

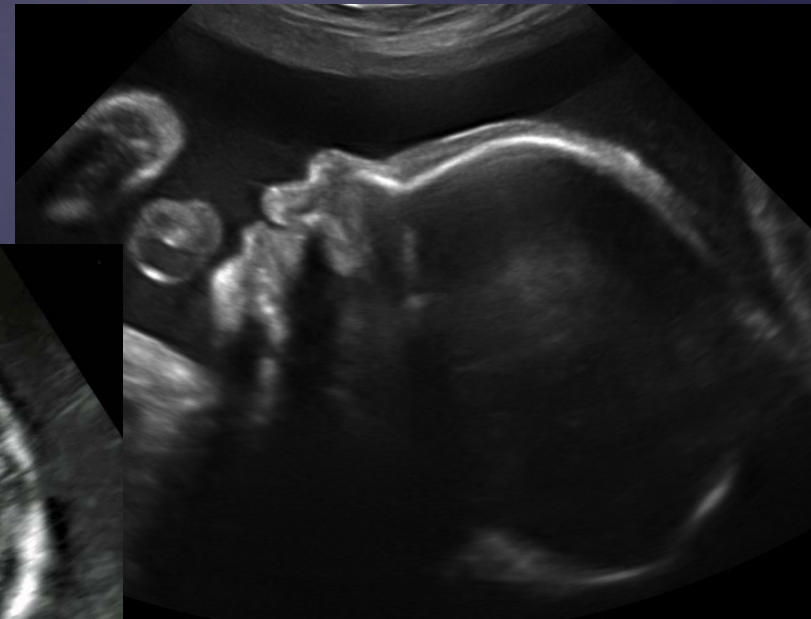
AIUM Practice Guideline for the Performance of Obstetric Ultrasound Examinations 2013



First Tri



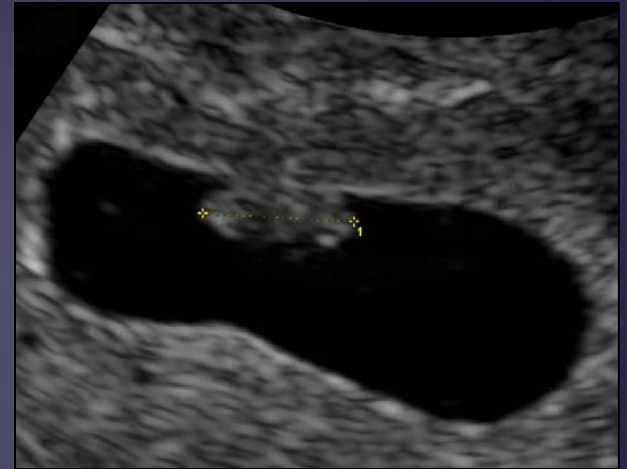
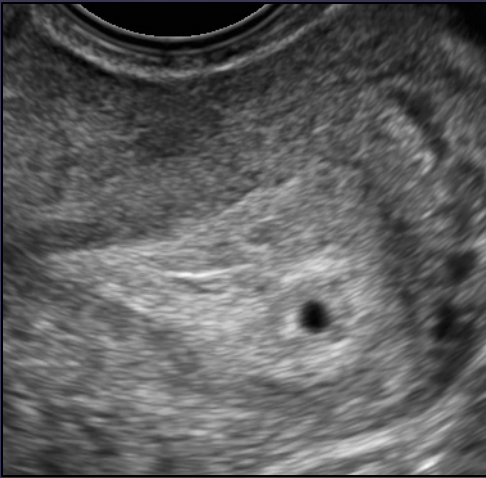
Second Tri



Third Tri

**** ACR/ACOG/SRU**

First trimester ultrasound evaluation



First Trimester Ultrasound Evaluation

Transabdominal



Transvaginal



For Practice Accreditation Purposes: First Trimester Scan must have a transvaginal component.



First Trimester Ultrasound Evaluation

- Presence, size, location and number of gestational sacs.
- Gestational sac examined for presence of yolk sac and embryo/fetus.
- When an embryo is detected it should be measured and cardiac activity recorded by 2D videoclip or M-mode.
- Uterus, cervix, adnexa and cul-de-sac region should be examined.

