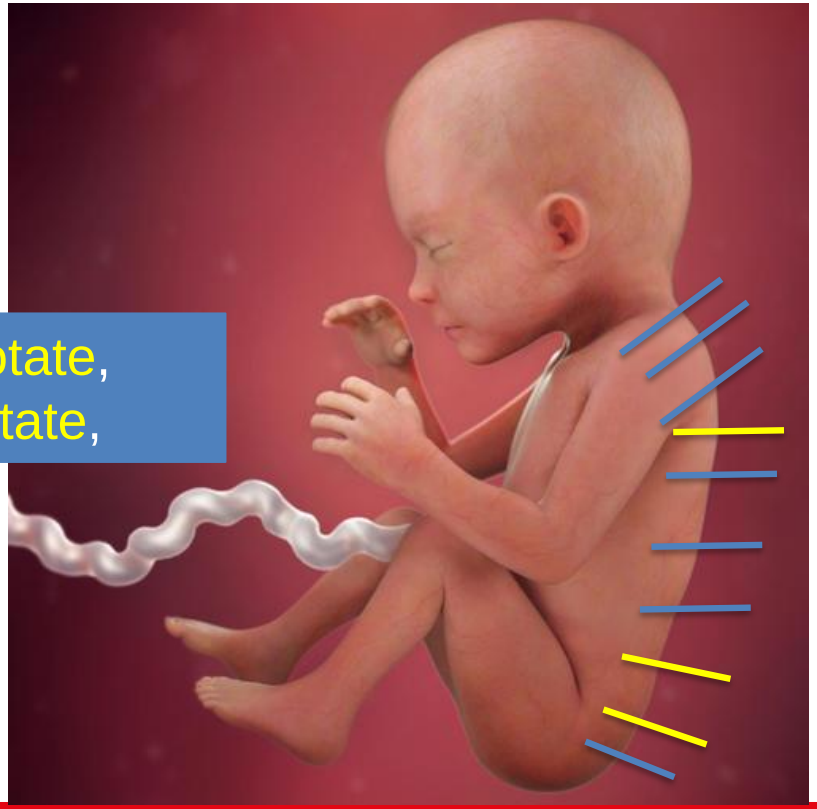
At the end of the lecture you will be able to:

- Describe how to perform a transverse overview/sweep of the fetal body from neck to sacrum

- Recognise the differences between the normal & most common abnormal ultrasound appearances that can be excluded by the transverse overview/sweep

Transverse sweep – overview 2

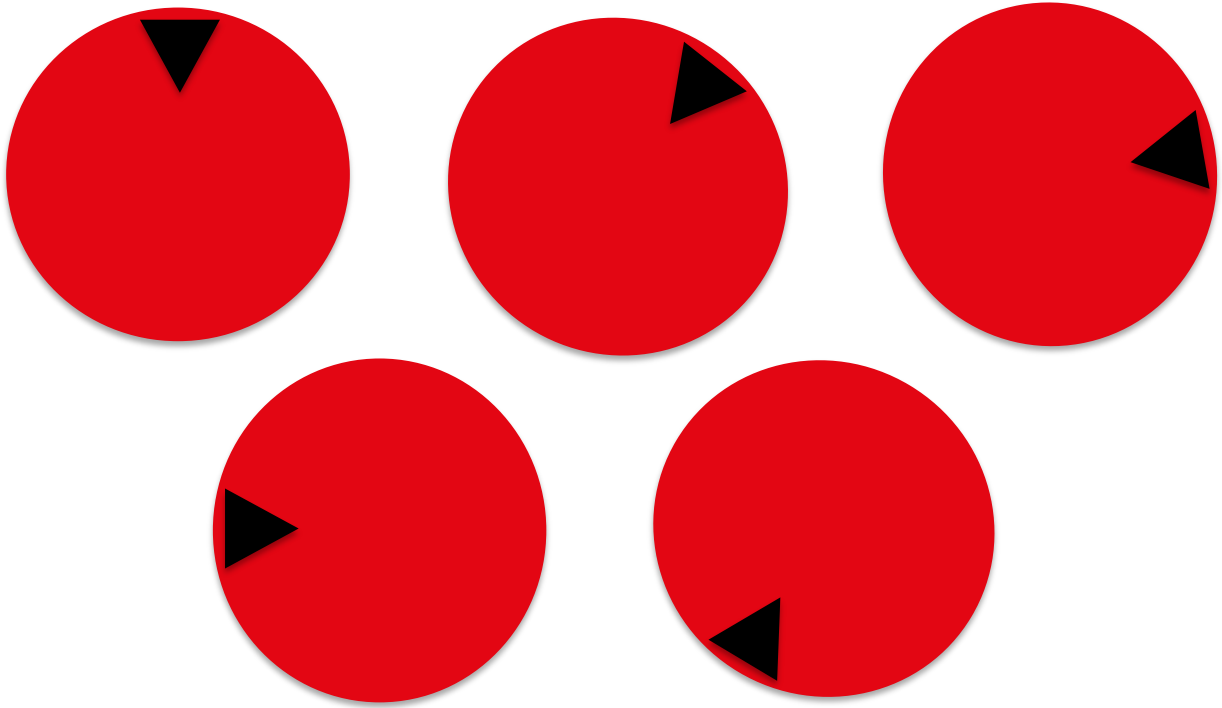
- Transverse Sweep from Neck to Sacrum
- Full assessment of thorax, abdomen and pelvis
- Visualization of the vertebrae
- Anatomical landmarks



