

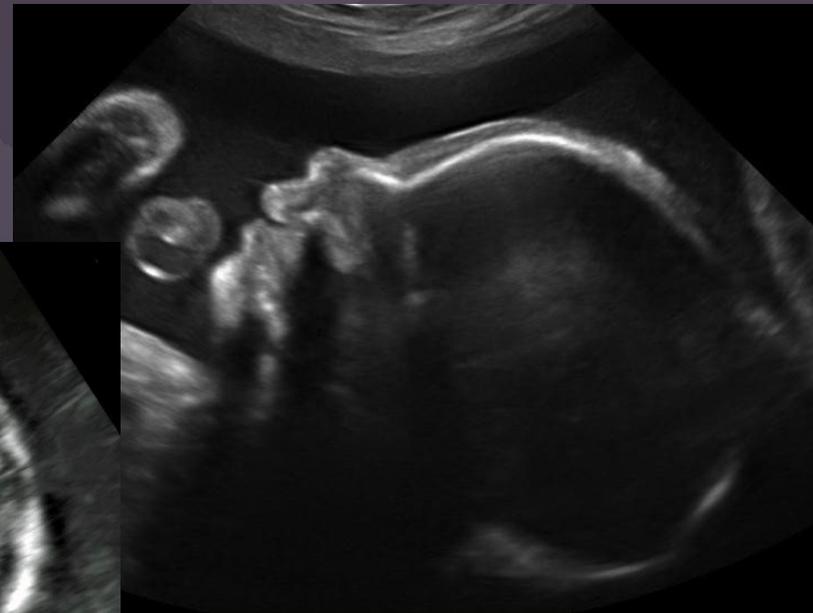
# *AIUM Image Library: Obstetrics*



First Tri



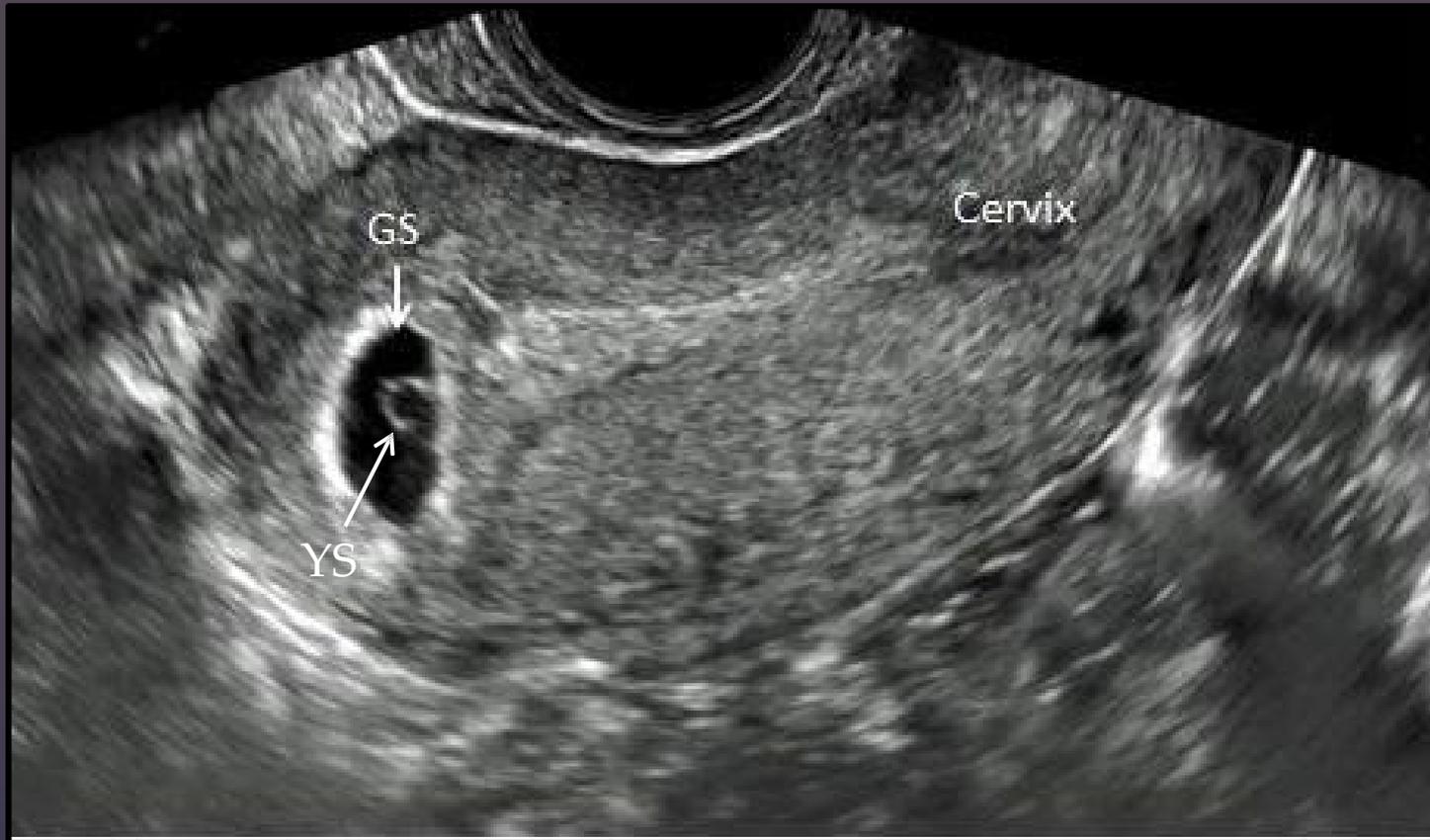
Second Tri



Third Tri

# *First Trimester Ultrasound Examination*





# Gestational sac

Transvaginal (TV) scan showing a sagittal view of a uterus demonstrating an intrauterine gestational sac. Note the yolk sac within the gestational sac. The *location* of the sac should be reported.

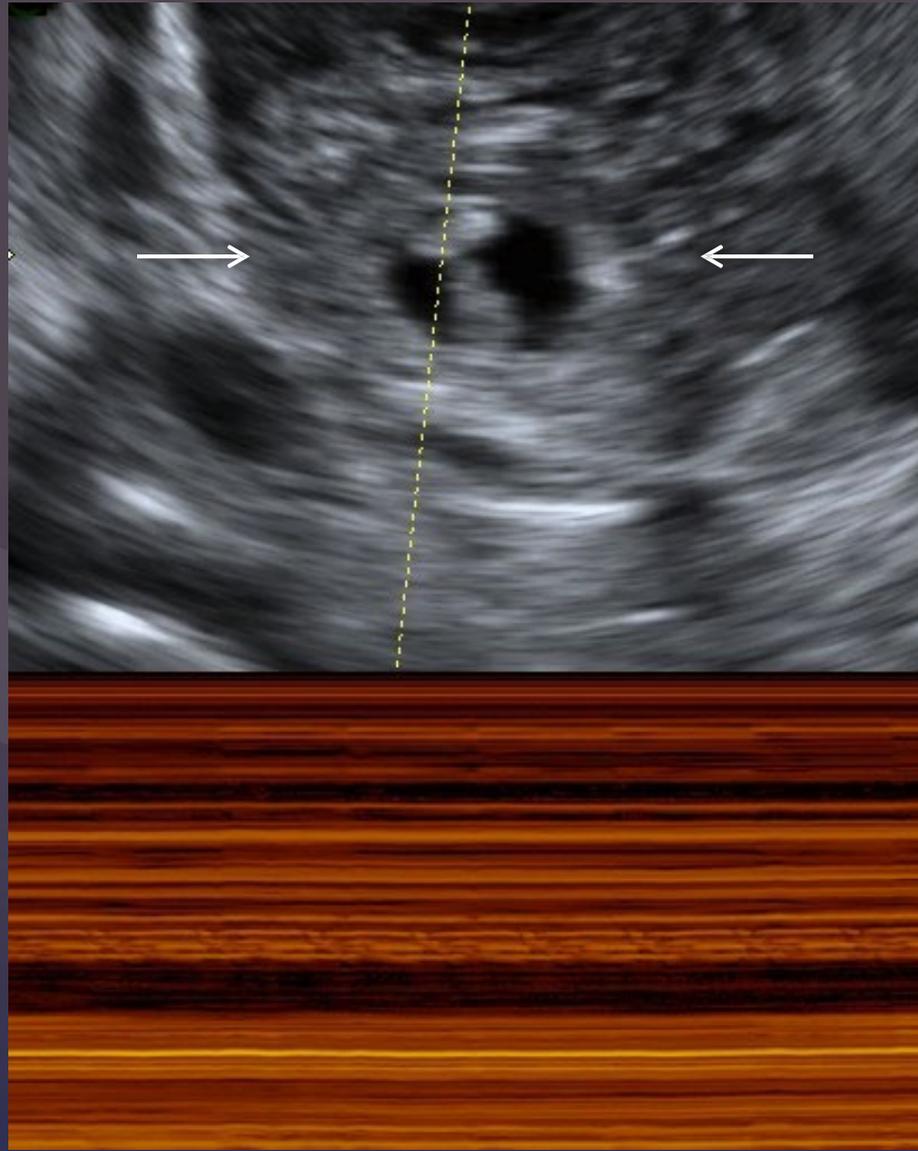
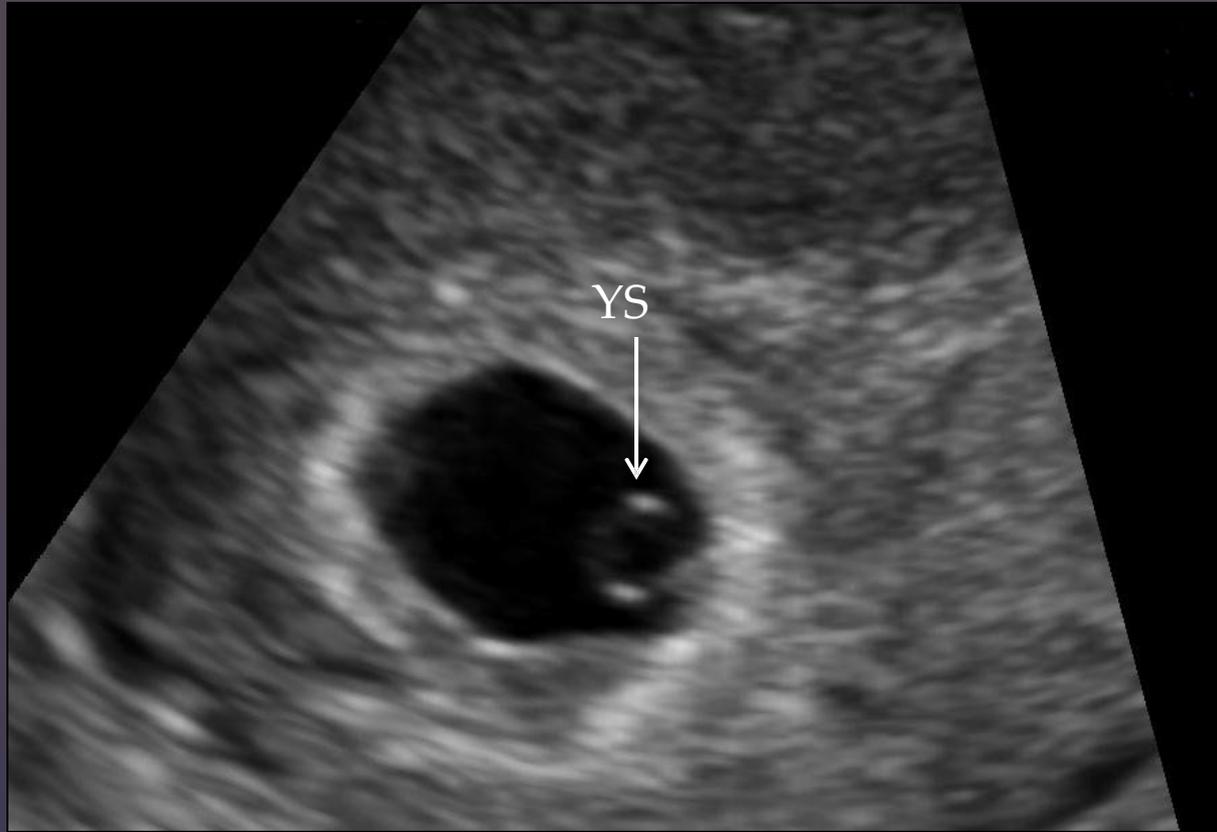


Image of a gestational sac containing an embryo with a regular fetal heart beat located in the adnexa (ectopic).

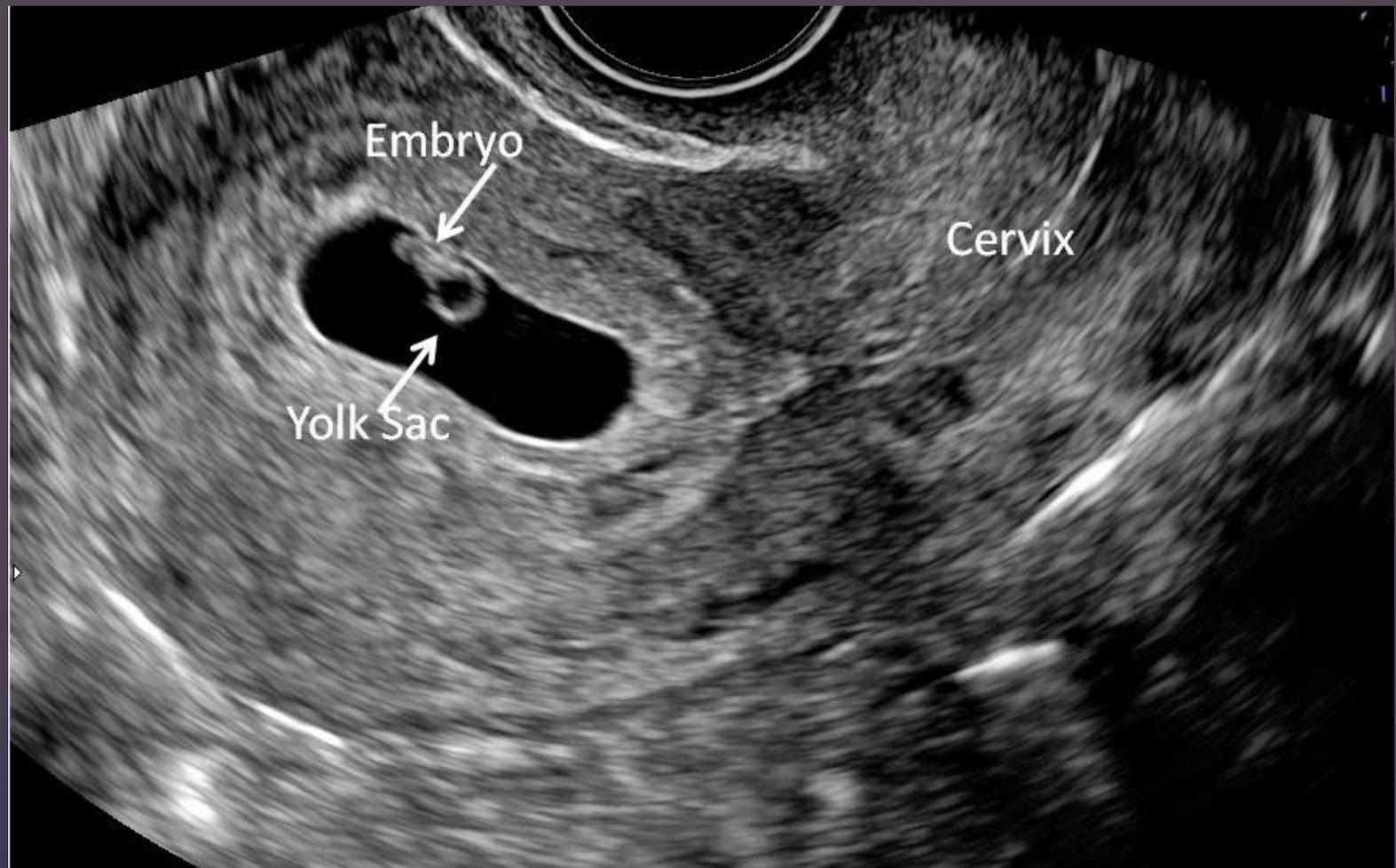


## Yolk sac

Intrauterine gestational sac containing a yolk sac. No embryo is identified within the gestational sac.

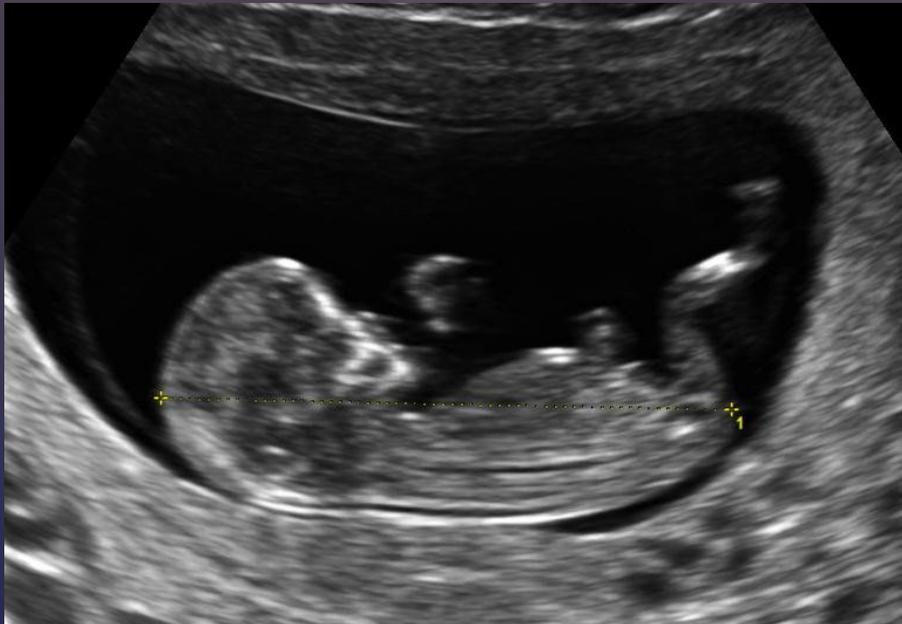


Prior to the identification of an embryo, the mean sac diameter (MSD) may be recorded. Note that the measurement does not include the echogenic rim of tissue.