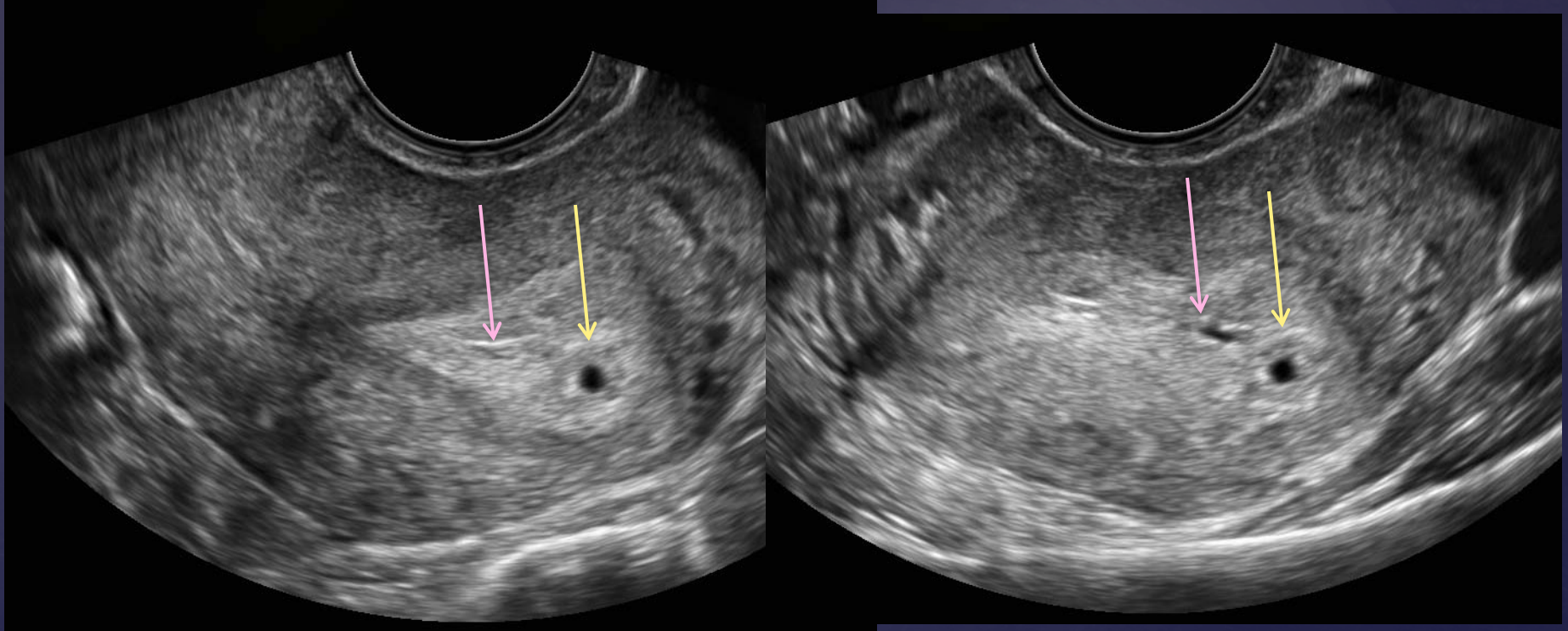
For Practice Accreditation Purposes: First Trimester Scan must have an embryo and cardiac activity.

Presence, Size, Location and Number of gestational sac(s)



Definitive diagnosis of an IUP when a yolk sac or embryo/fetus with cardiac activity is visualized.