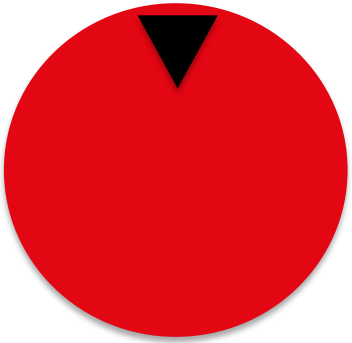
Key questions

- What probe movements are required to perform a transverse overview/sweep of the fetal body correctly?
- Which parts of the fetal anatomy are best assessed using this overview/sweep?
- What are the key ultrasound features that distinguish between the correct & the incorrect view of a vertebra in cross section
- Which abnormalities should be excluded after performing a transverse overview/sweep correctly?

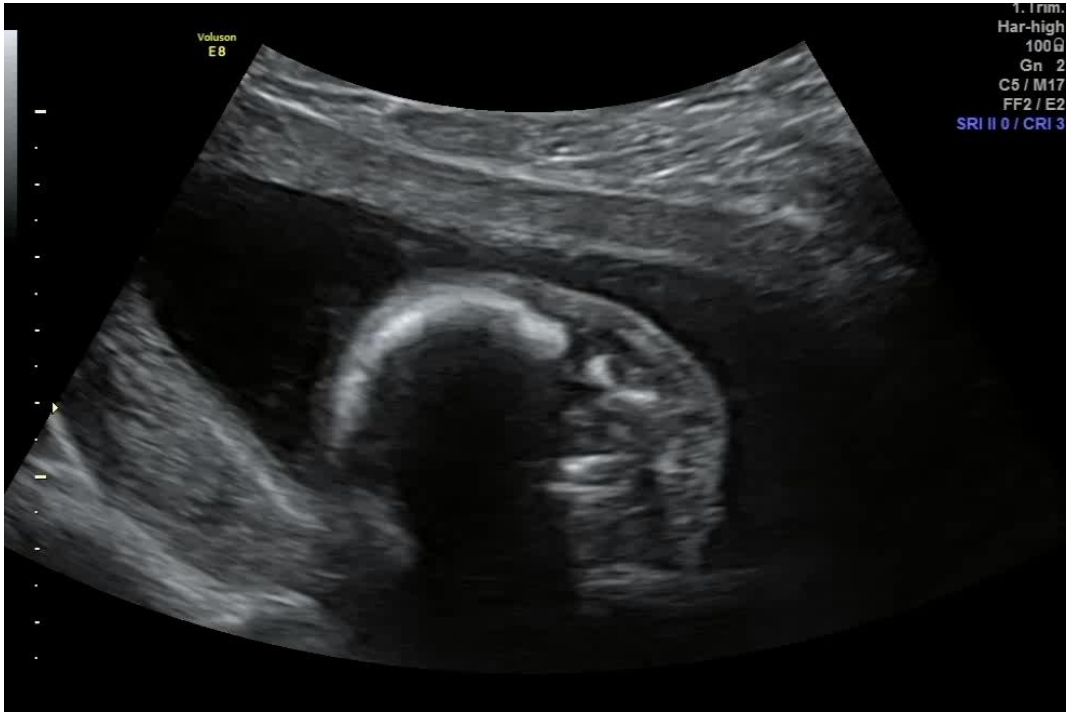
Transverse sweep – overview 2



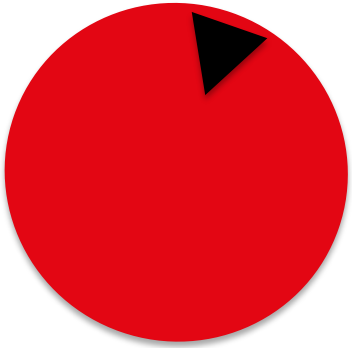
Transverse sweep- overview 2



Slide from the head down to the sacrum
Ideal position for spine however no fluid between spine and uterine wall