TV scan demonstrating a uterus containing a gestational sac with a yolk sac and embryo. Note the location of the embryo directly adjacent to the yolk sac.

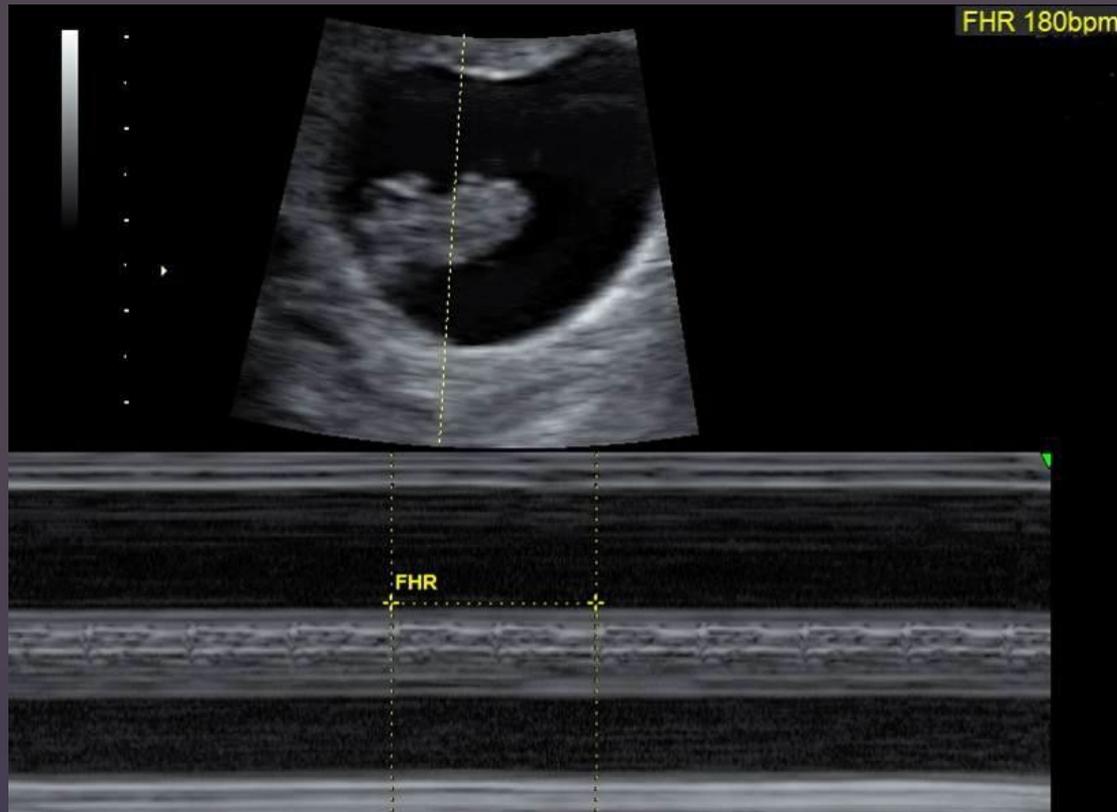
# Crown- Rump Length





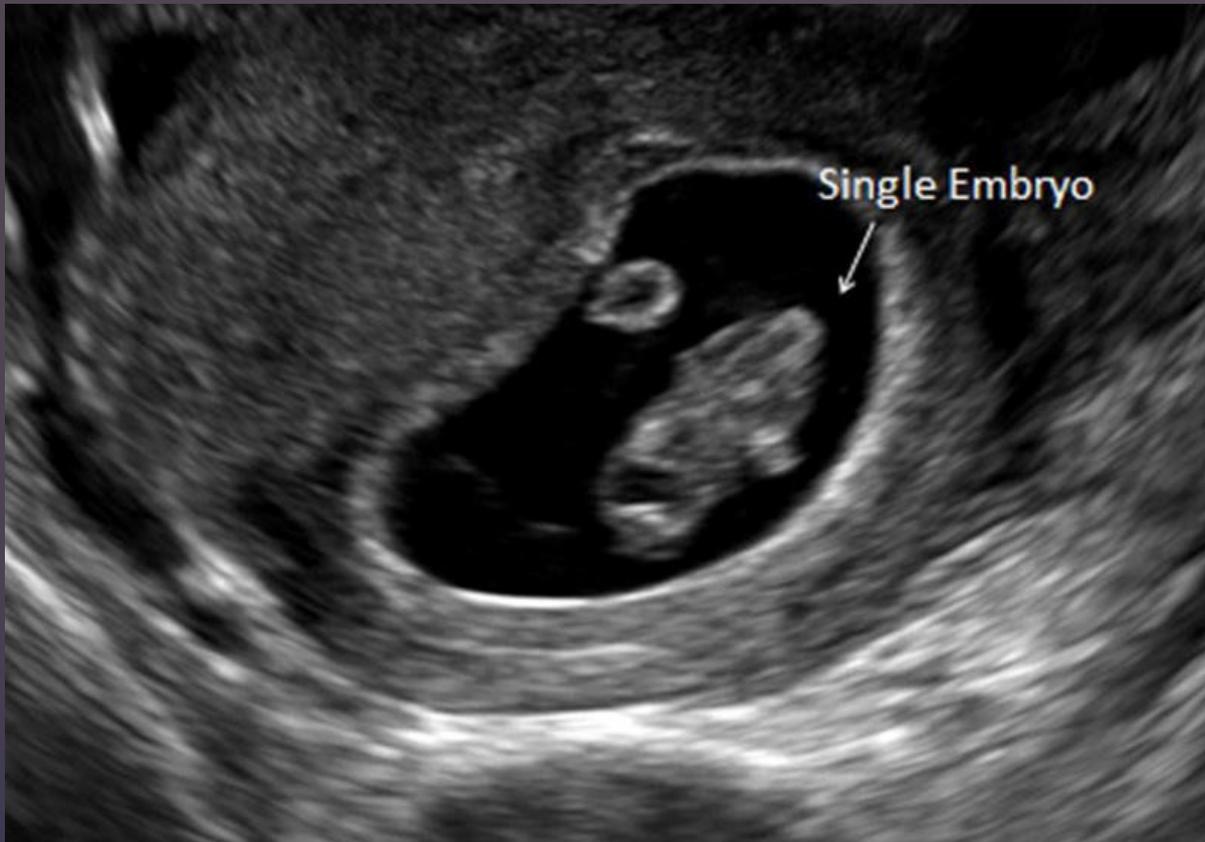
## “Pseudogestational Sac”

TV scan demonstrating a uterus containing a fluid collection.  
This may be associated with an ectopic pregnancy



The presence or absence of CARDIAC ACTIVITY should be recorded. This may be done by direct visualization, M-mode or recording a 'clip' of the cardiac activity.

Doppler should **NOT** be used in the first trimester unless clinically indicated.



FETAL NUMBER should be reported. This should be specifically stated, even in the case of a singleton gestation.

## Monochorionic-Diamniotic Twins



FETAL NUMBER should be reported. In the event of a multiple gestation, amnionicity and chorionicity should be documented if possible.



Dividing  
membrane

Posterior  
Placenta

Anterior  
Placenta

Dichorionic-Diamniotic



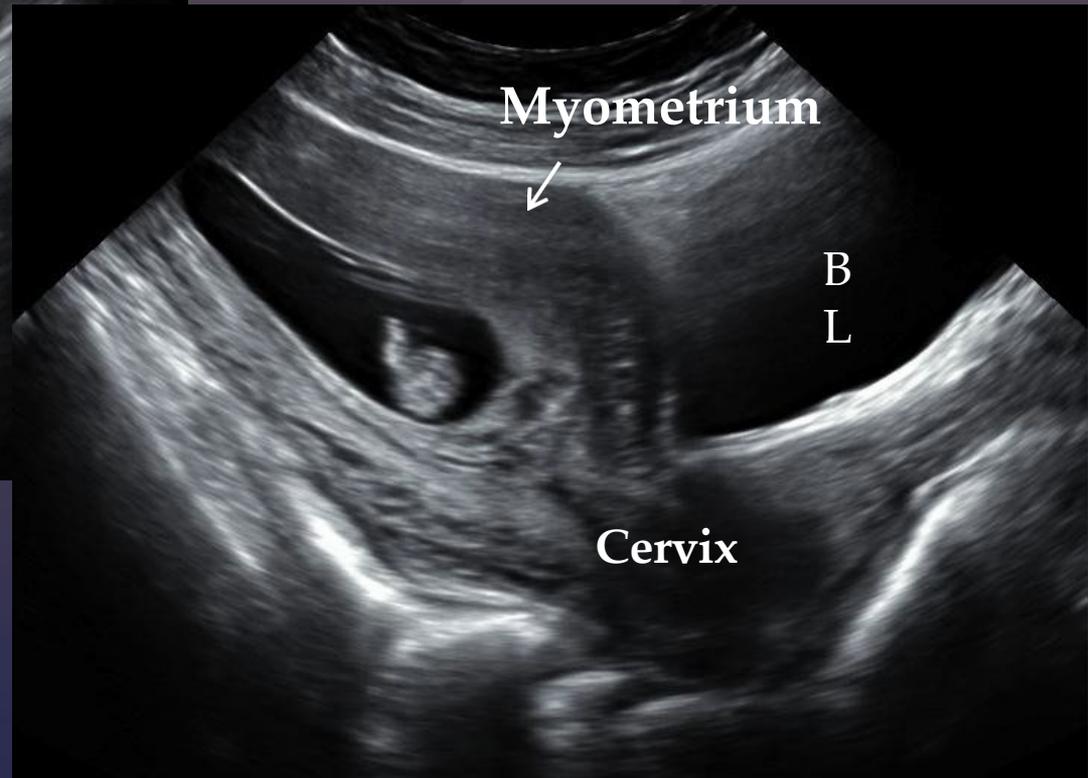
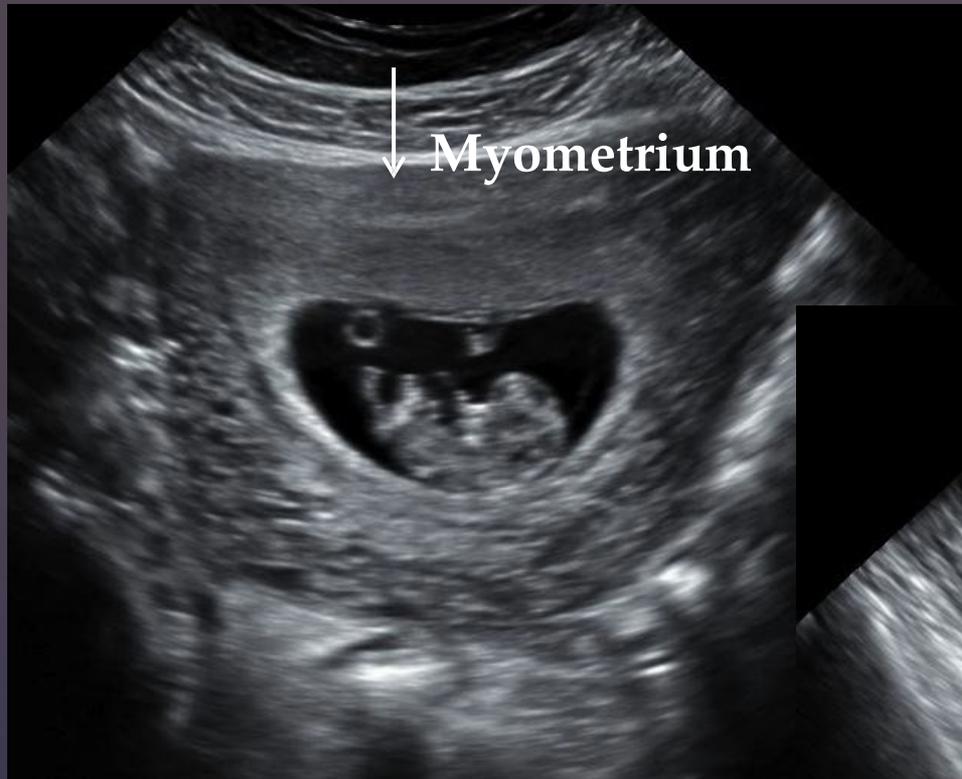
Abnormal cranial contour

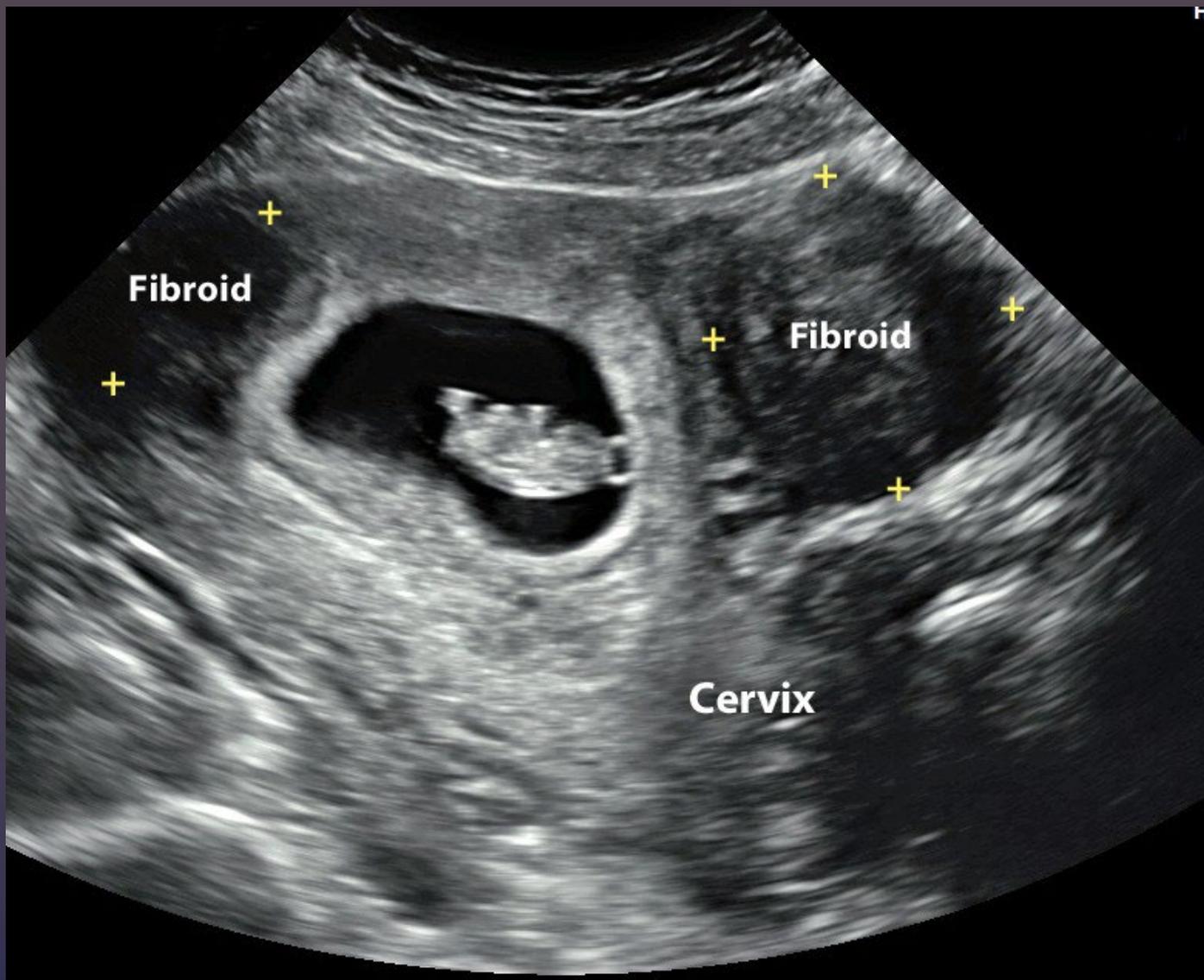


Megacystis at 12 weeks

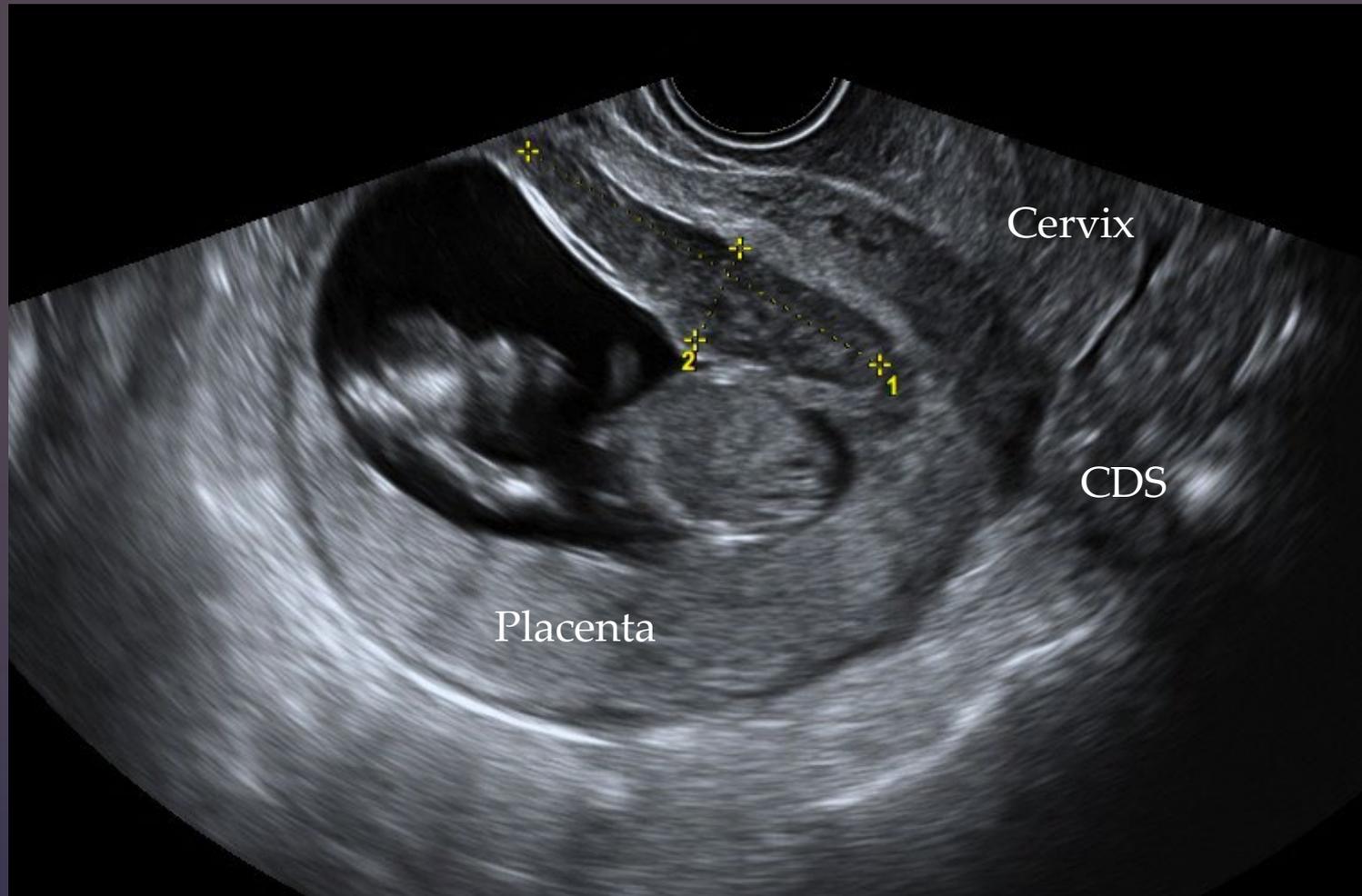
Embryonic/fetal anatomy appropriate for the first trimester should be assessed.