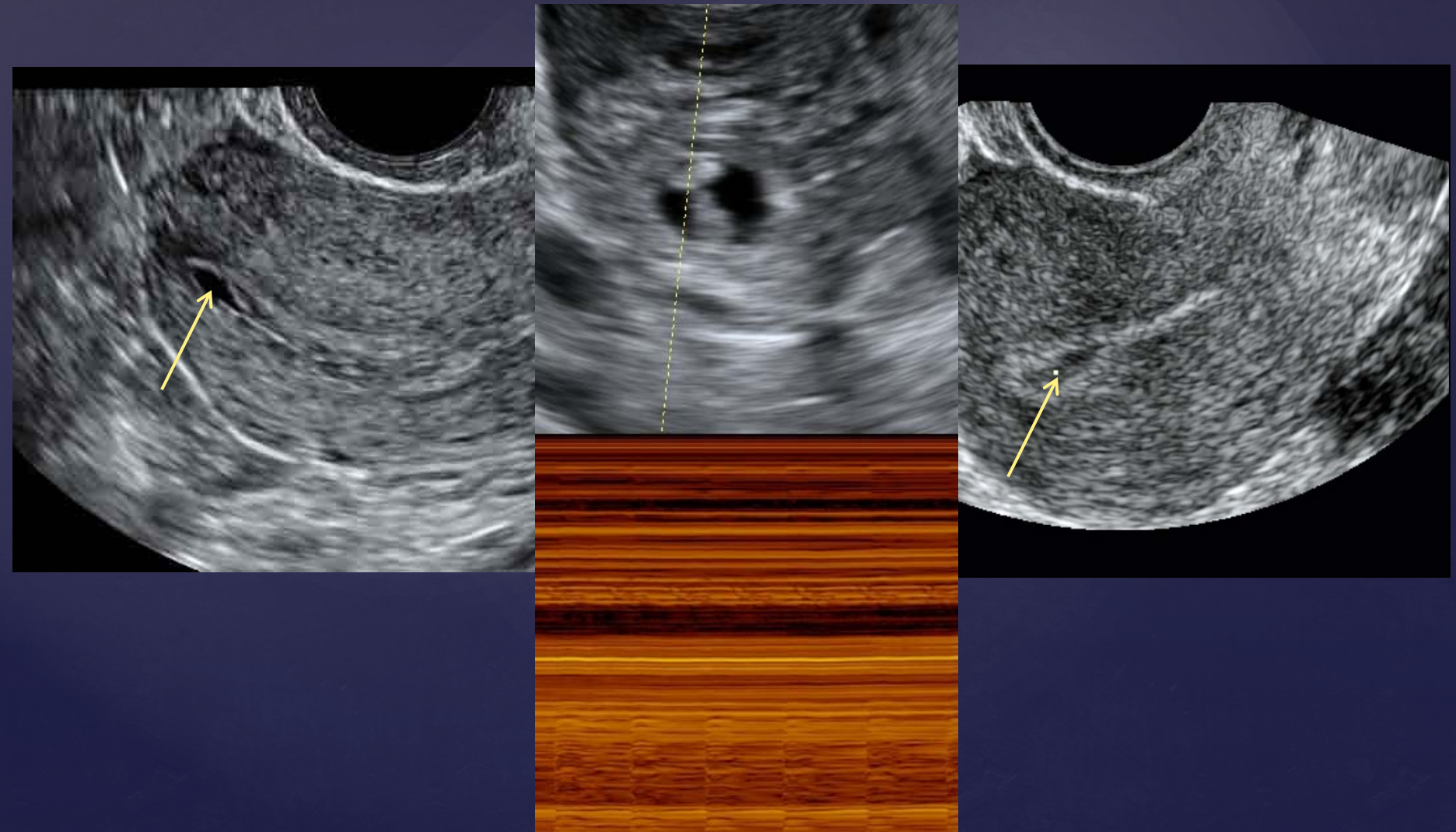
Presence, Size, Location and Number of gestational sac(s)



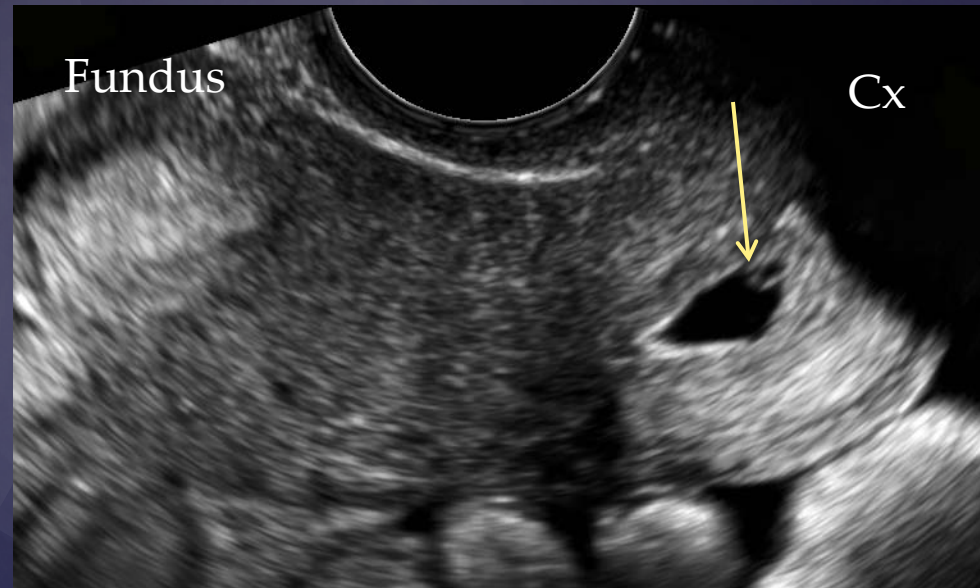
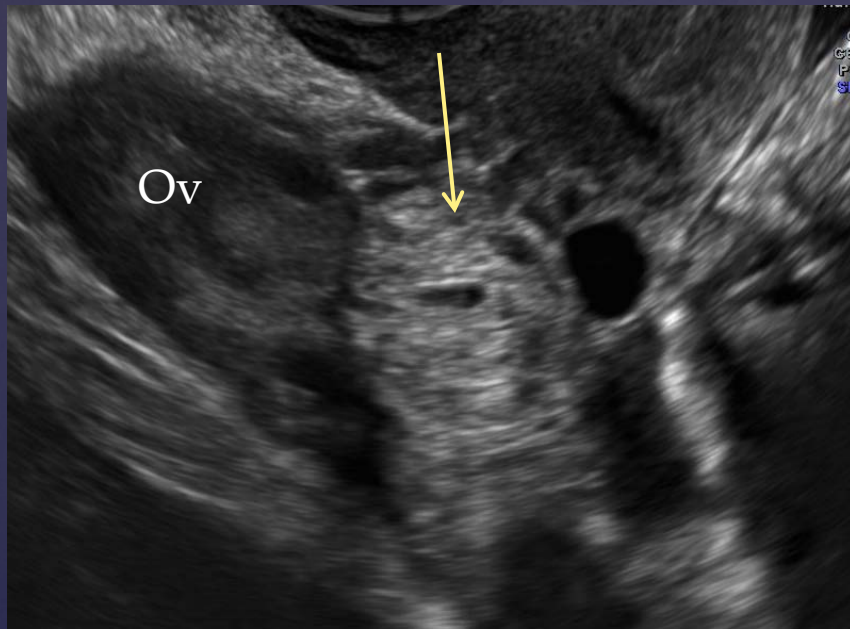
A small, eccentric intrauterine fluid collection with an echogenic rim can be seen before the ys and embryo in a very early IUP and are highly likely to represent an IUP.