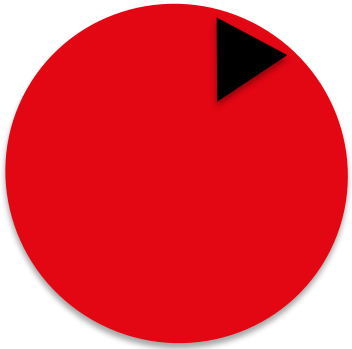


Transverse sweep- overview 2

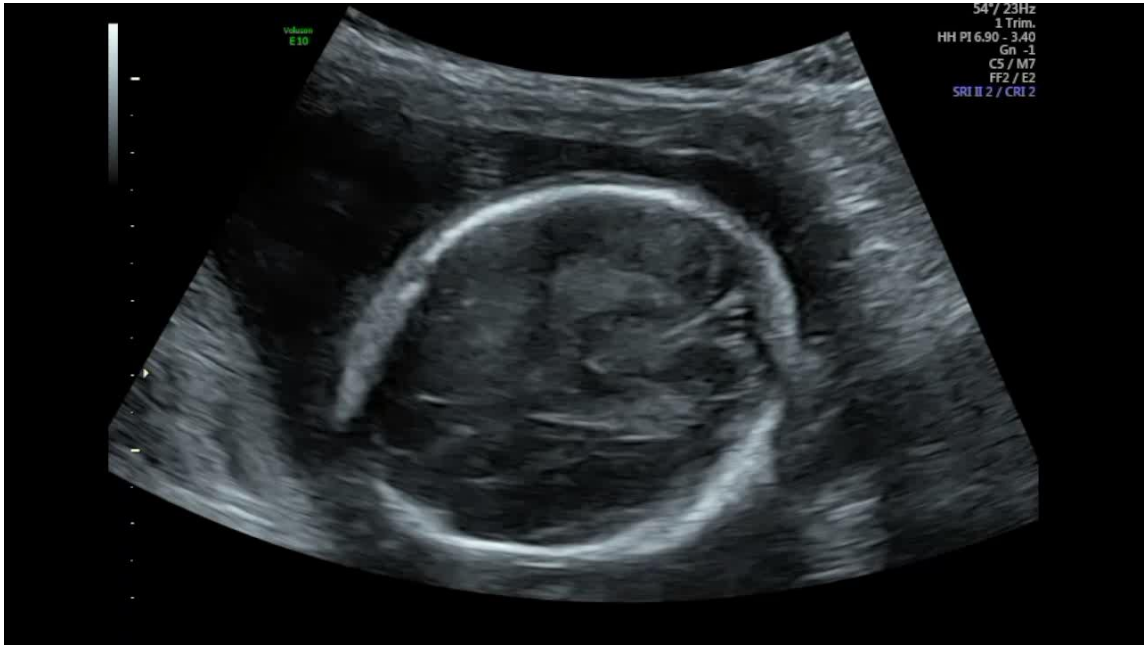


Ideal position for spine, but sparse fluid between spine and uterine wall