The uterus and cervix should be evaluated.



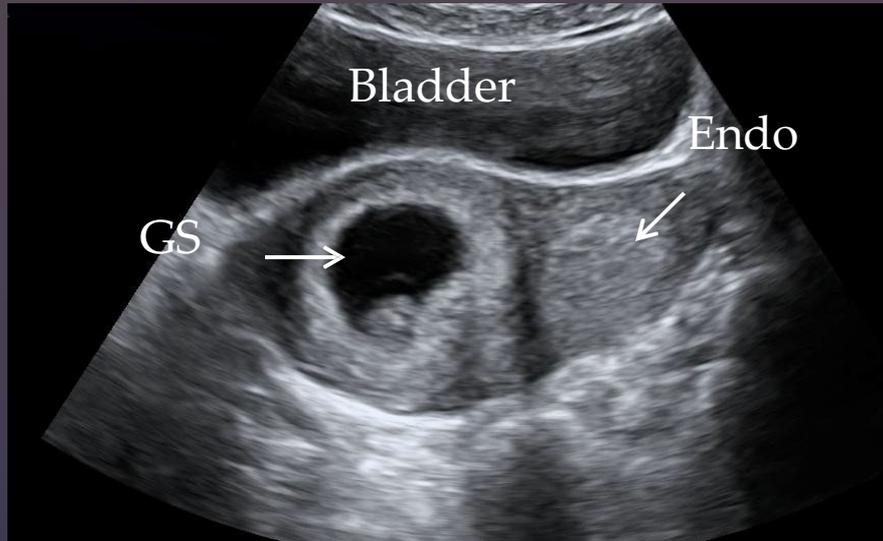


The presence of leiomyomata should be recorded. The measurement of the largest or any potentially clinically significant leiomyomata may be recorded.

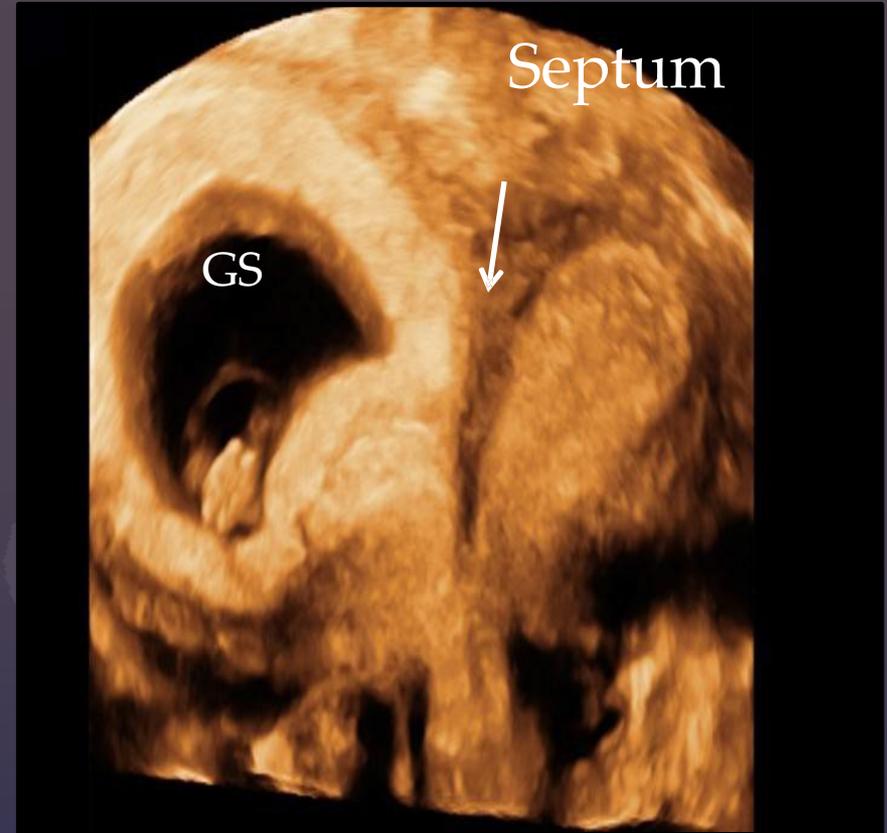


Transvaginal scan in the late first trimester pregnancy showing a hypoechoic granular collection in the anterior aspect of the uterus, adjacent to the gestational sac characteristic of subchorionic hematoma. The calipers outline the hematoma.

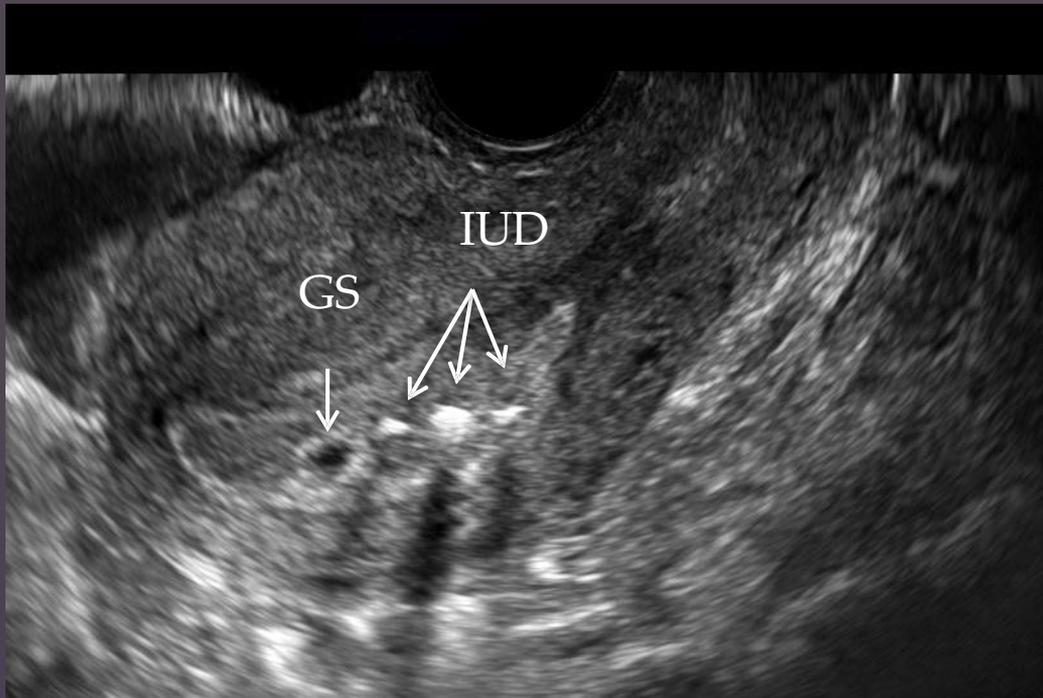
Observation of the uterus may lead to the detection of a uterine anomaly.



TA scan of the transverse uterus showing splaying of the endometrium with an eccentrically located GS on the right.



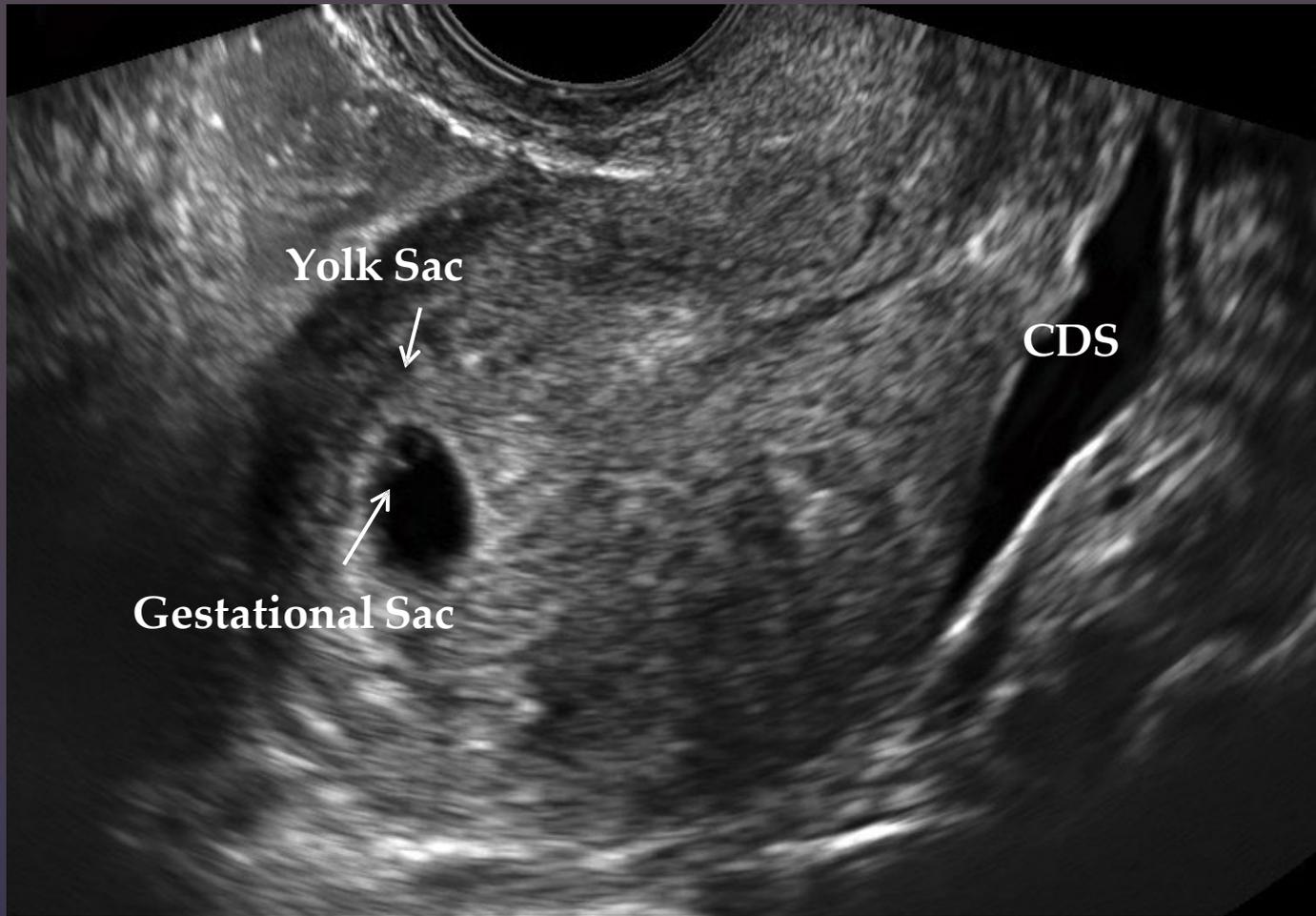
3D rendered image of a the same uterus reveals it to be septate . Note the gestational sac in the right side of the abnormal uterus.



TV scan of uterus showing an early gestational sac and an intensely echogenic 3 dots, consistent with a foreign body.

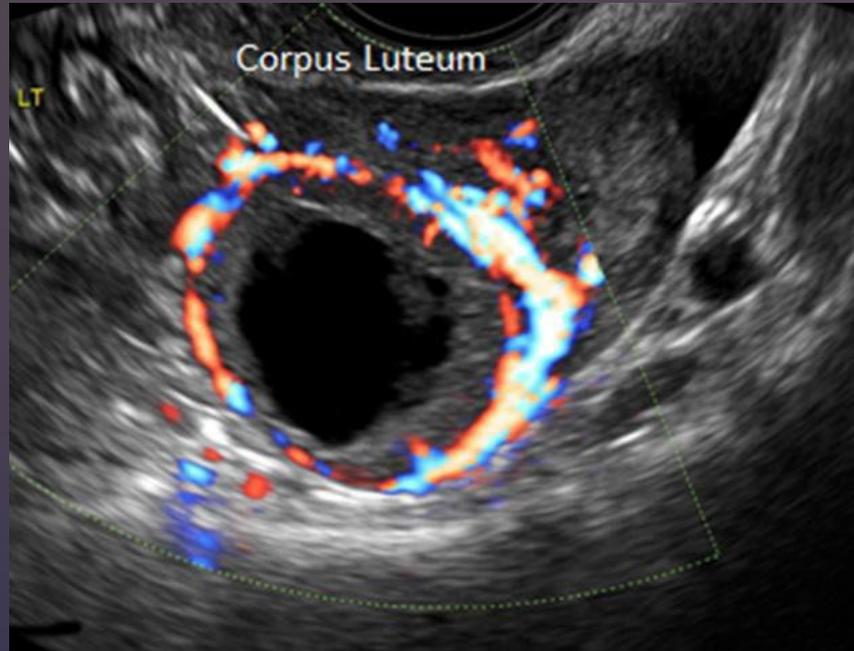


3D rendering reveals an early gestational sac with an echogenic choriodecidual ring. There is an unusual IUD within the uterus.

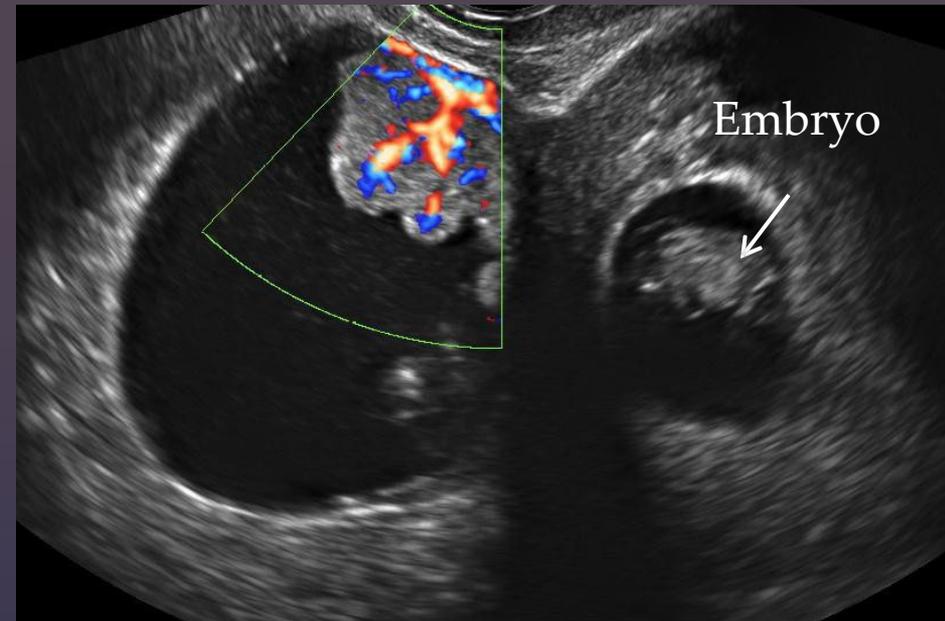


TV scan demonstrating a uterus containing a gestational sac with a yolk sac. The appearance of the cervix and the fluid in the cul-de-sac is noted.

The presence, location and size of adnexal masses should be recorded.



Thick walled cyst with circumferential color flow characteristic of a normal corpus luteum



Irregular cyst with mural nodule and color flow. Pathology confirmed an ovarian malignancy. Note the adjacent intrauterine pregnancy.



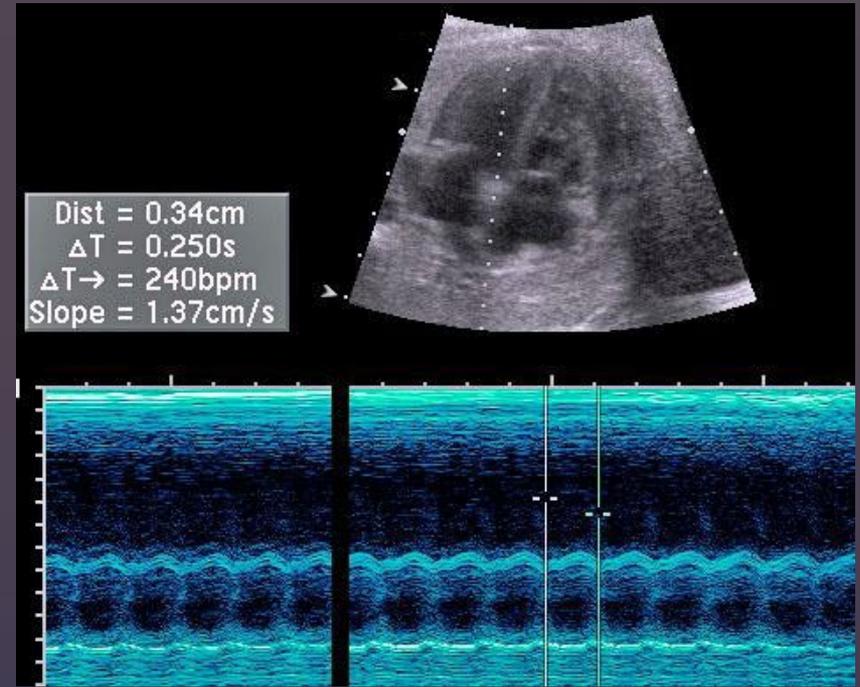
The appearance of the nuchal region should be assessed as part of the first trimester scan where a live fetus is present.