**** Caution**

The uterus (including cervix) and adnexa should be evaluated for the presence of a gestational sac.



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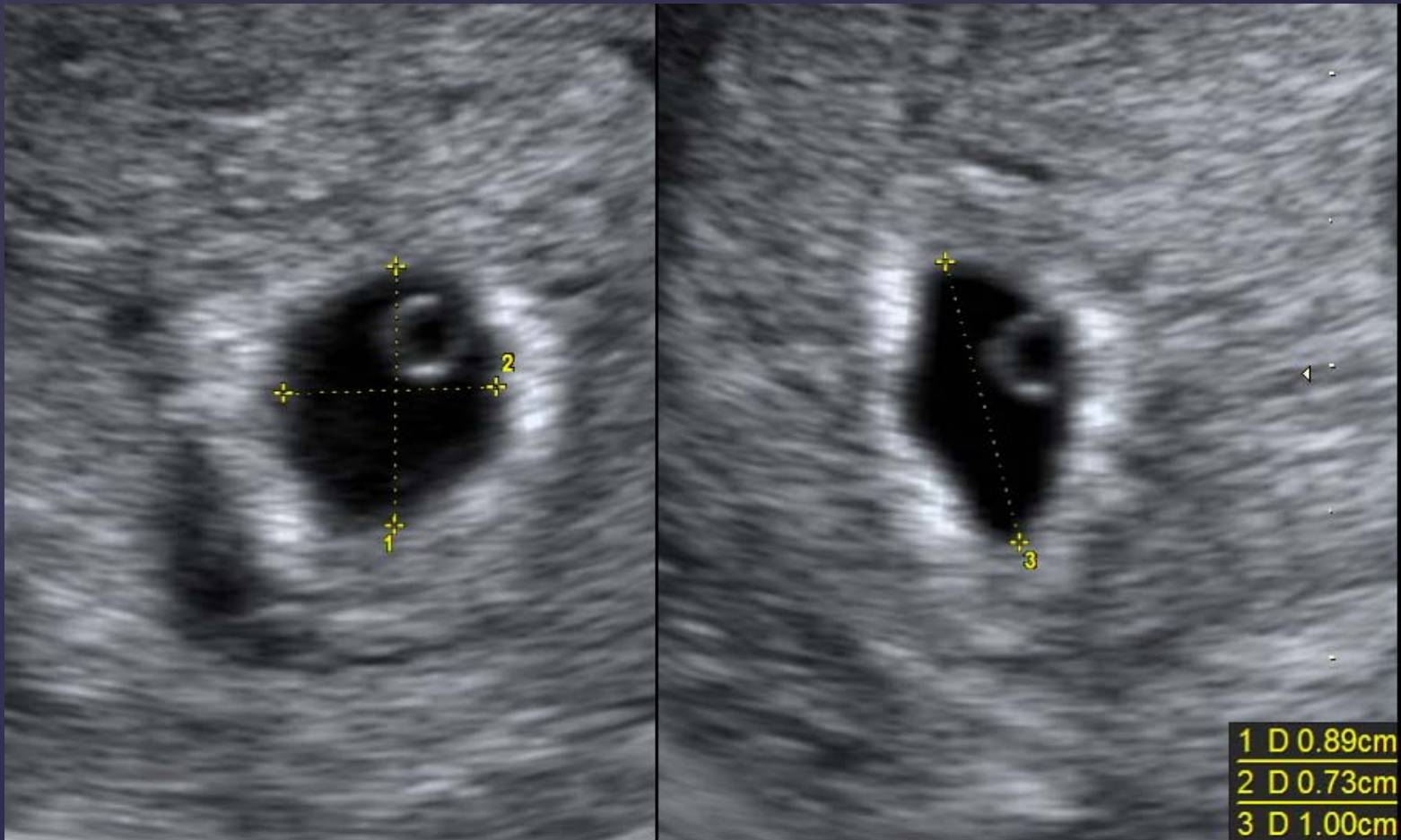