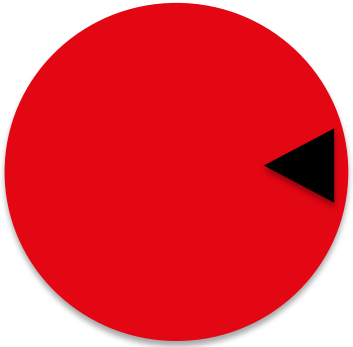
Transverse sweep- overview 2



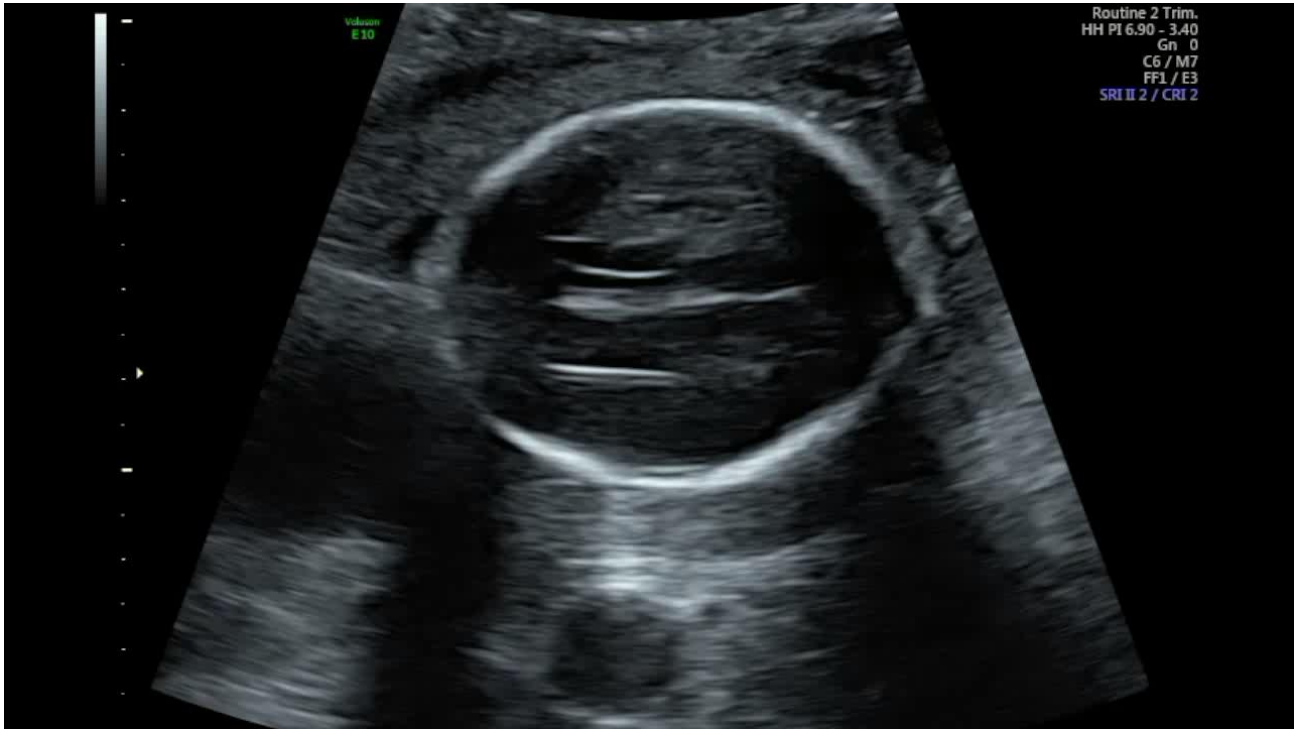
Good position for spine, and fluid between spine and uterine wall