For those patients desiring risk assessment for aneuploidy, a specific measurement of the nuchal translucency may be performed in accordance with the stated guidelines.

# *Second and Third Trimester Ultrasound Examinations*



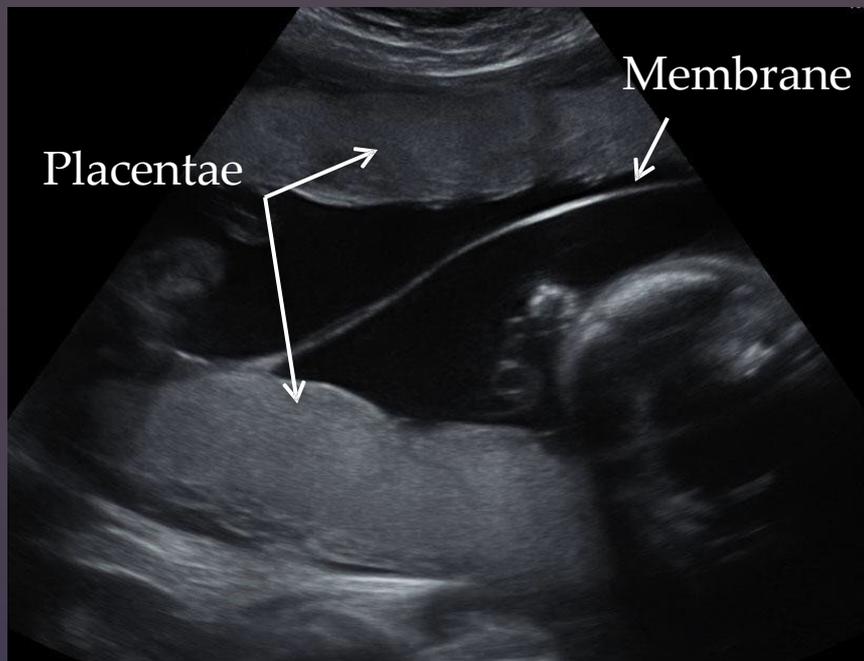


FETAL CARDIAC ACTIVITY should be reported, including any abnormalities of rate or rhythm.



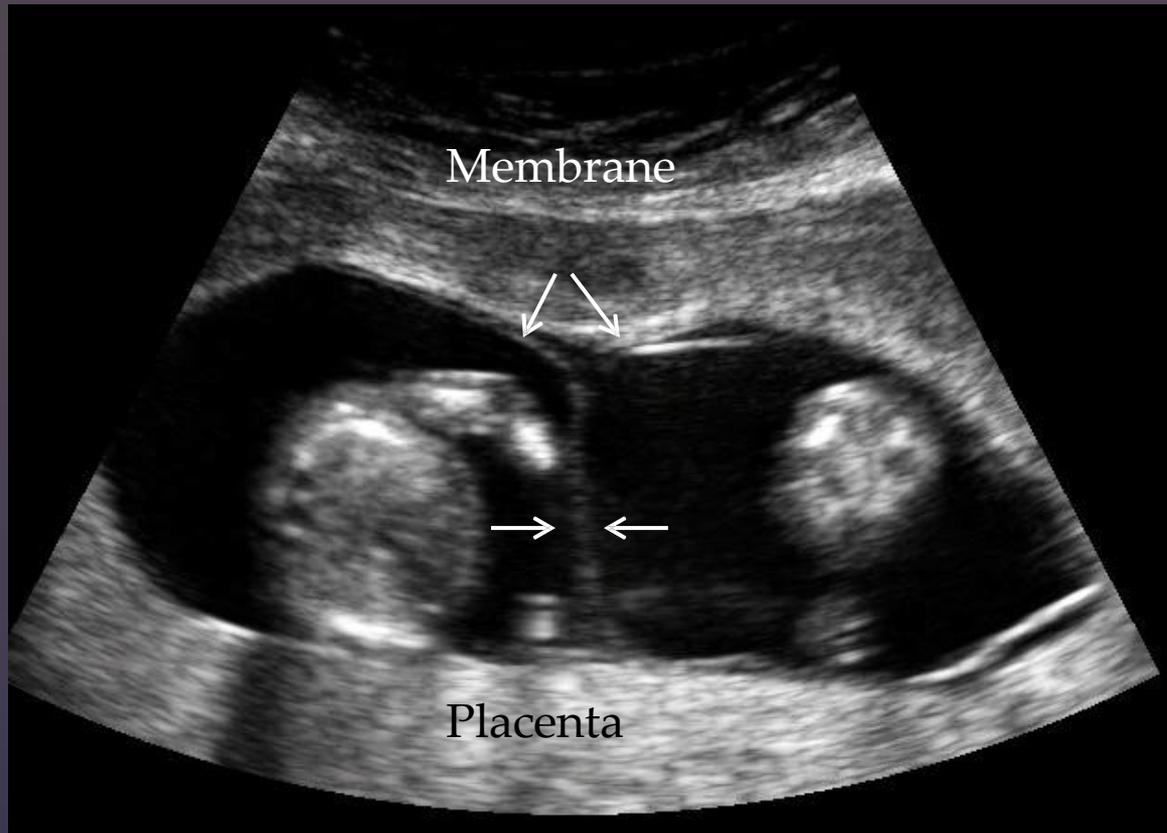
FETAL NUMBER should be reported.

# Dichorionic-Diamniotic Twins

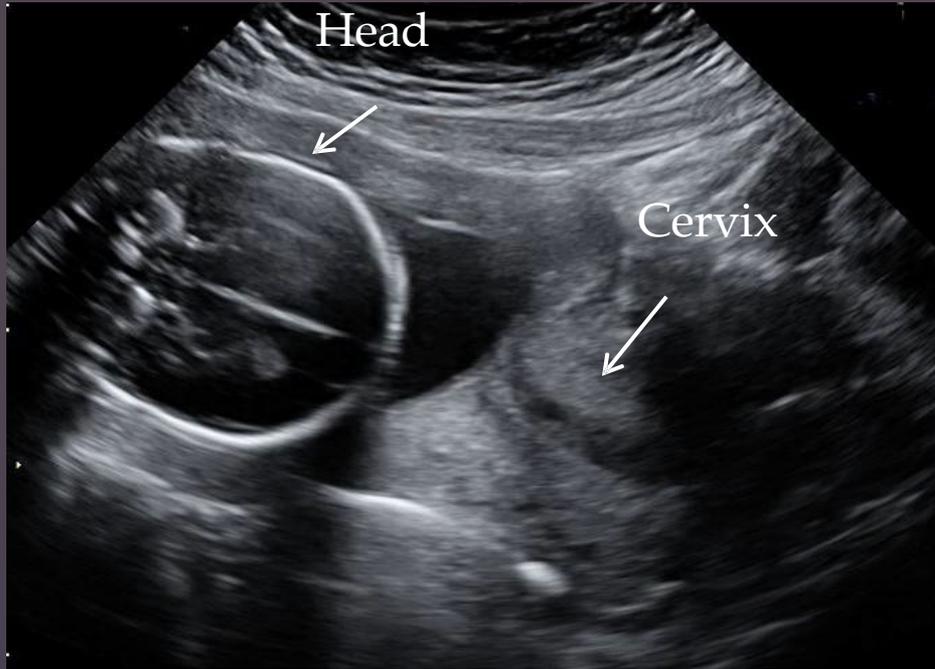


Multiple gestations require chorionicity, amnionicity, comparison of fetal sizes, estimation of amniotic fluid on each side of the membrane and fetal genitalia when visualized.

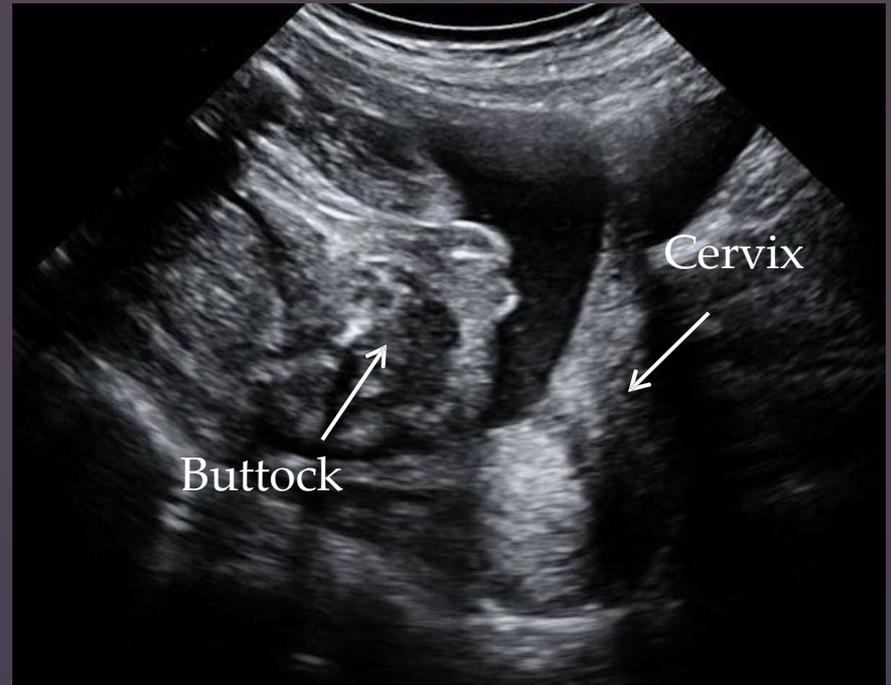
# Monochorionic- Diamniotic Twins



Multiple gestations require chorionicity, amnionicity, comparison of fetal sizes, estimation of amniotic fluid on each side of the membrane and fetal genitalia when visualized.



Cephalic



Breech

FETAL PRESENTATION should be reported.

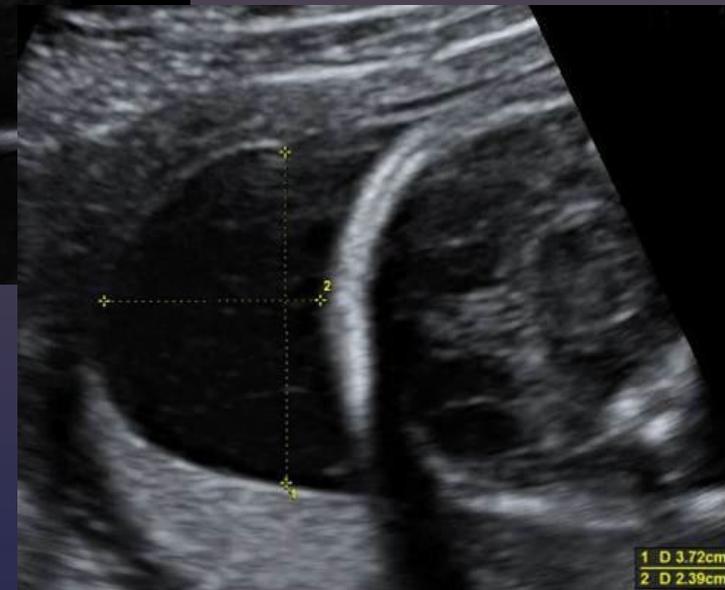
A qualitative or semi-quantitative assessment of AMNIOTIC FLUID VOLUME should be reported.



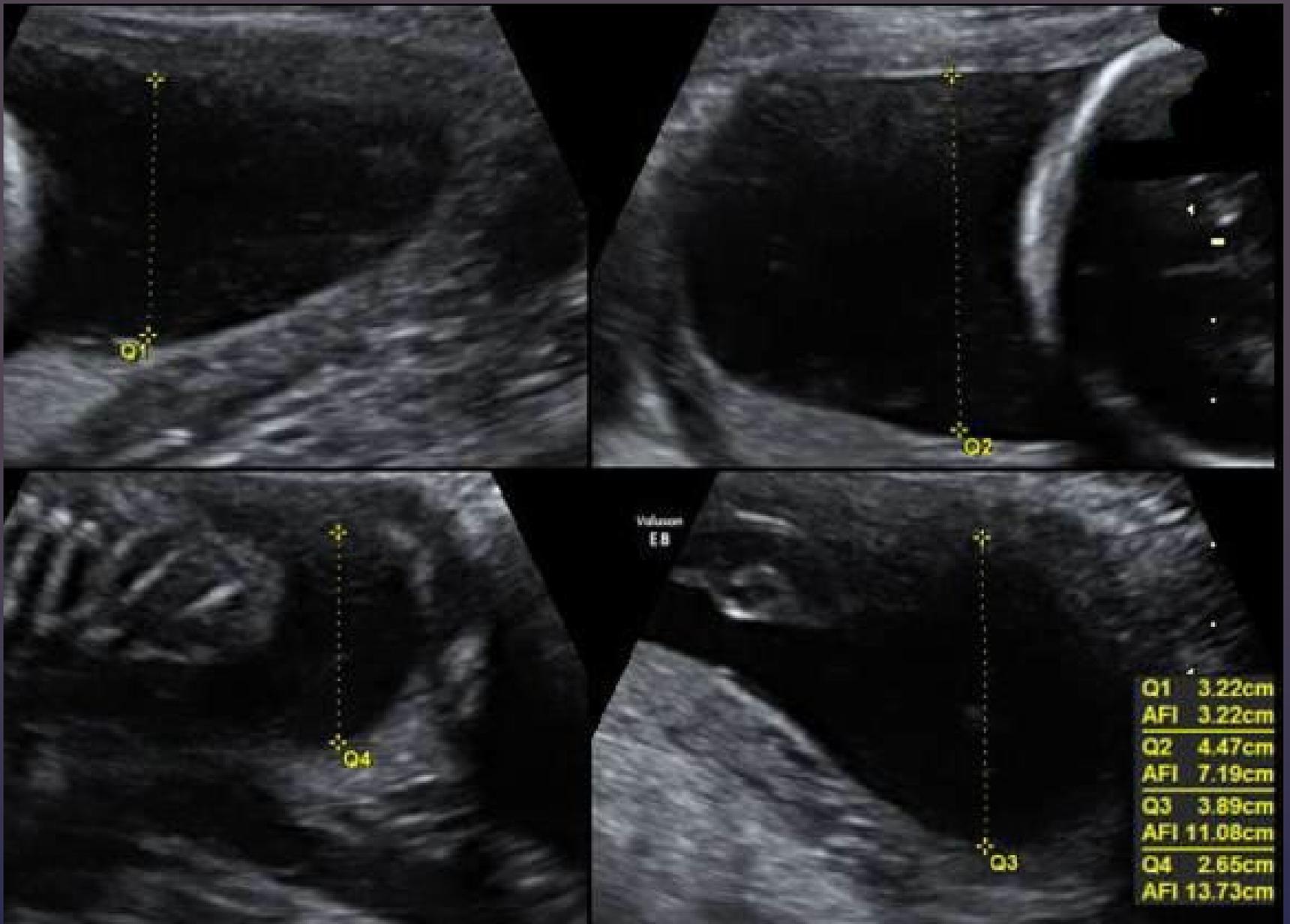
Subjective Assessment



Single deepest vertical pocket

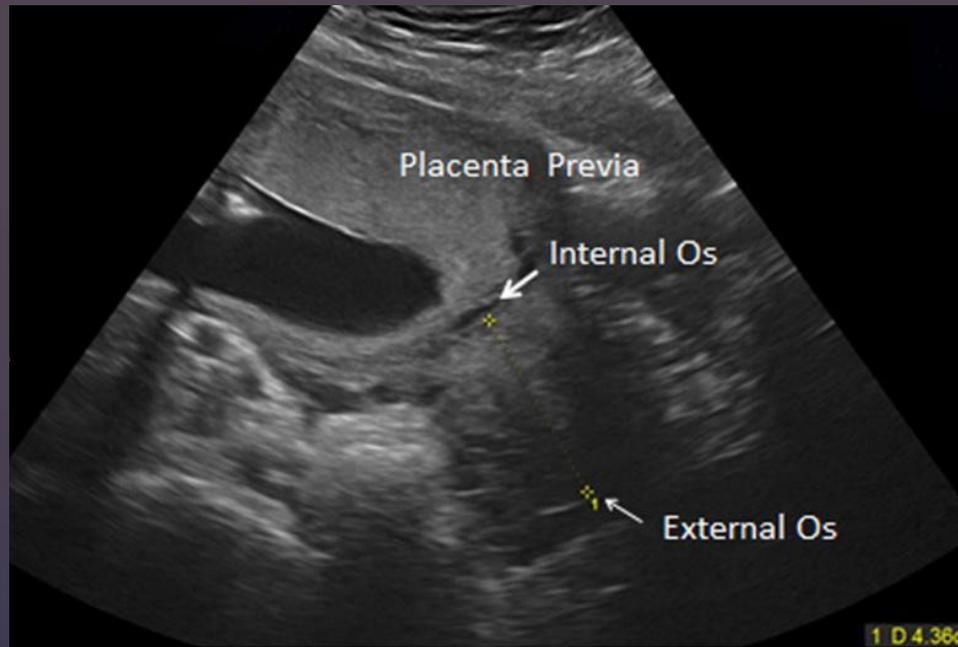


2-diameter pocket

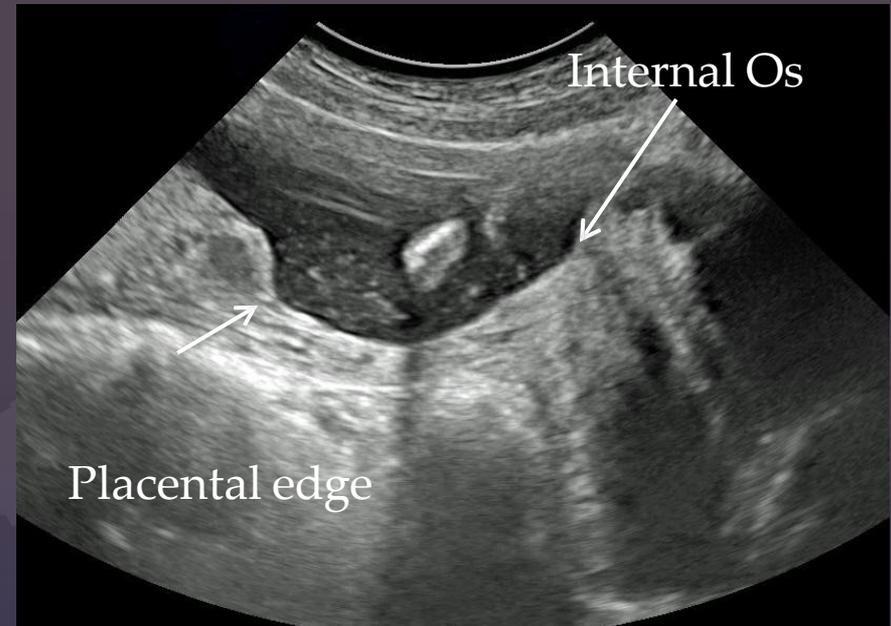


Amniotic fluid index

Placental location, appearance, and relationship to the internal cervical os should be recorded.