*Presence, Size, Location and **Number** of gestational sac(s)*



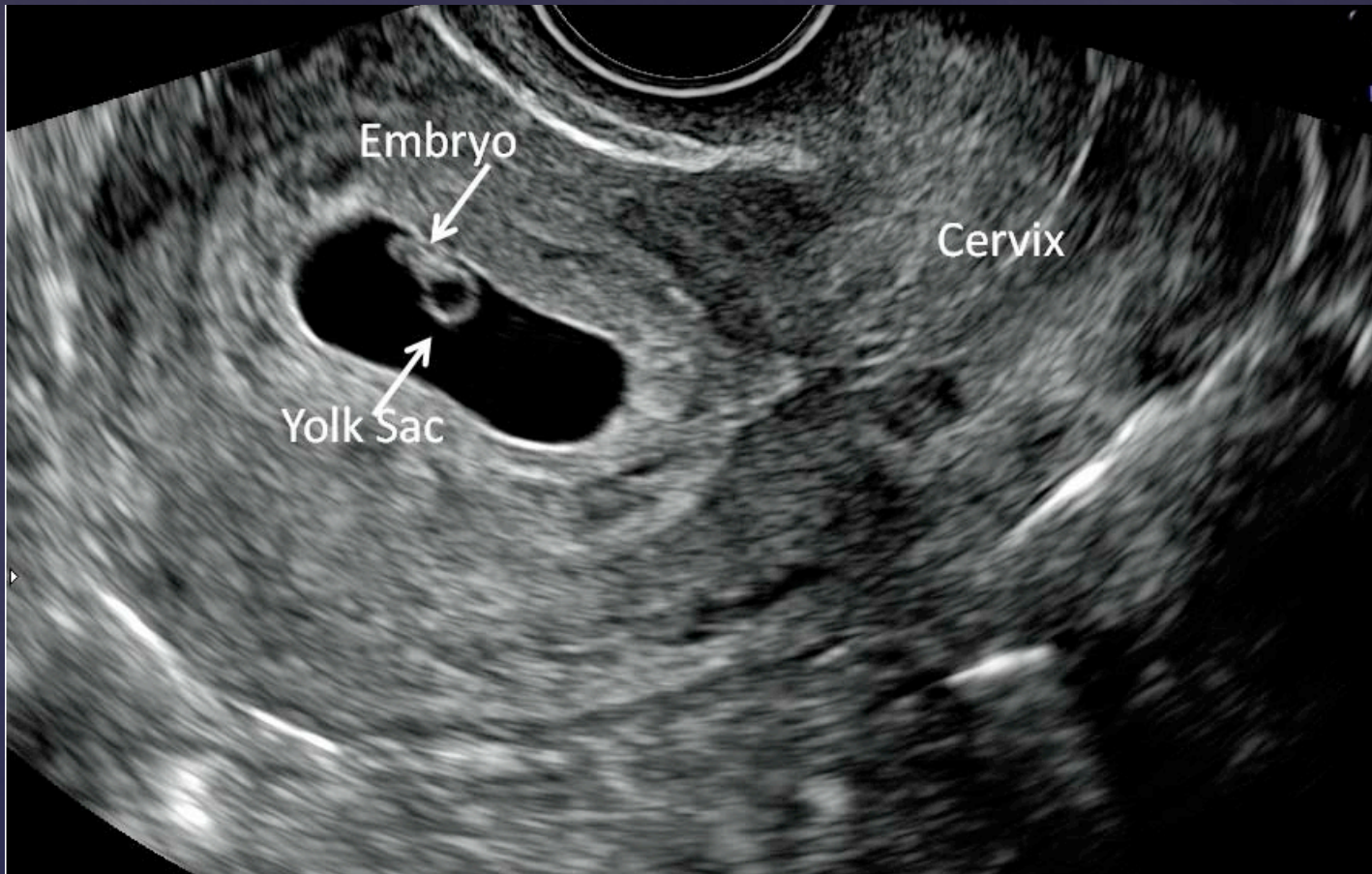
Examine Gestational Sac for Yolk sac





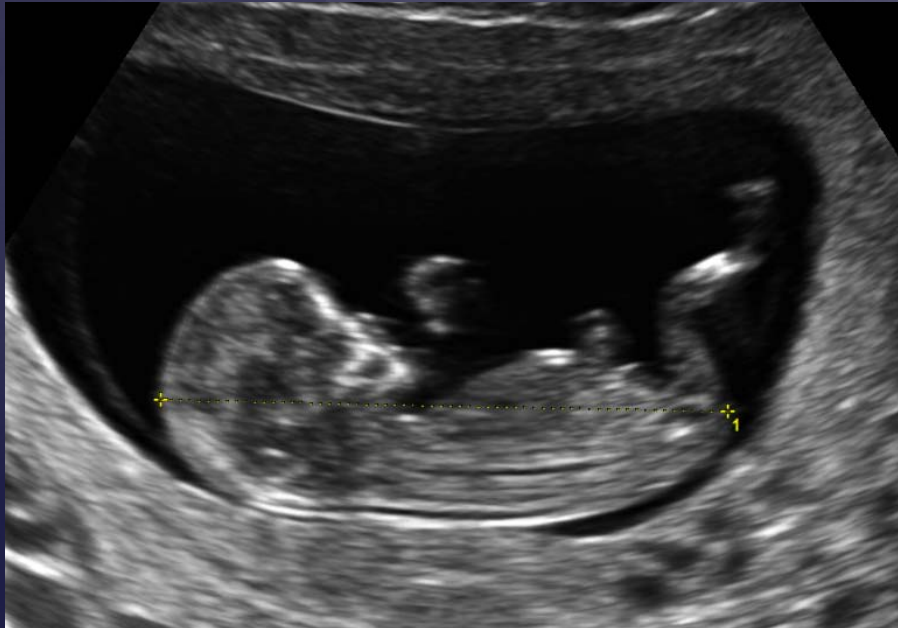