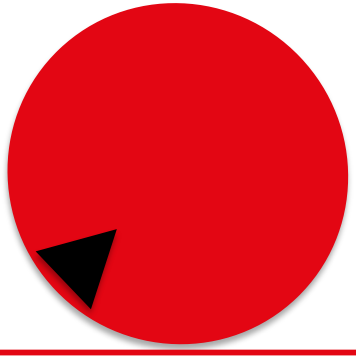
Transverse sweep- overview 2



Good position to observe spine thorax and abdominal structures

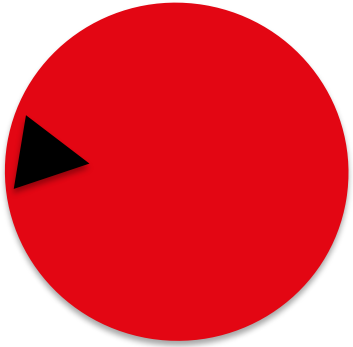


Transverse sweep- overview 2



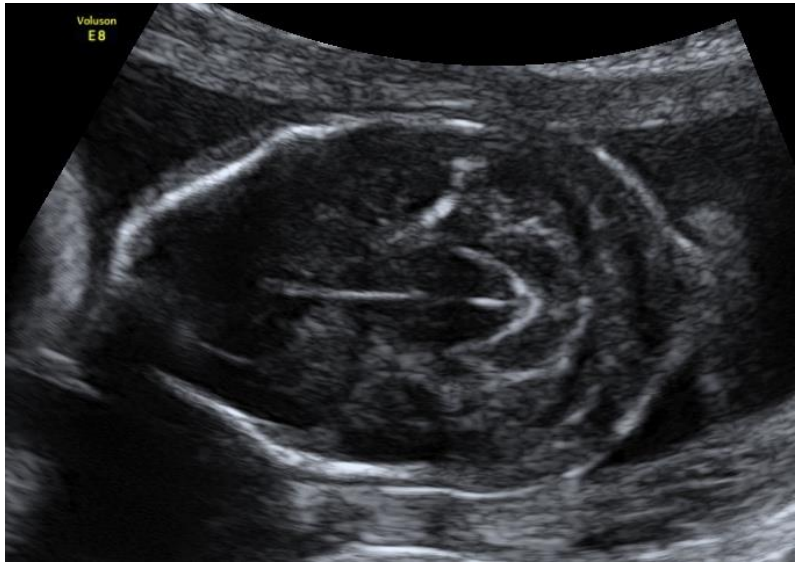
Poor visibility of the spine,
Good position to observe thorax and abdominal structures

Spina bifida



The vertebrae become U-shaped instead of their normal triangular form
Neural tissue is protruding

Spina bifida

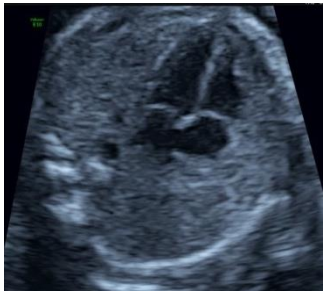
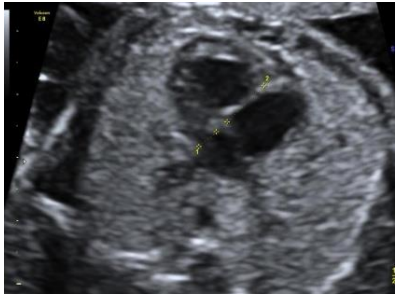
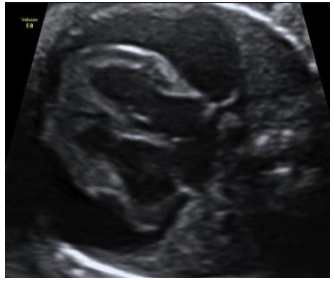


Confirm any anomaly in more than 1 plane

Transverse sweep- overview 2 thorax

What can you exclude:

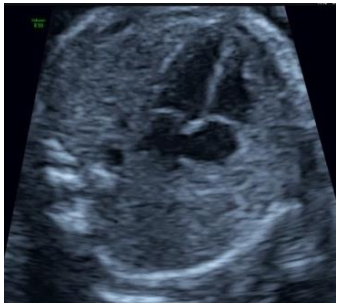
- Situs anomalies
- AVSD
- Univentricular heart
- Double aortic arch
- Right aortic arch
- Ectopia cordis
- Significant pericardial effusion > 4mm

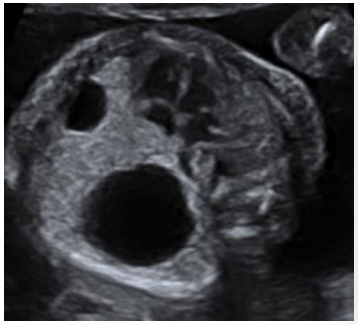




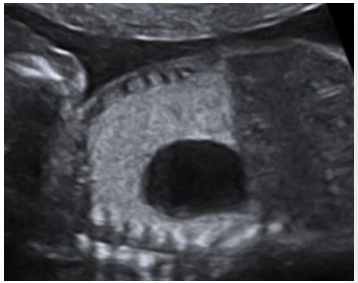
Transverse sweep- overview 2 thorax

What can you exclude

- CPAM
- Left sided diafragmatic hernia
- Significant pleural effusion >4mm
- Skin edema
- Spina bifida