TA scan showing an anterior placenta completely covering the cervical os



TA scan showing a posterior placenta, with the edge of the placenta well away from the cervix.

If the cervix appears short or is not adequately seen during transabdominal evaluation, at transvaginal or transperineal approach can be considered.

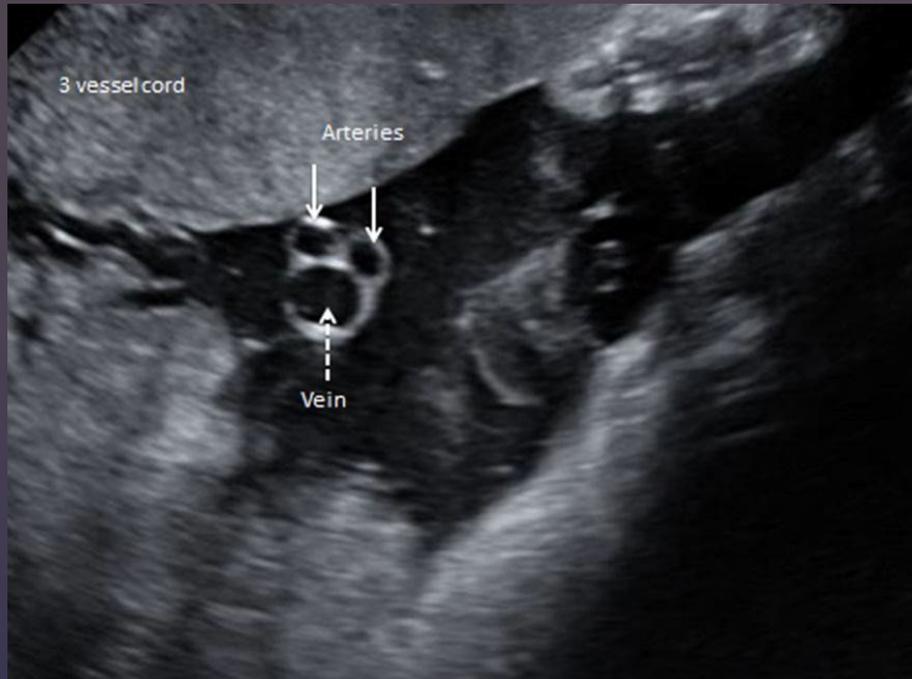


TV scan showing a short cervix with funneling at 18 weeks gestation.

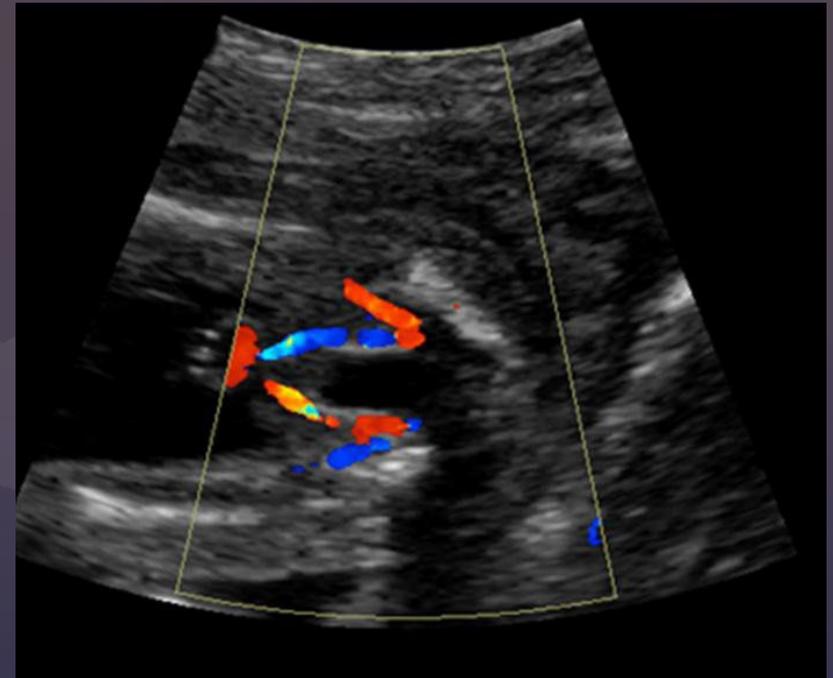


TV scan showing a vasa previa which was not detected by transabdominal imaging.

The UMBILICAL CORD should be imaged and the number of vessels in the cord evaluated when possible.

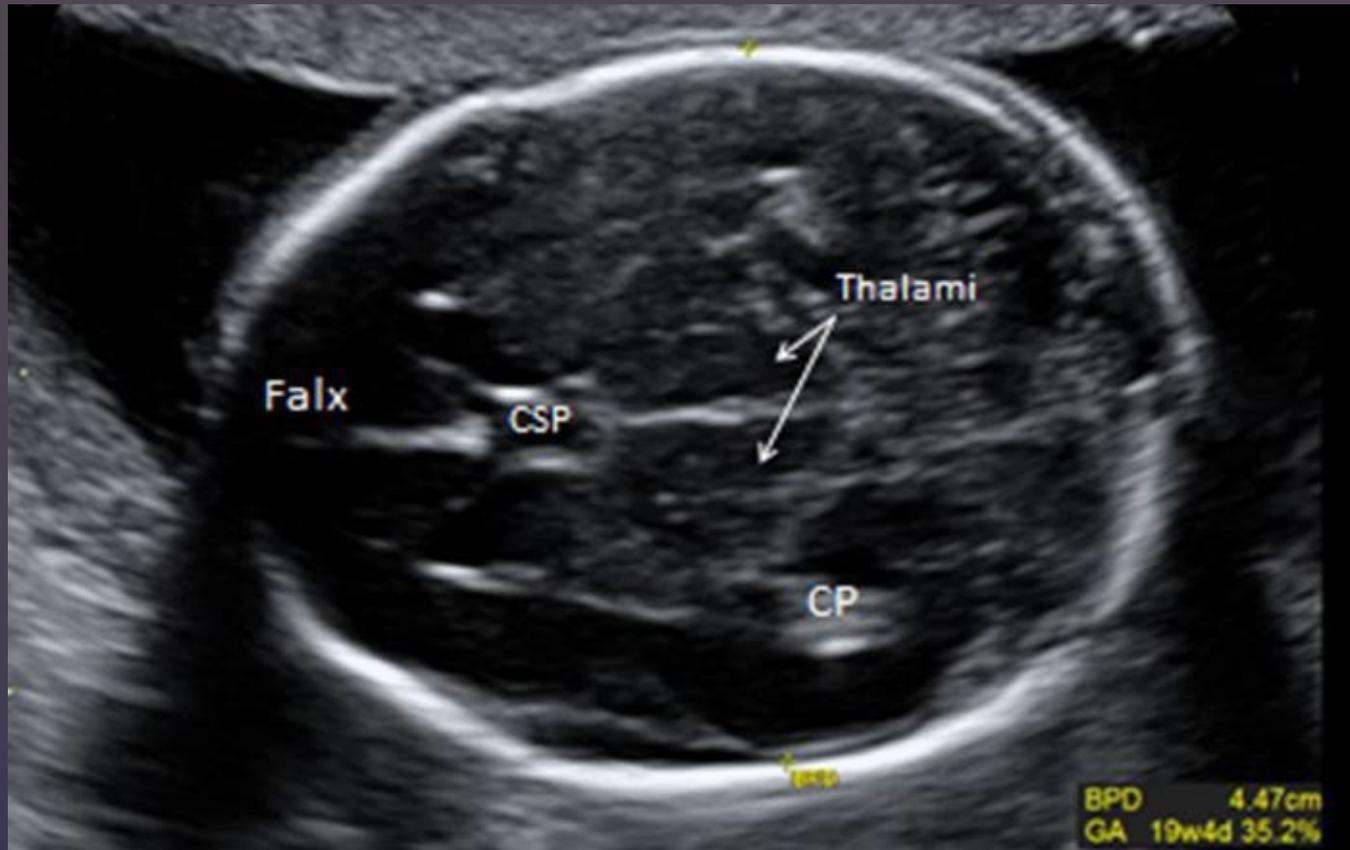


Transverse view through a free floating loop of cord demonstrating 2 arteries and 1 vein.



Transverse view of the lower fetal pelvis using color Doppler to identify the umbilical arteries as they course around the bladder

# Biparietal Diameter



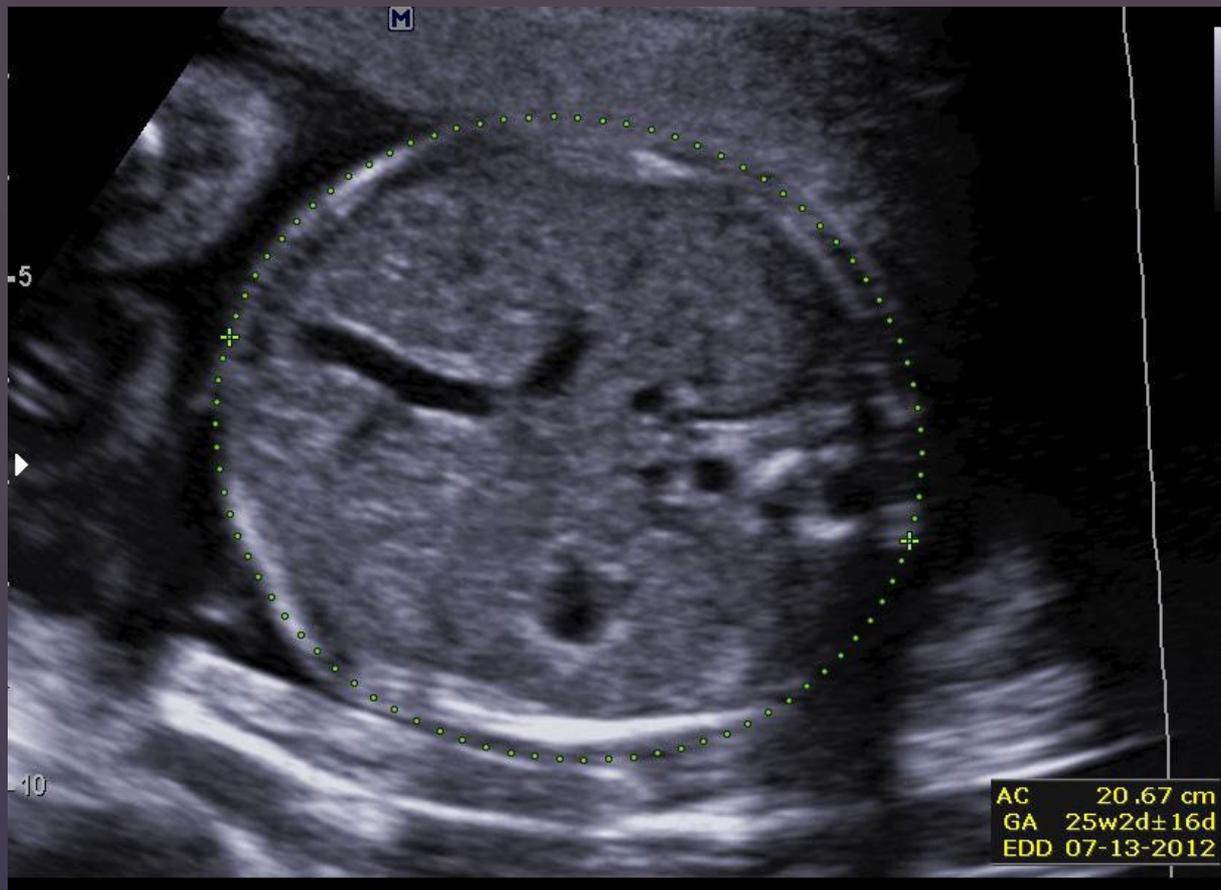
Measured at the level of the thalami and cavum septi pellucidum. The cerebellar hemispheres should not be visible in this imaging plane. Measurement is from the outer edge of the proximal skull to the inner edge of the distal skull.



Head circumference is measured around the outer perimeter of the skull at the same level as the BPD.



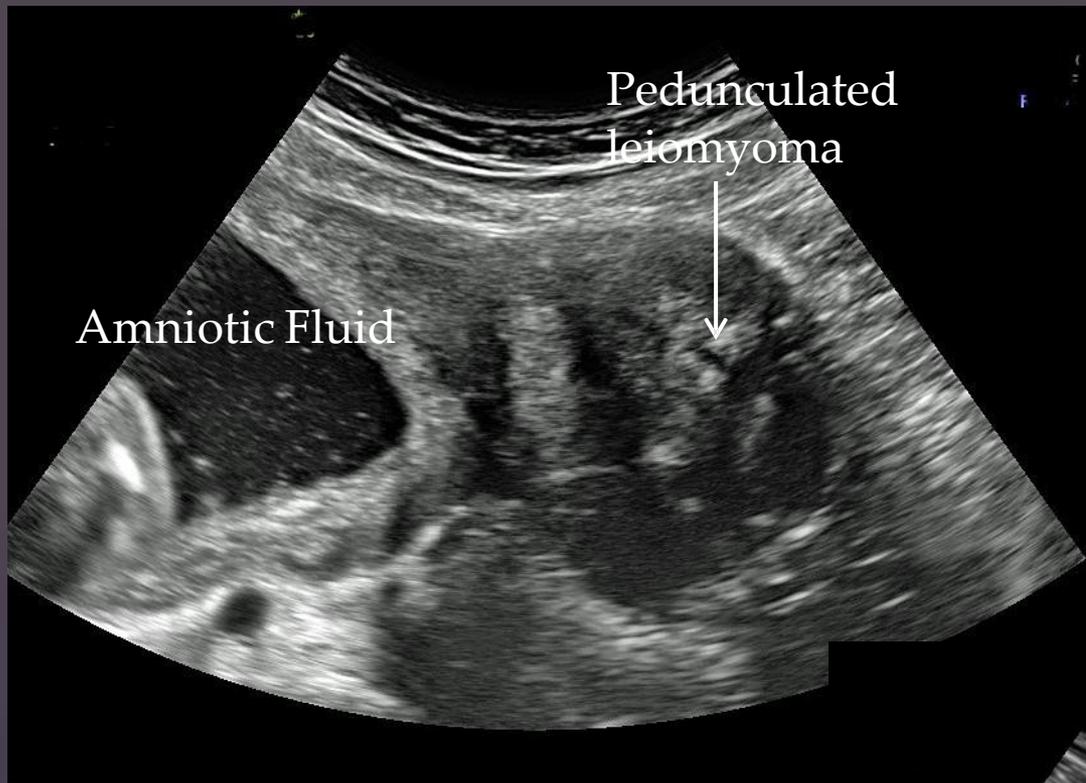
FEMORAL DIAPHYSIS LENGTH should not include the distal femoral epiphysis. The beam of insonation should be perpendicular to the shaft of the bone.



ABDOMINAL CIRCUMFERENCE is measured on a transverse view of the fetal abdomen. The stomach and the junction of the umbilical vein and portal sinus should be seen. A single rib should be seen. The ellipse is at the skin edge.



ABDOMINAL DIAMETER is measured on a transverse view of the fetal abdomen. The stomach and the junction of the umbilical vein and portal sinus should be seen. A single rib should be seen. The cursers are placed on the outer skin edge.

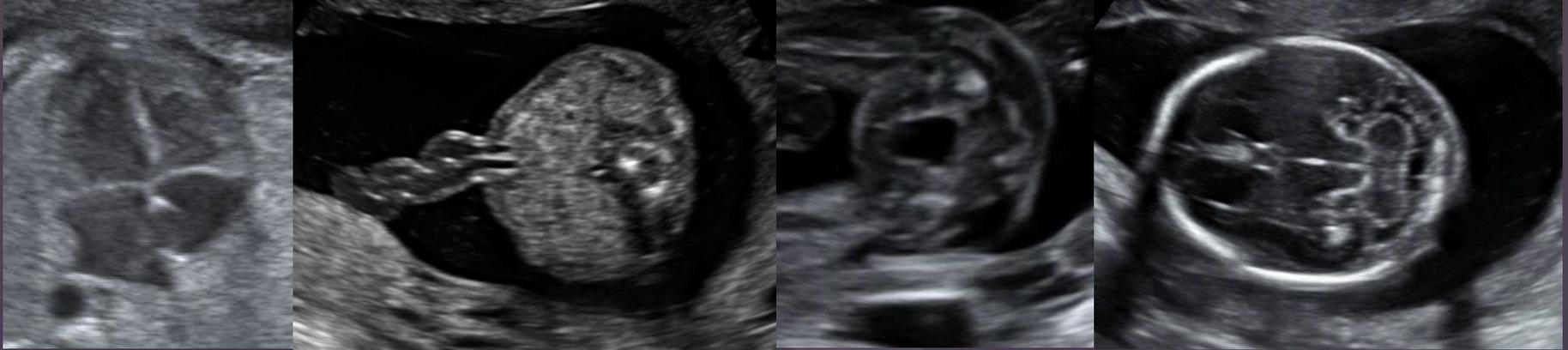


Uterus and Adnexa should be evaluated when appropriate.

Evaluation of the uterus and adnexa at 18 weeks gestation reveals a left pedunculated fibroid and the adjacent normal ovary.