Prior to the identification of an embryo, the mean sac diameter (MSD) may be recorded. Note that the measurement does not include the echogenic rim of tissue.

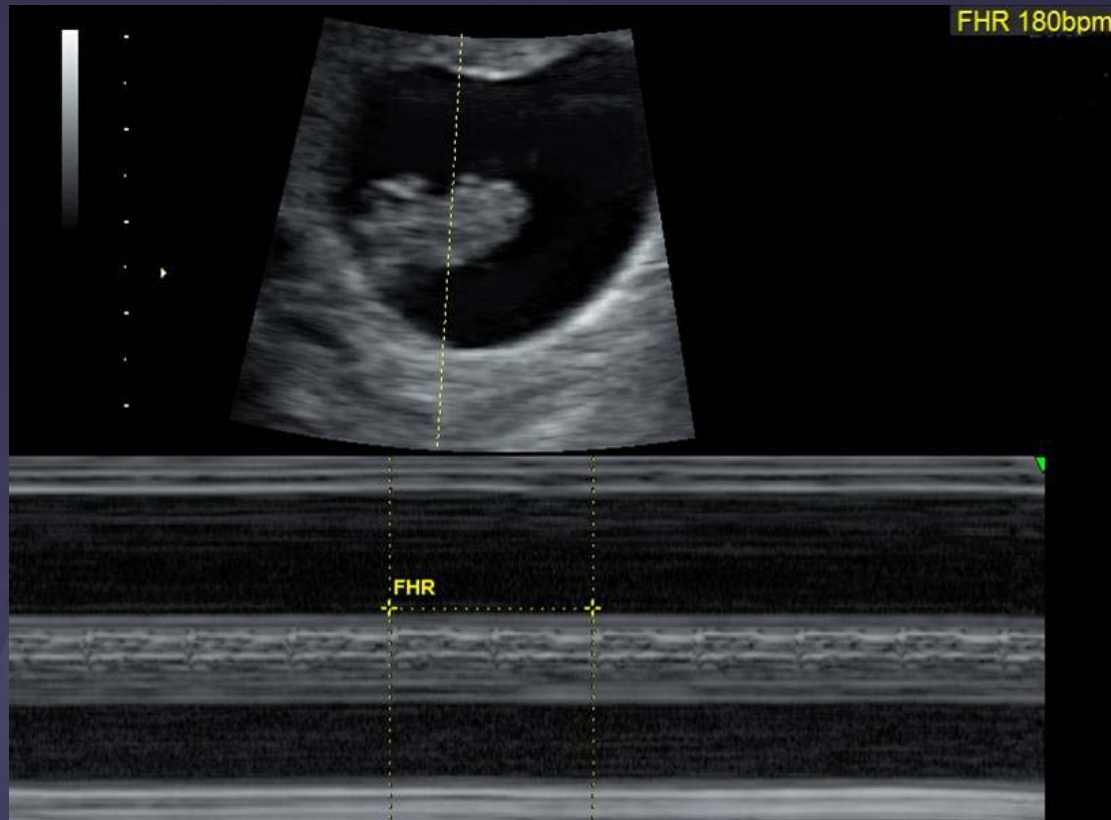
Gestational sac examined for presence of embryo.