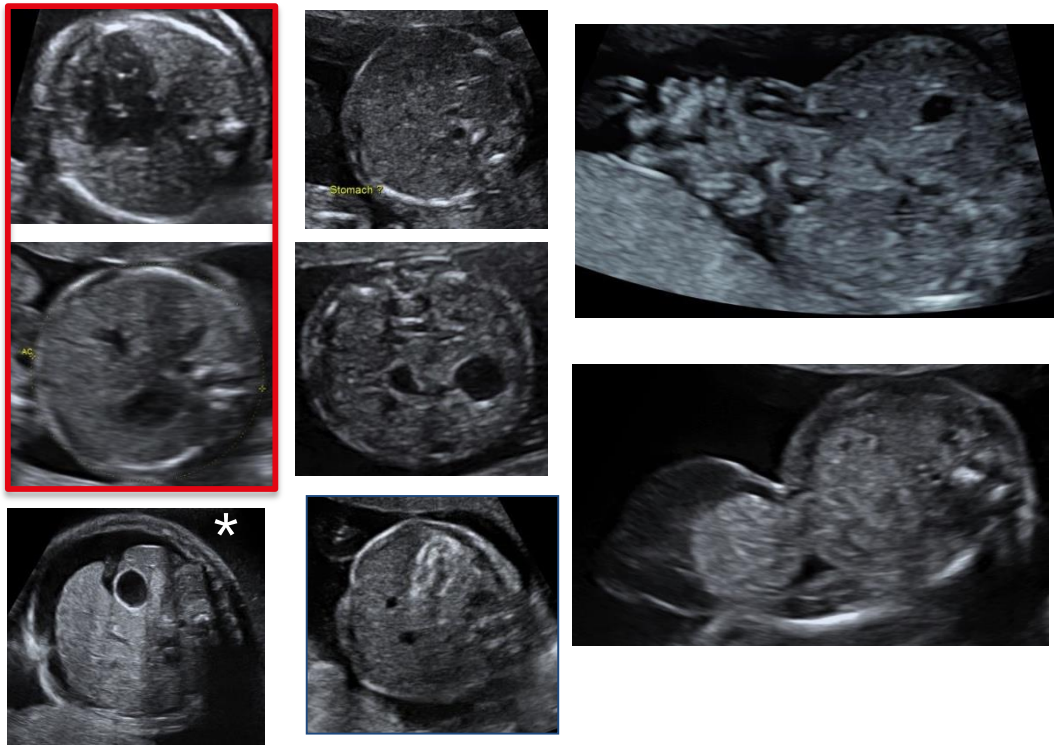


Confirm in 2 directions

Transverse sweep- overview 2 abdomen

What can you exclude:

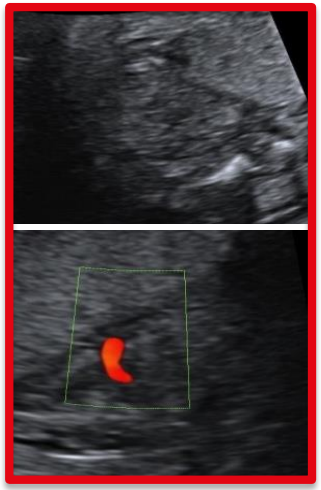
- Situs abnormalities
- Ascites
- Small/absent stomach
- Duodenal atresia
- Echogenic bowel*
- Gastroschisis / omphalocele

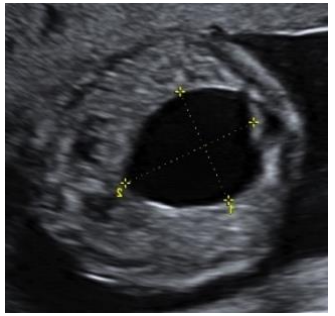


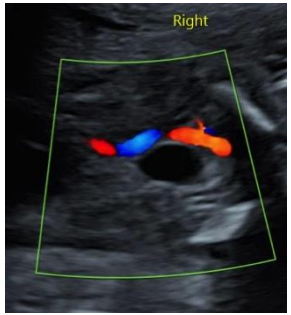
Transverse sweep- overview 2 abdomen

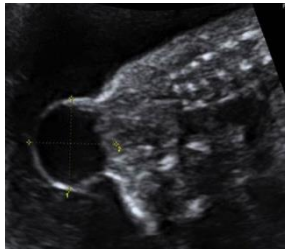
What can you exclude:

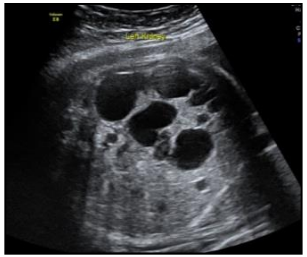
- Bilateral renal agenesis
- Cystic renal dysplasia
- Lower urinary tract obstruction
- Renal pelvis dilatation
- 2 vessel cord
- Sacrococcygeal teratoma









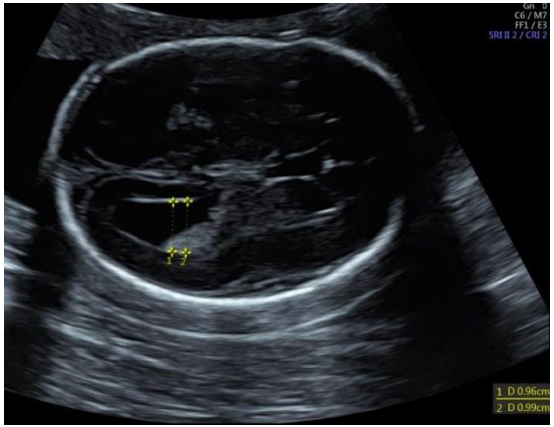


Making a decision

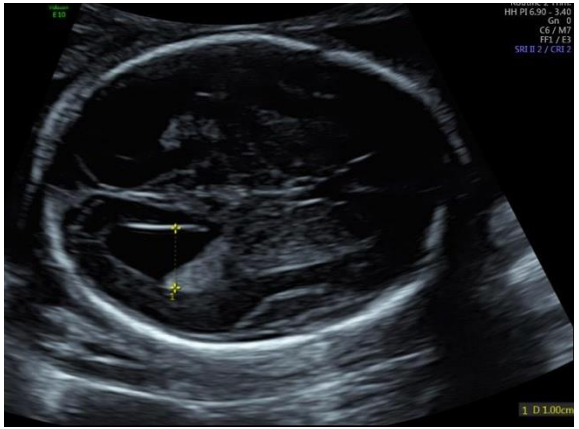
- When encountering a structure or measurement not compatible with normal views and biometry:
- Confirm in more than 1 plane
- Confirm measurement > 1 time – consider if in correct plane
- Continue to complete the ultrasound scan and assess whether the abnormal structure / measurement can be reproduced
- Share with parents your concern the fetus may not be normal only when the scan is finished
- Request opinion of supervisor