# *Fetal Anatomic Survey*



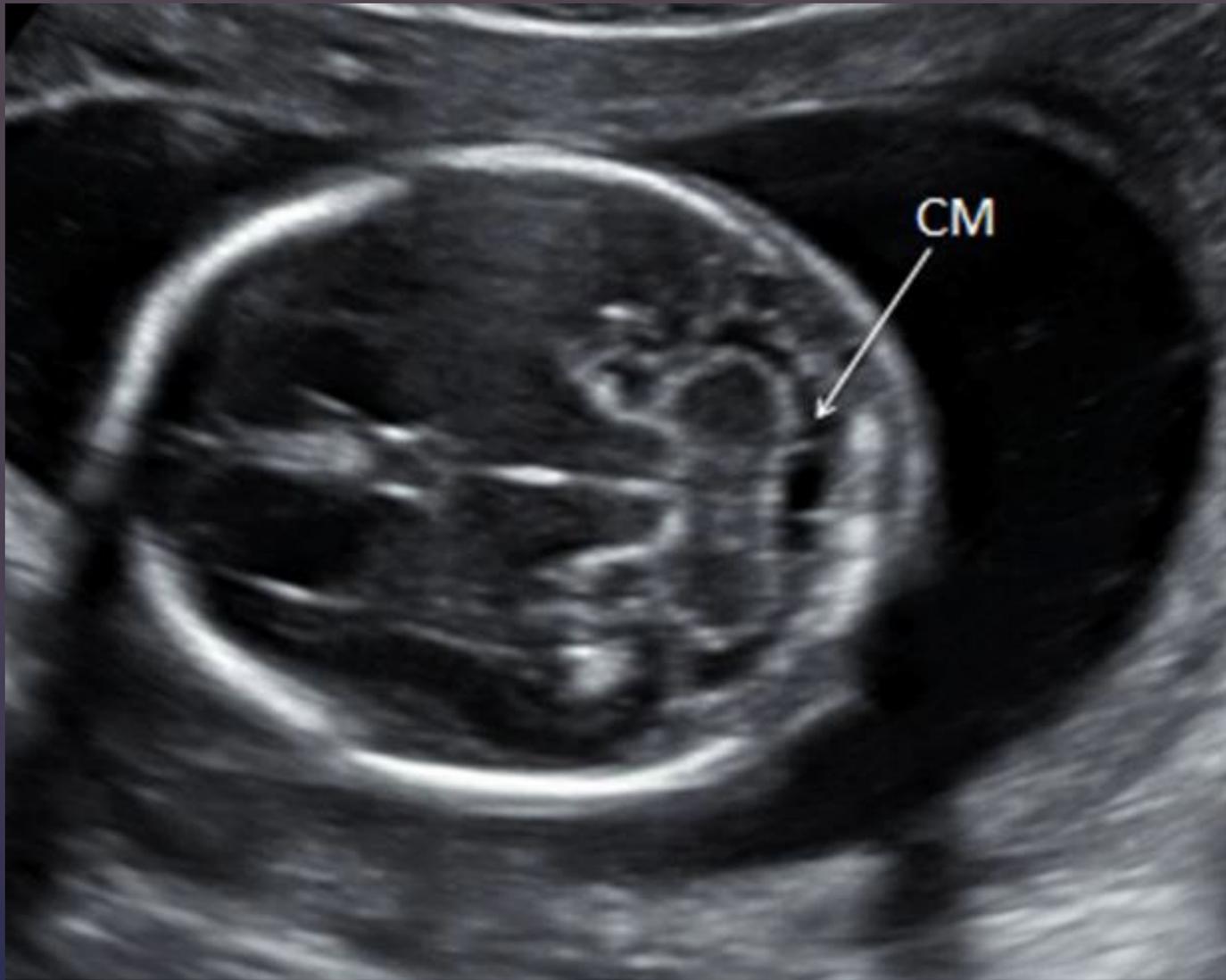
The following areas of assessment represent the minimal elements of a standard examination of fetal anatomy.