Note the location of the embryo directly adjacent to the yolk sac.

Crown- Rump Length



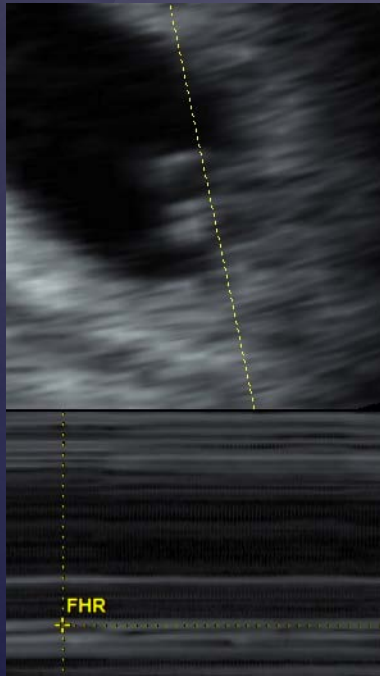


The presence or absence of CARDIAC ACTIVITY should be recorded. This may be done by direct visualization, M-mode or recording a 'clip' of the cardiac activity.

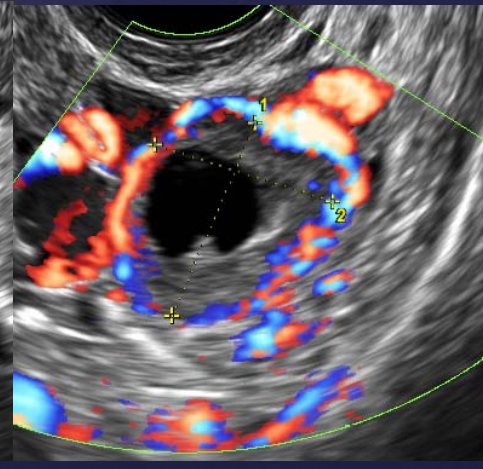
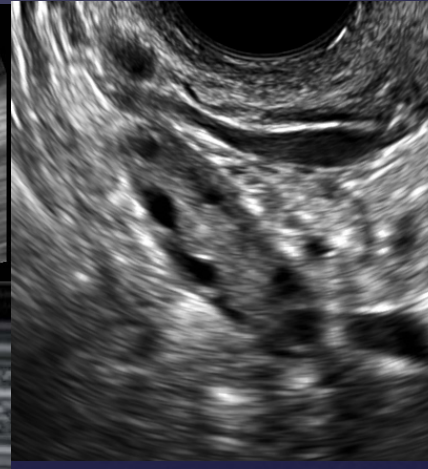
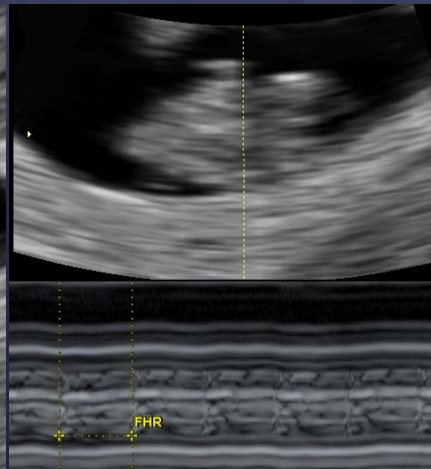
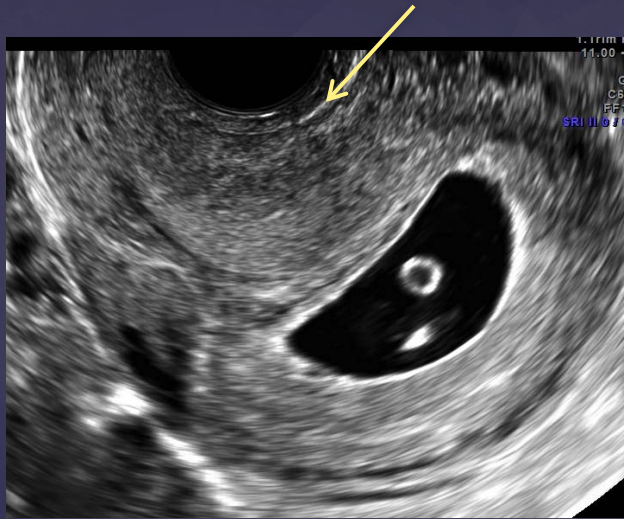
Doppler should **NOT** be used in the first trimester unless clinically indicated.