Making a decision

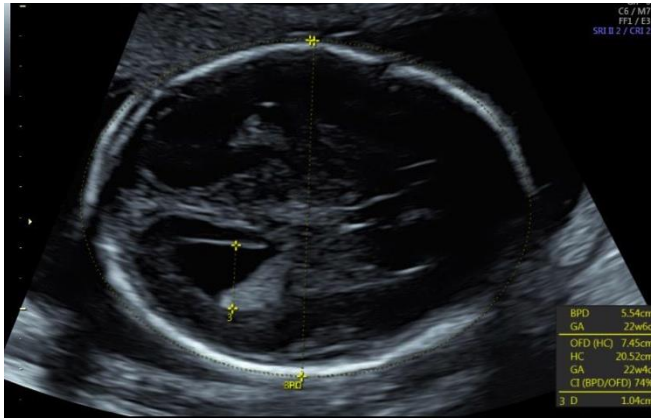
- Is this ventricle > 10 mm



9.6 -9.9 mm



10 mm

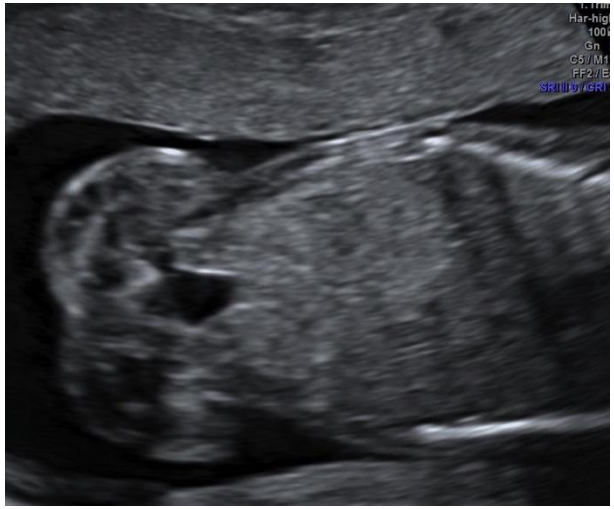


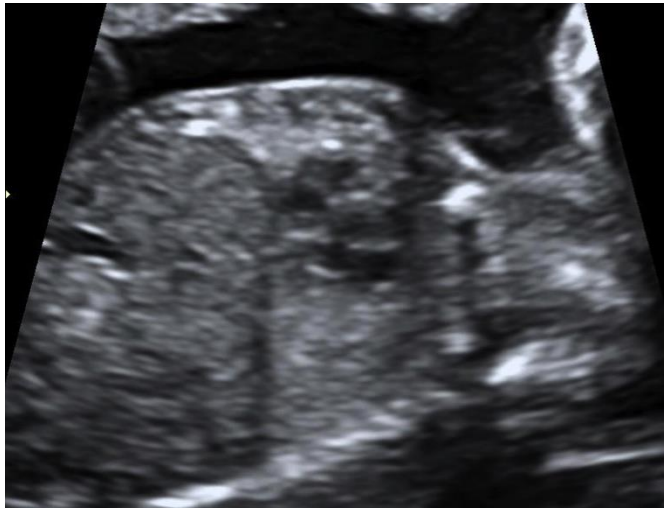
10.4 mm

Making a decision

- Is the stomach absent?

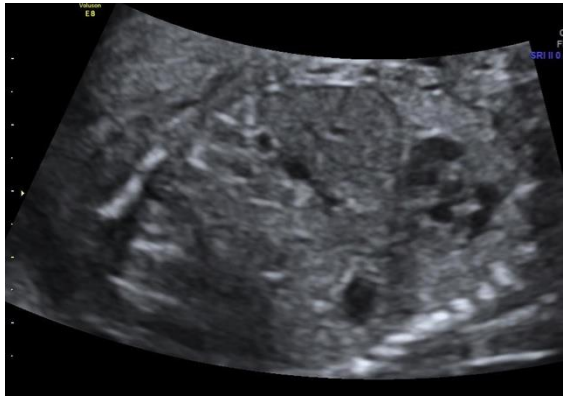
Reassess after 10-20 minutes

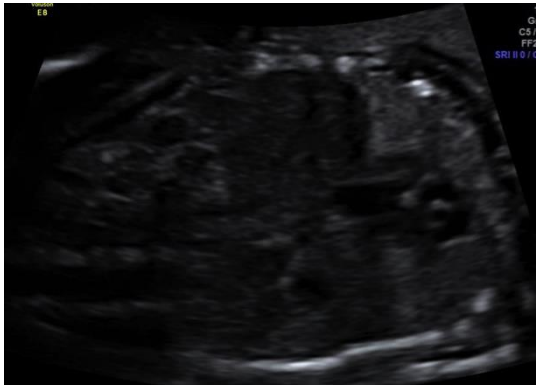




Making a decision

- Is the bowel echogenic?
- Look at BMI,
  - Low BMI and posterior placenta may cause a too perfect view
  - Turn down the gain to assess for bowel as white as bone





Not echogenic

Key points

1. In the transverse sweep the position of the spine is vital for the evaluation of anatomical structures.
2. The spine should present with 3 ossified centers in a triangle covered by skin
3. When the 3 ossified centers are U-shaped think of spina bifida and confirm the anomaly in multiple planes

Key points

4. When encountering an abnormal appearance or measurement continue to complete the scan, confirm in multiple planes and with multiple measurements, before communicating with the parents your final decision to refer
5. You do not have to make a diagnosis, but you should be familiar with normal appearances
6. Whenever you are in doubt → refer