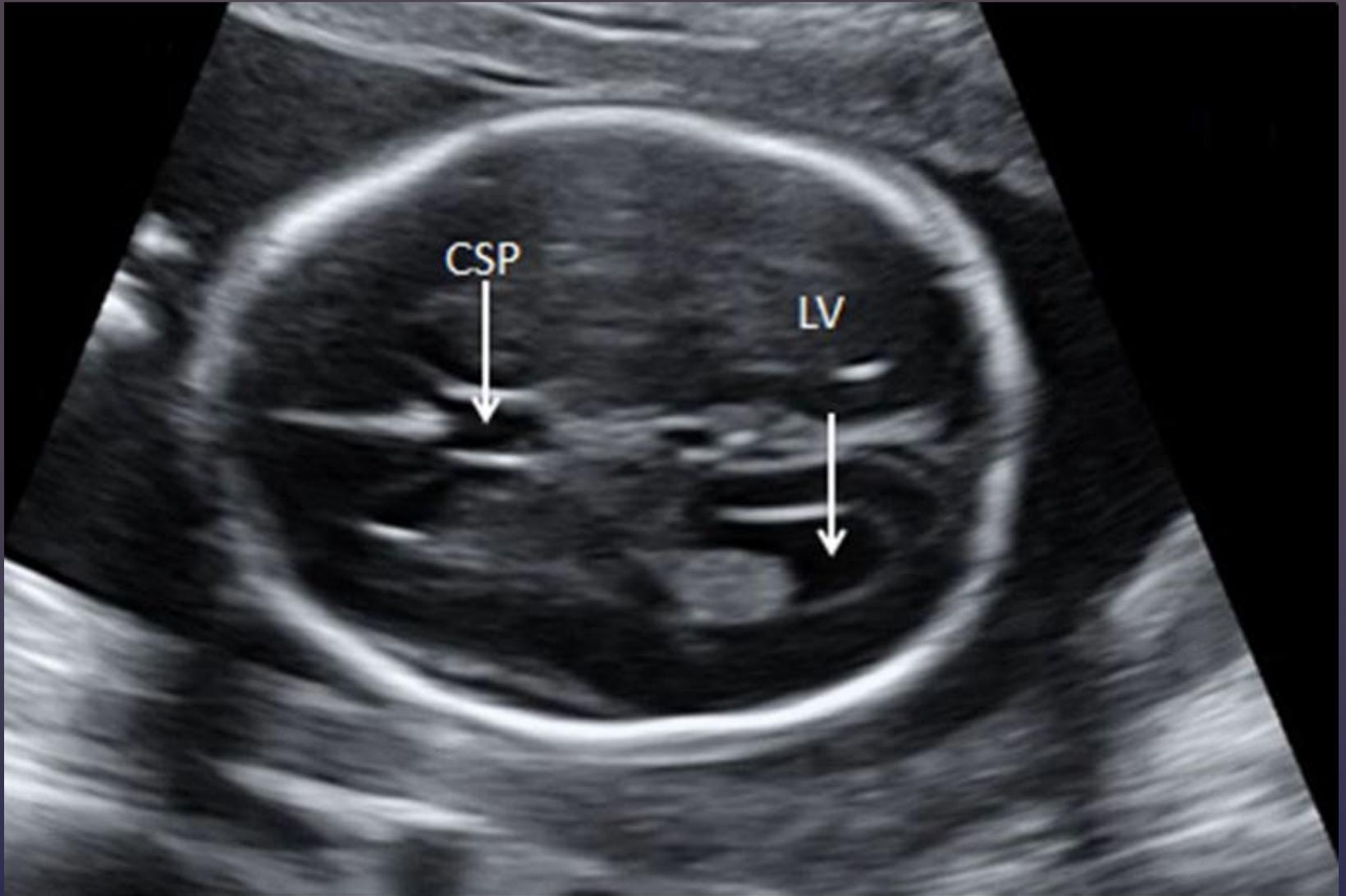
Cerebellum



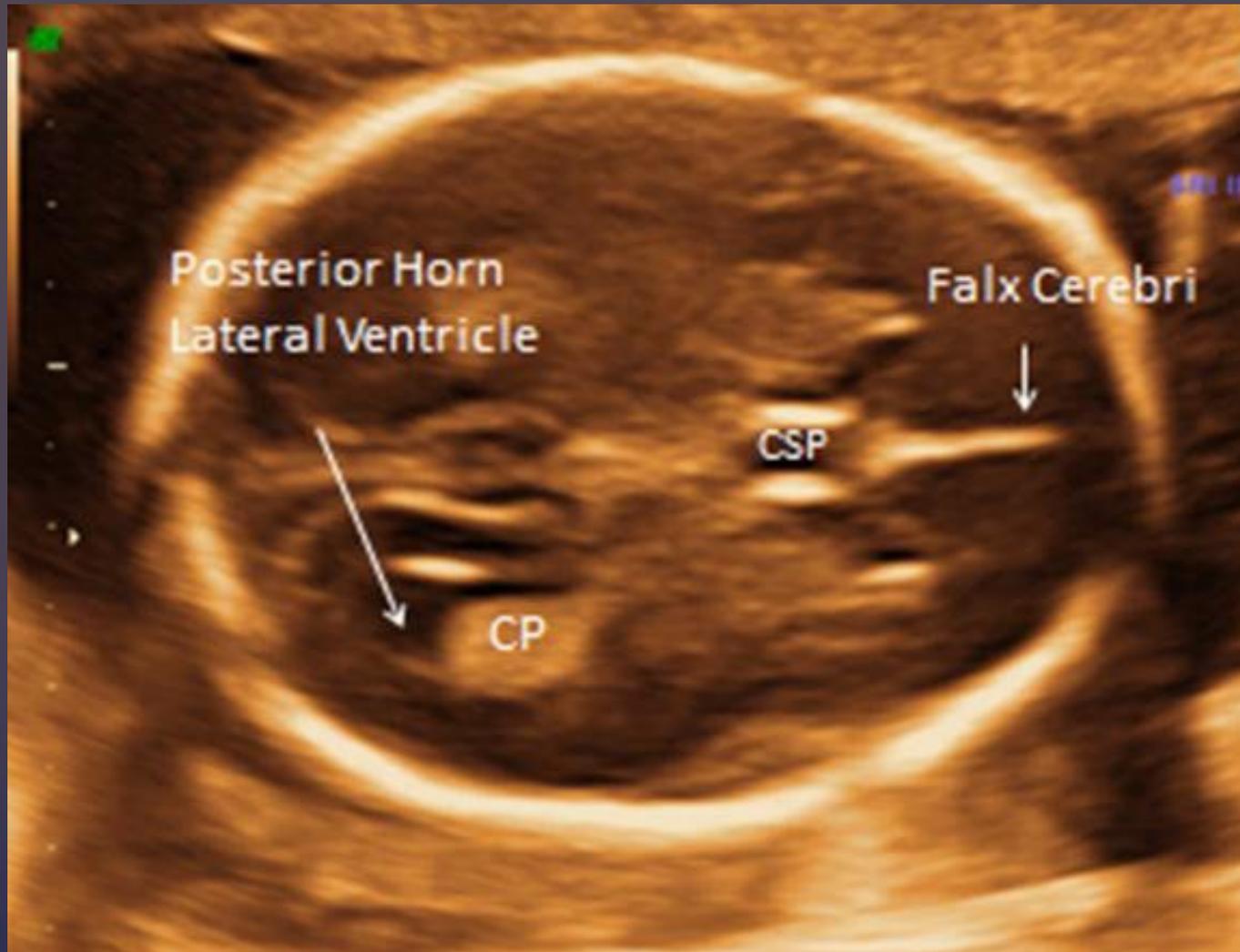
Choroid plexus



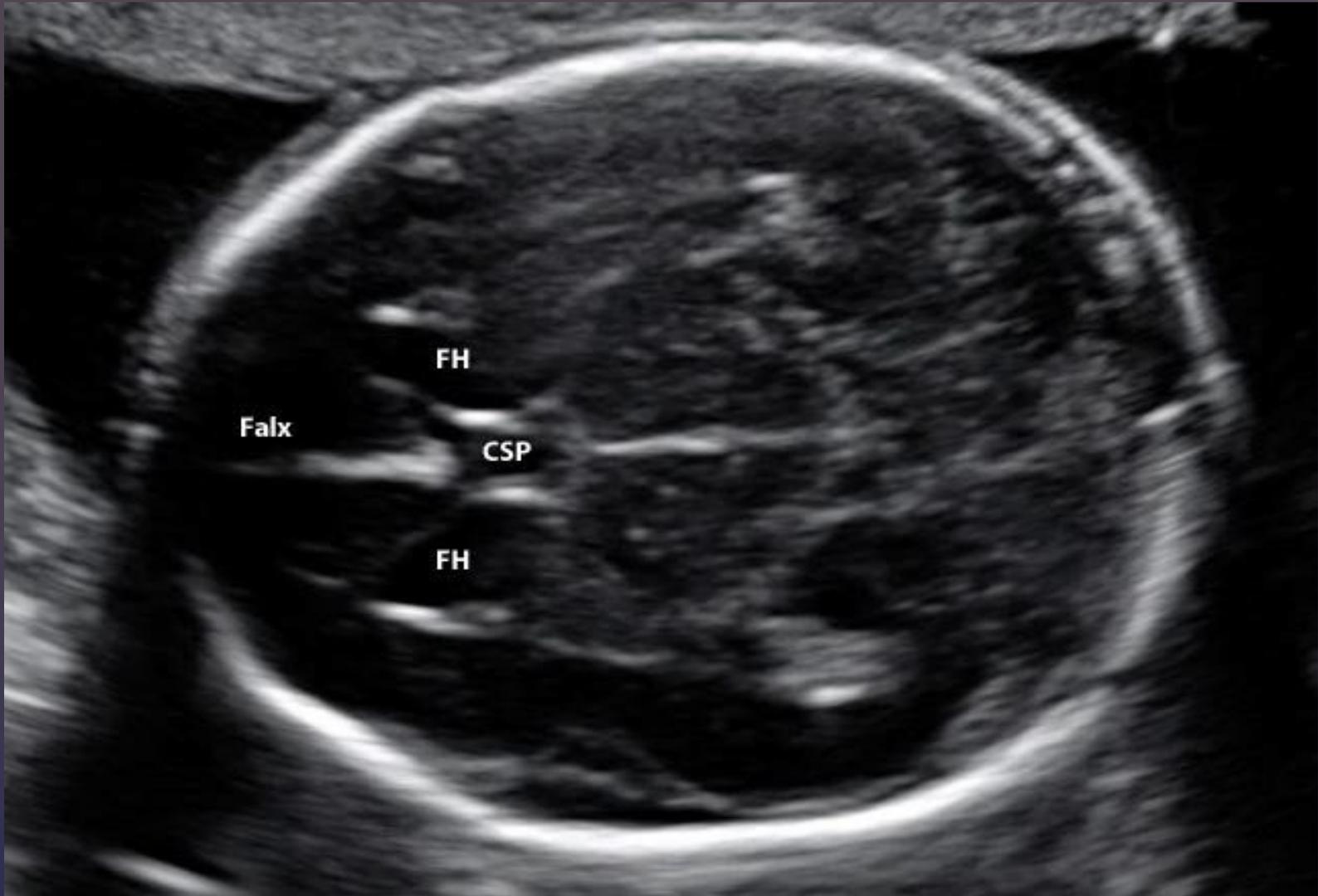
Cisterna magna



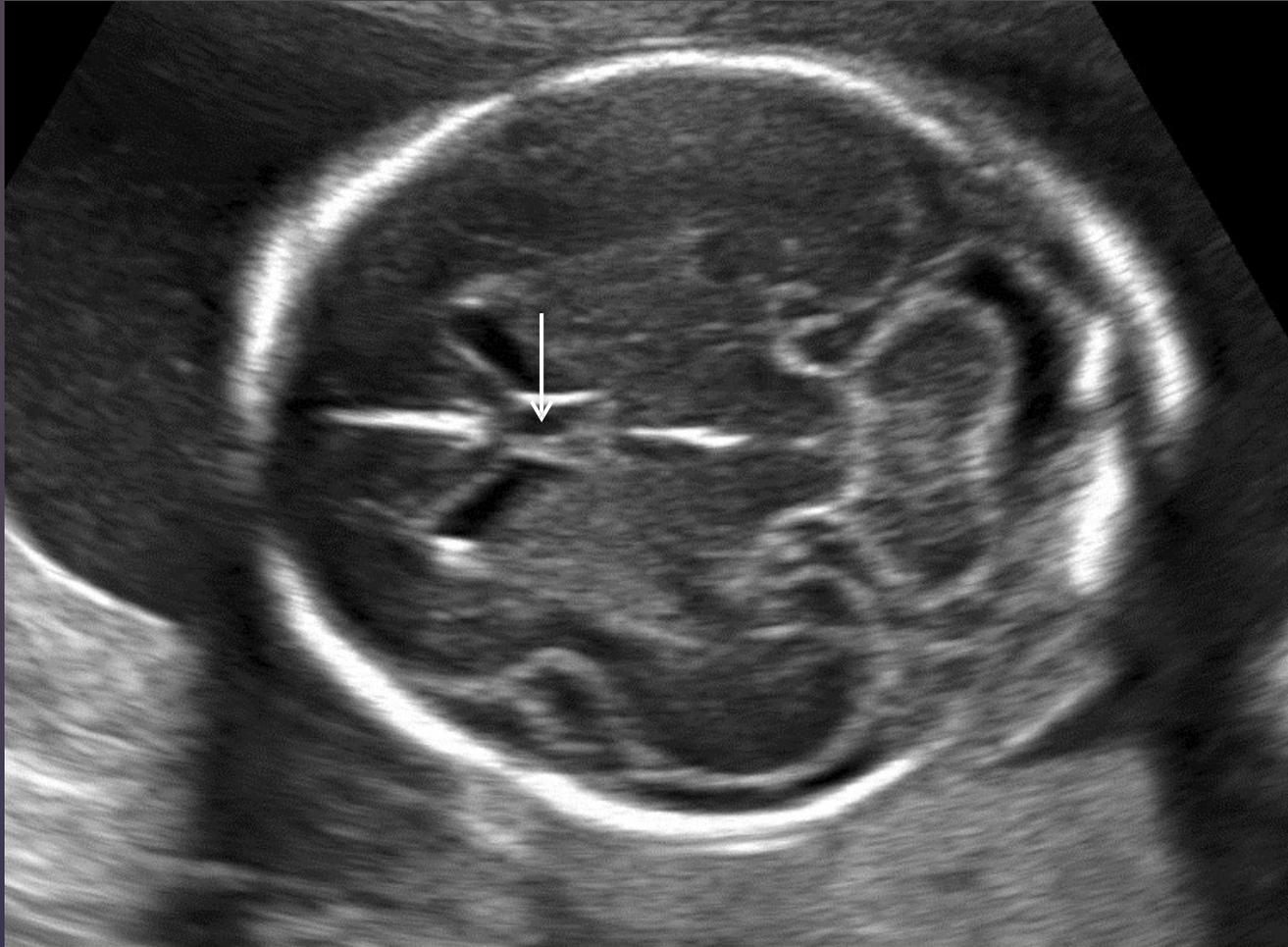
Lateral cerebral ventricles



Midline falx

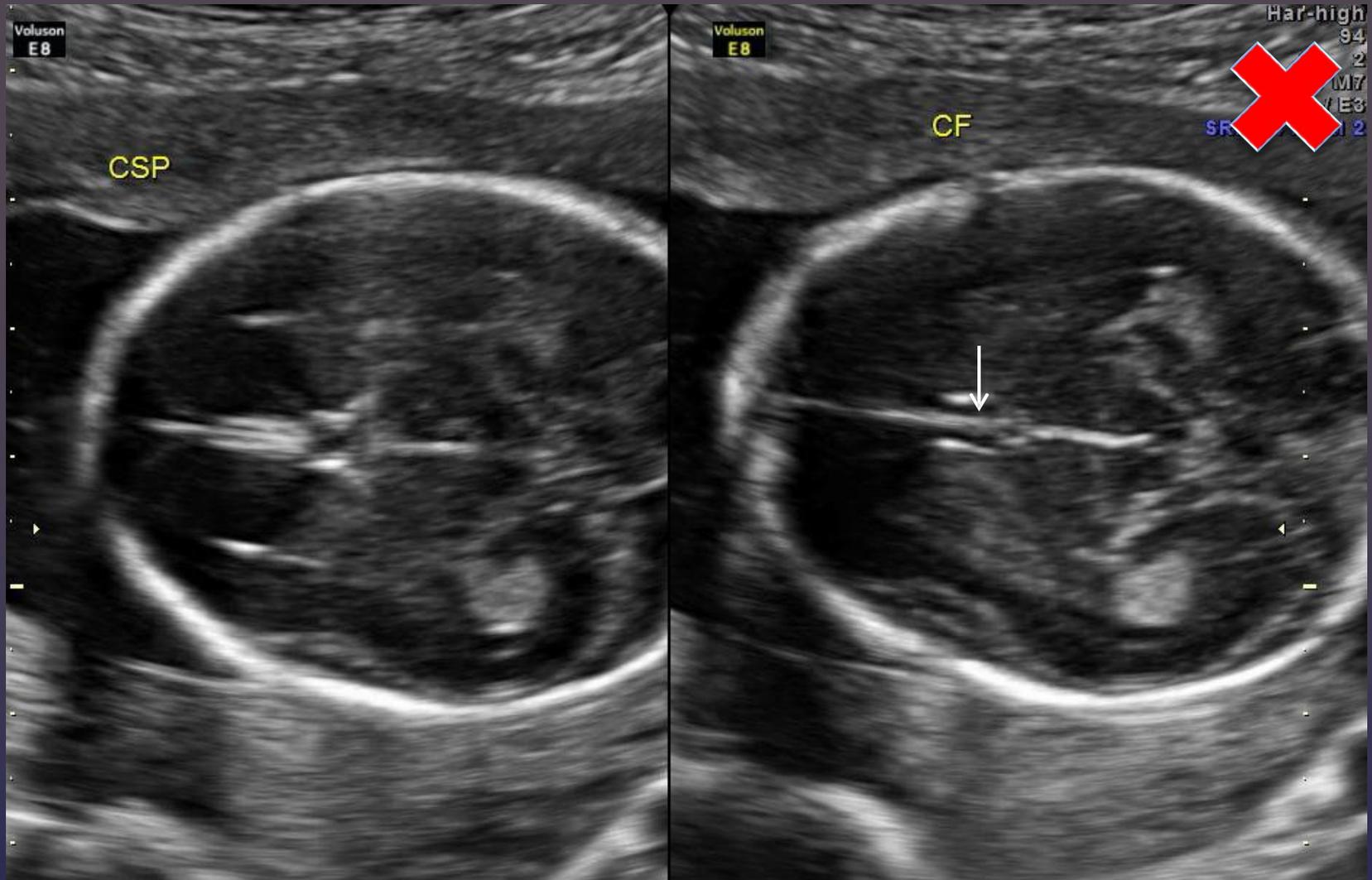


Cavum septi pellucidi



In an transverse axial view of the fetal head, the CSP appears as a fluid filled rectangular structure in the anterior midline; situated between the frontal horns of the lateral ventricle.

# PITFALL: Do not confuse the CSP with the Columns of the Fornix (CF)



Note the parallel line traveling through the CF.

PITFALL: Do not confuse the CSP with the  
Columns of the Fornix (CF)

“Columns of the fornix, not to be mistaken for the cavum  
septi pellucidi on prenatal ultrasound”

(<http://www.jultrasoundmed.org/content/27/1/25.full?sid=bbfa6200-abc0-4398-9ce0-a53f8039a007>)

“The cavum septum septi pellucidi: why is it important”

(<http://www.jultrasoundmed.org/content/29/3/427.full?sid=bbfa6200-abc0-4398-9ce0-a53f8039a007>)

Nuchal fold measurement may be helpful during a certain gestational age interval in modifying the risk for aneuploidy.



Normal NF



Thick NF

Axial scan through the fetal head which includes the thalami and the cerebellum. The measurement is made from the occipital bone to the outer skin edge.



View of the feta lower face showing the surface of the lips and the the two nares.

# 4-chamber view



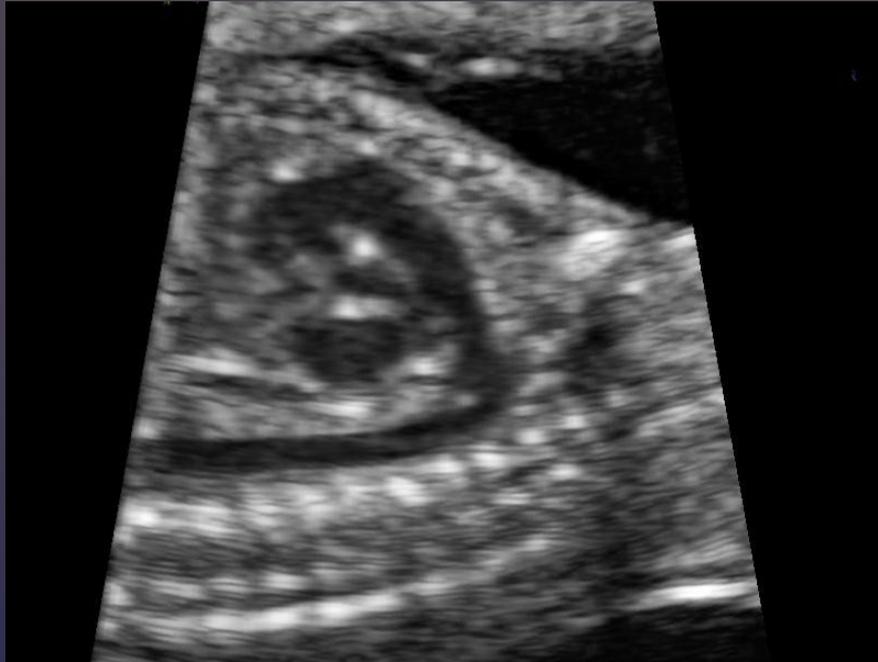
Apical



Axial View

# Cardiac Outflow Tracts

If technically feasible, views of the cardiac outflow tracts should be attempted.

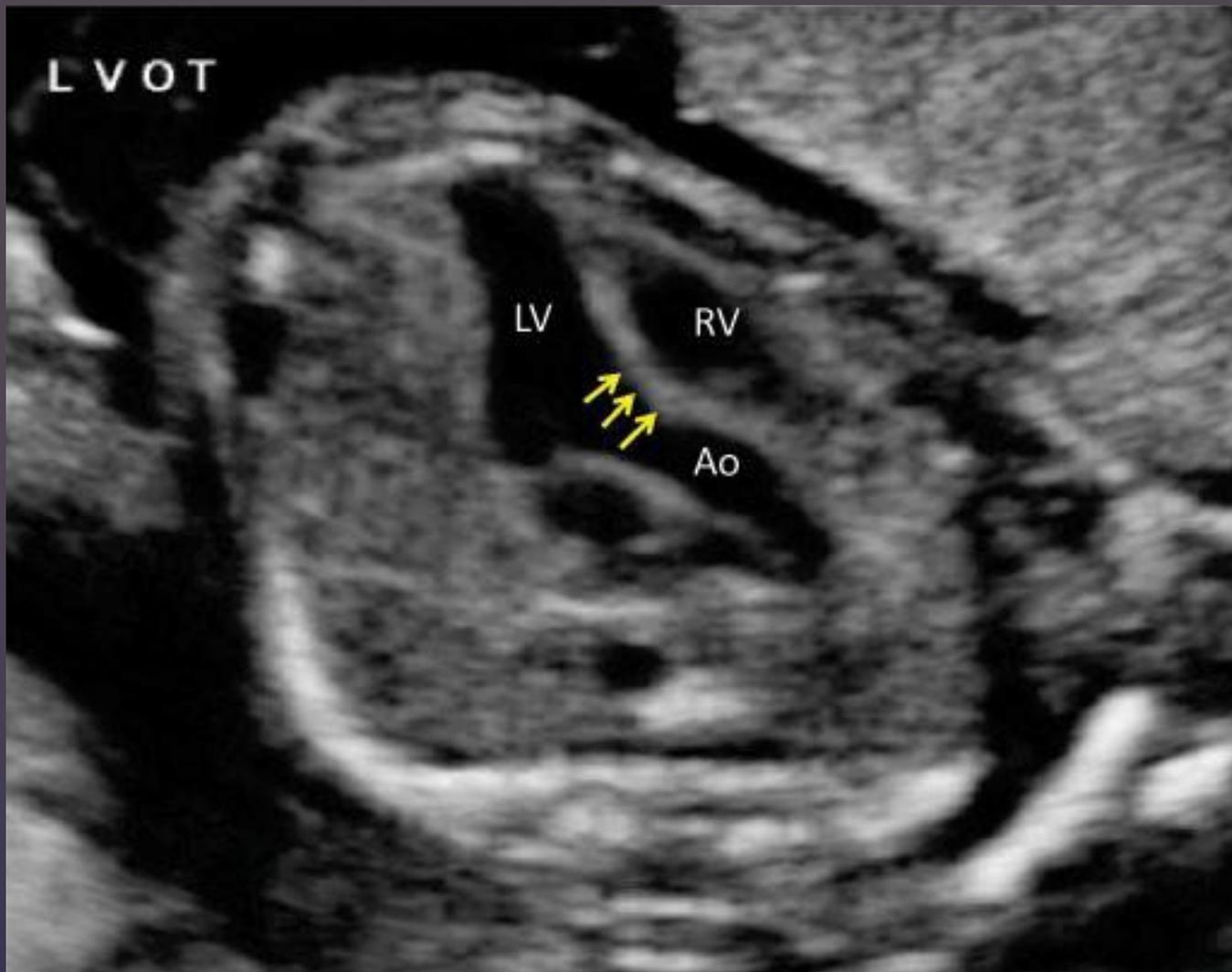


RVOT



LVOT

Sagittal view of cardiac outflow tracts.



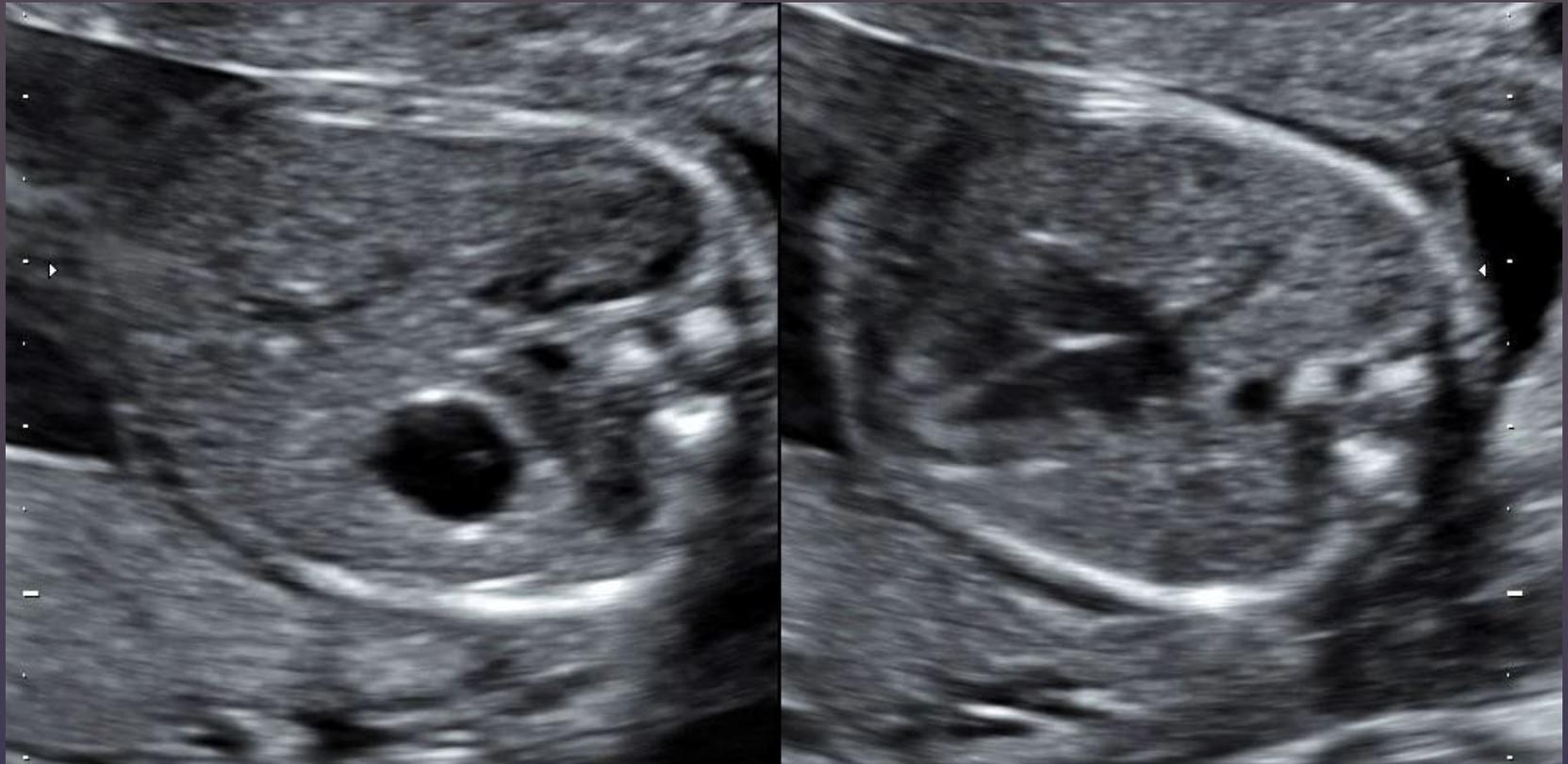
Left Ventricular Outflow Tract. Note the continuity in the interventricular septum (yellow arrows). LV= Left Ventricle; Ao = Aorta; RV= Right Ventricle.



Right ventricular outflow tract. RV= Right Ventricle,  
PA= Pulmonary Artery, Ao= Aorta



STOMACH : Presence, Size and Situs



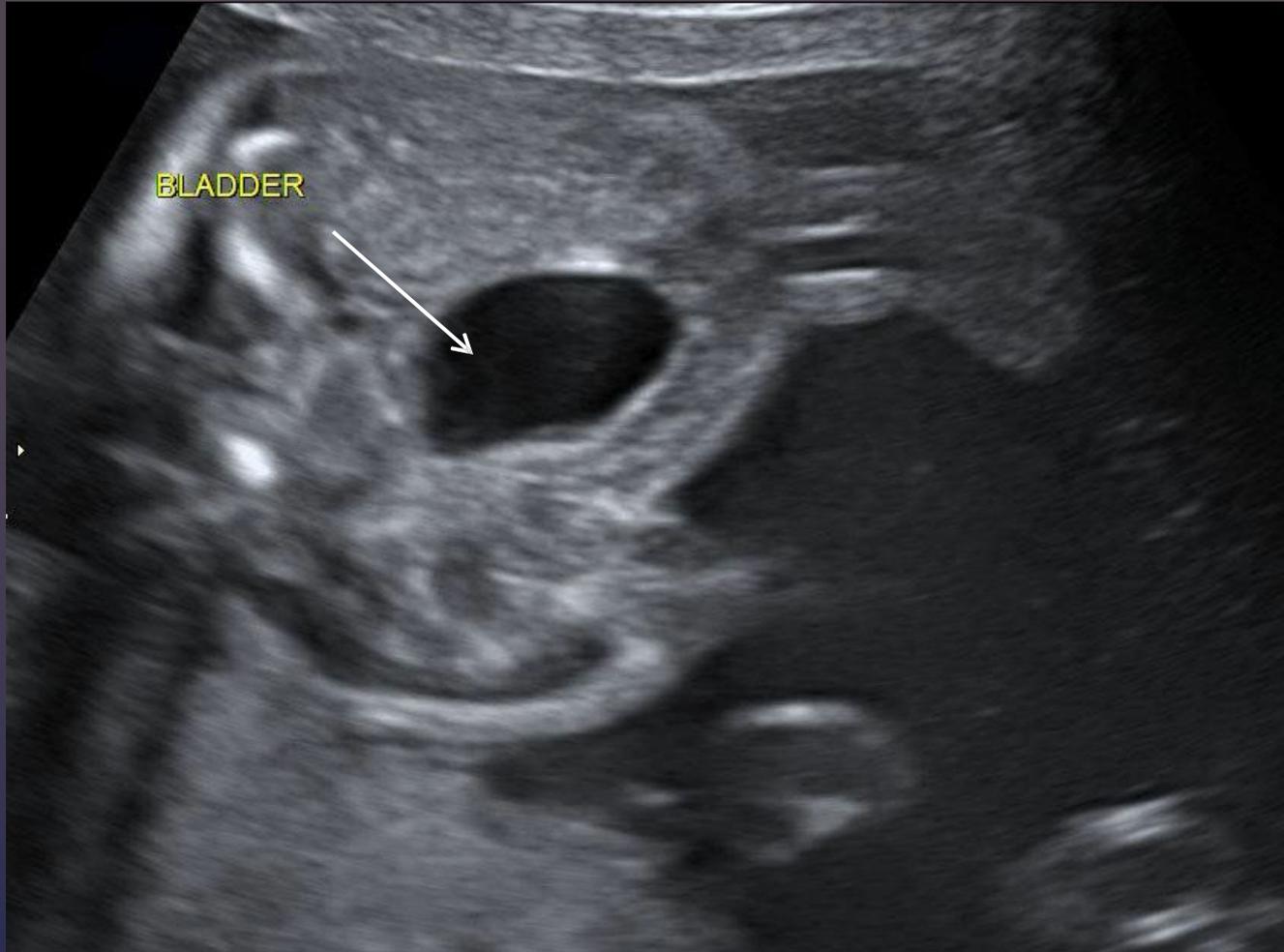
Evaluation of situs demonstrated on split image of the abdomen and thorax. Fetal position within the uterus must be evaluated,. In this case, the fetus is vertex and the left side is down.

# Kidneys



Coronal view demonstrating both fetal kidneys.

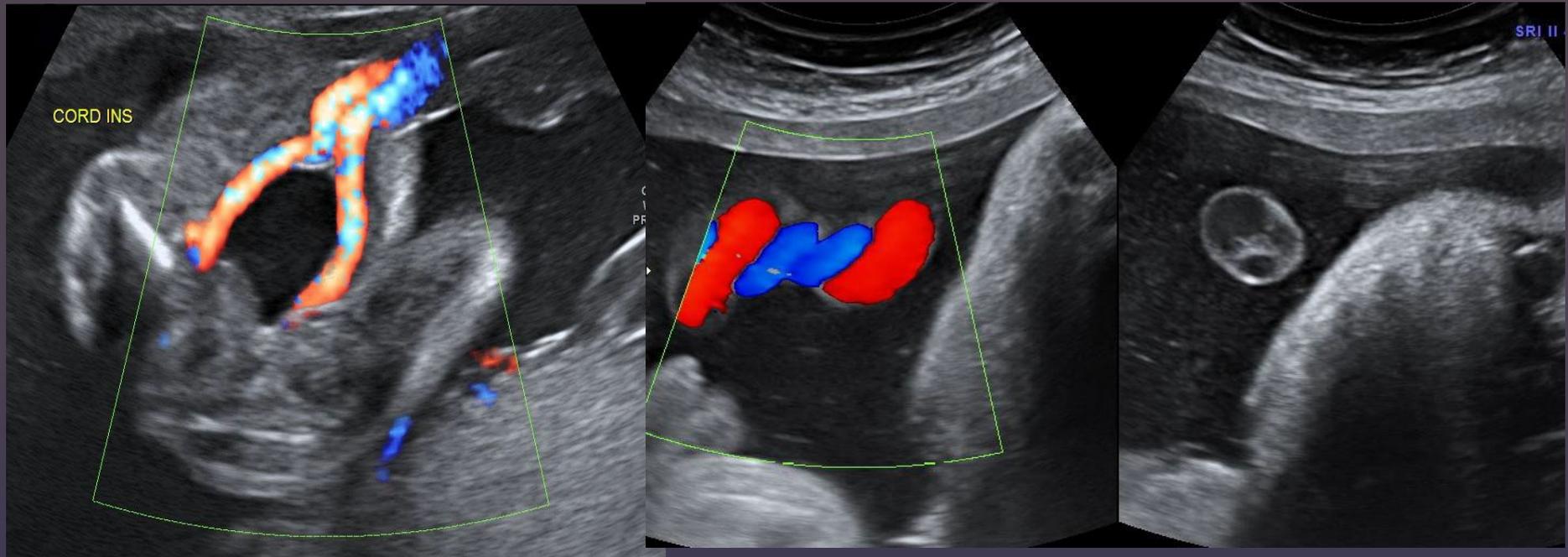
# Bladder



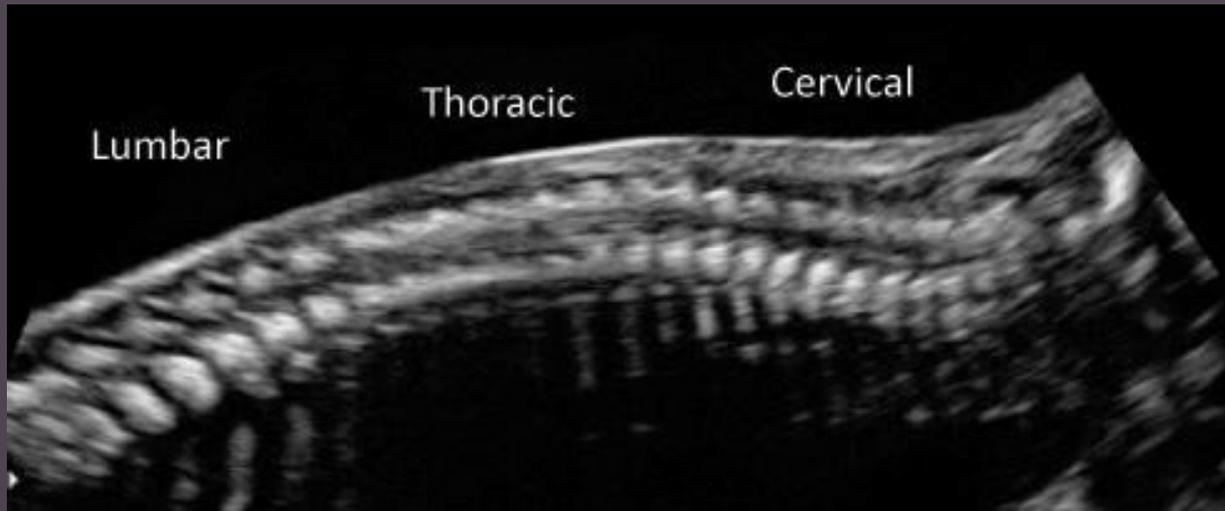
# Umbilical cord insertion site into the fetal abdomen



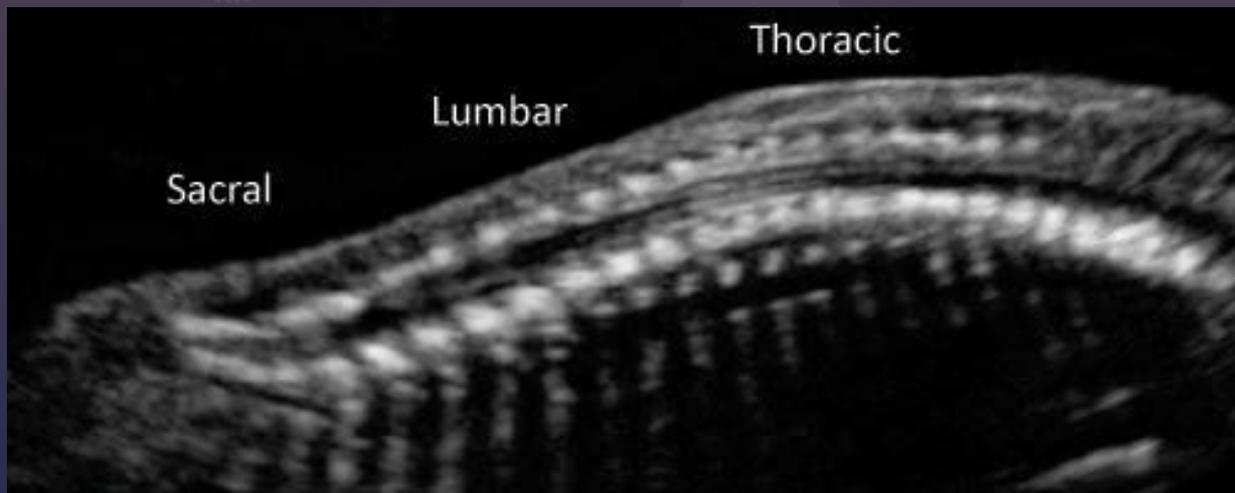
# Umbilical Cord Vessel Number

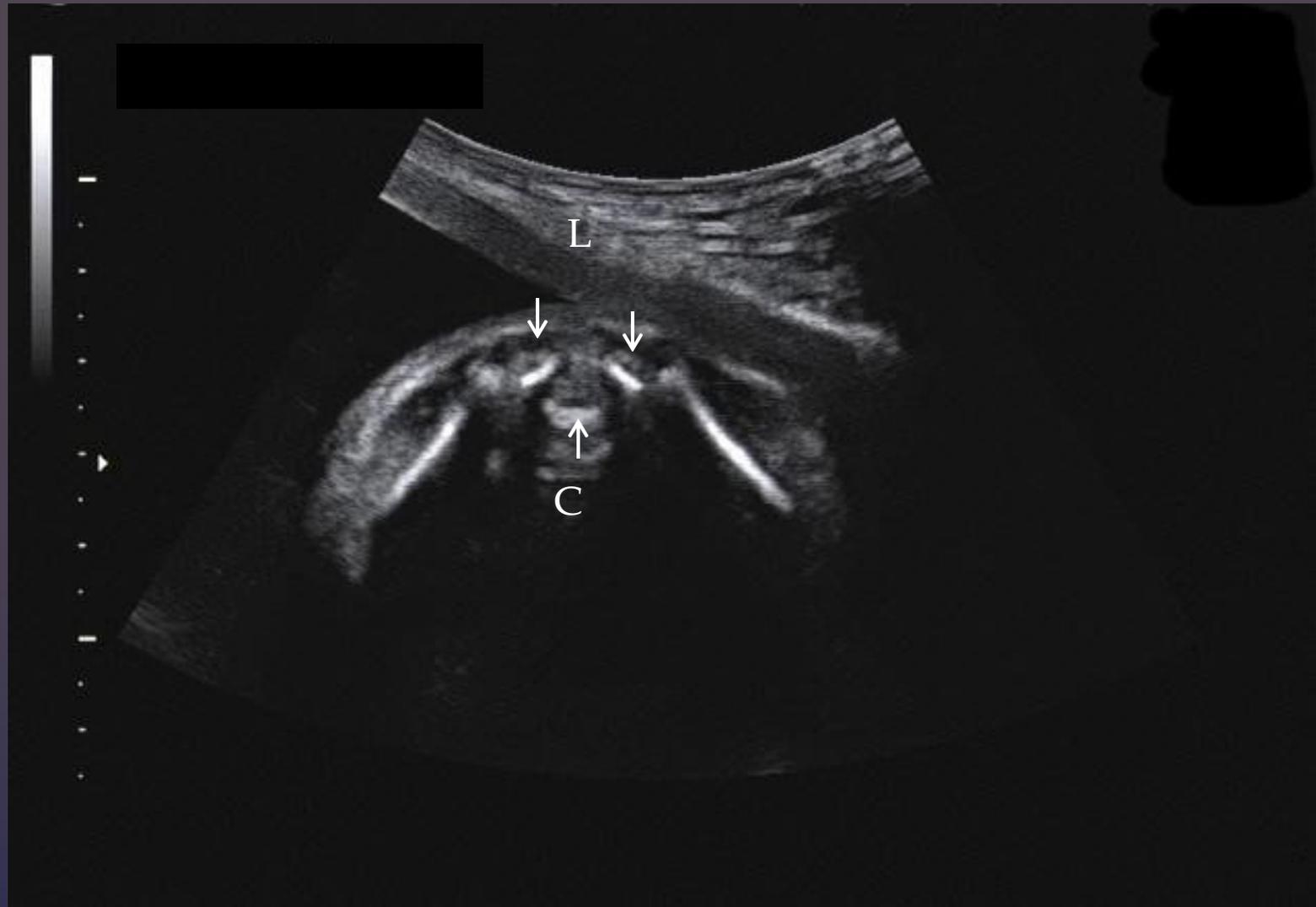


Can be demonstrated by color Doppler as the umbilical arteries course around the bladder, or by transverse/longitudinal imaging of a free loop of cord with color or gray scale.



Cervical, Thoracic, Lumbar and Sacral spine

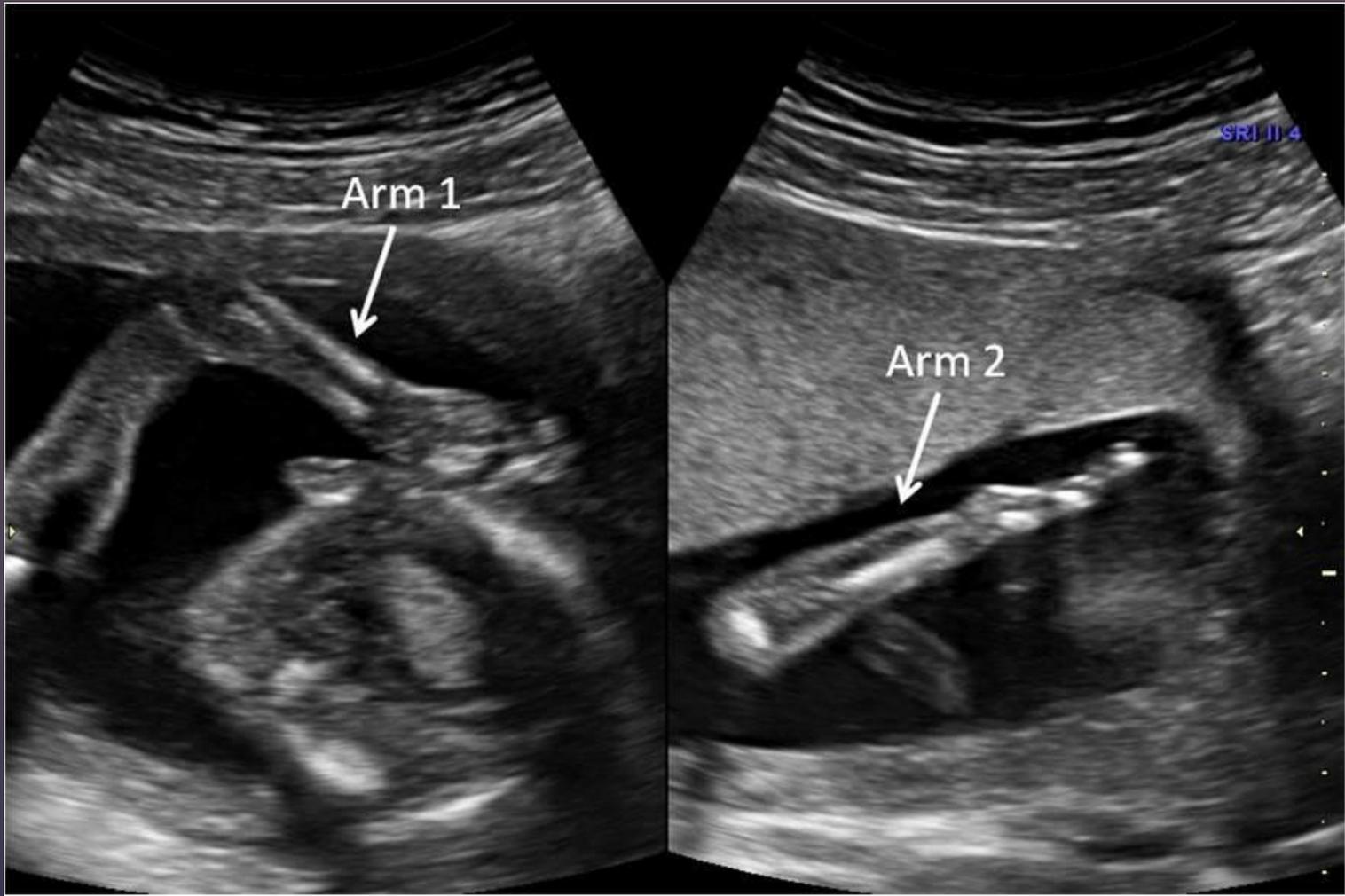




Transverse view of sacral spine showing the centrum (C) and lamina (L) .



Legs



Arms

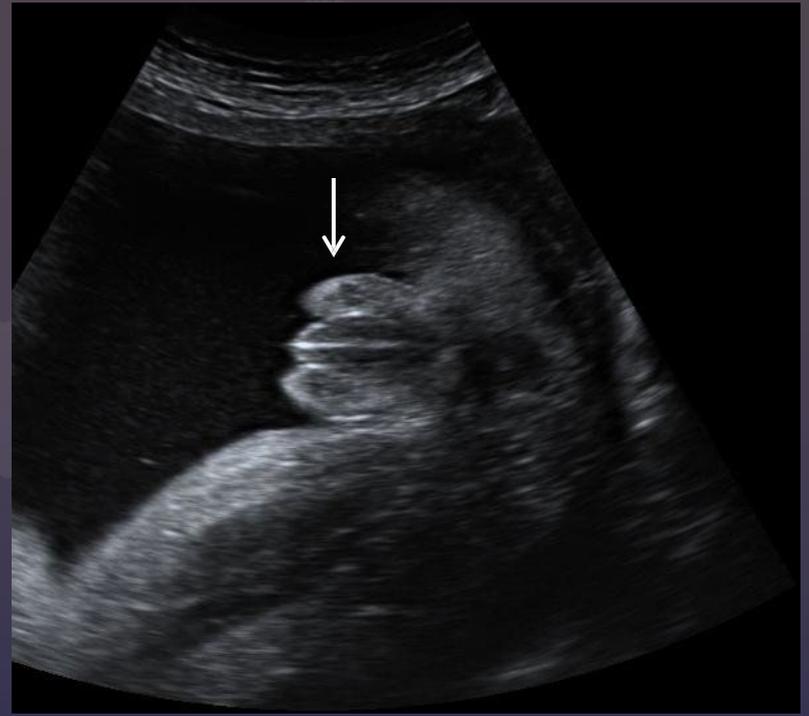


Male genitalia in second trimester.  
Note the stream of urine (arrow).

# Female



Second Trimester



Third Trimester

# ALARA: As Low As Reasonably Achievable