*** NEW

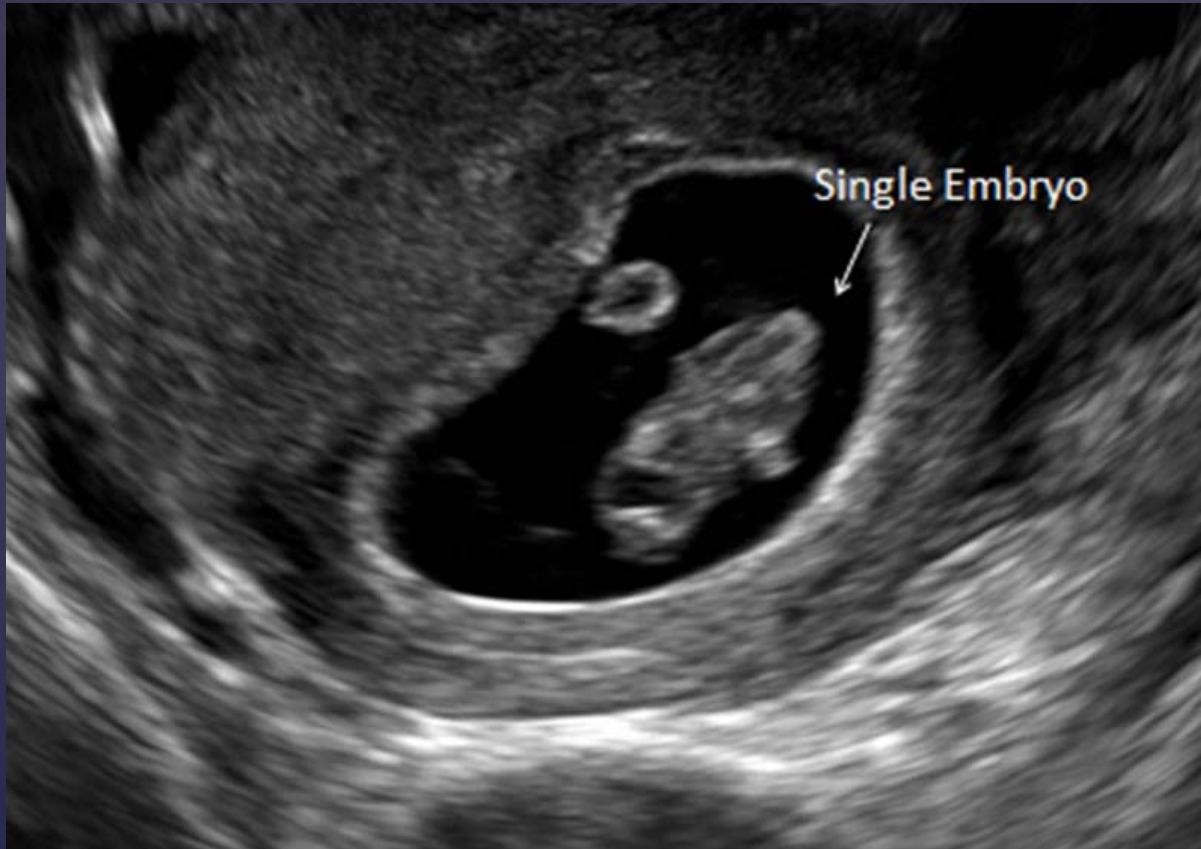
FH usually seen with CRL > 2 mm; If an embryo is < 7 mm, without cardiac activity, a subsequent scan in one week is recommended to ensure that the pregnancy is nonviable.



For the purposes of Accreditation: 1st tri case must have a TV evaluation and an embryo that is measured and FH documented.



Fetal Number should be documented—even with a singleton.



*In the event of a multiple gestation,
amnionicity and chorionicity should be
documented when possible. ***



Dichorionic - Diamniotic

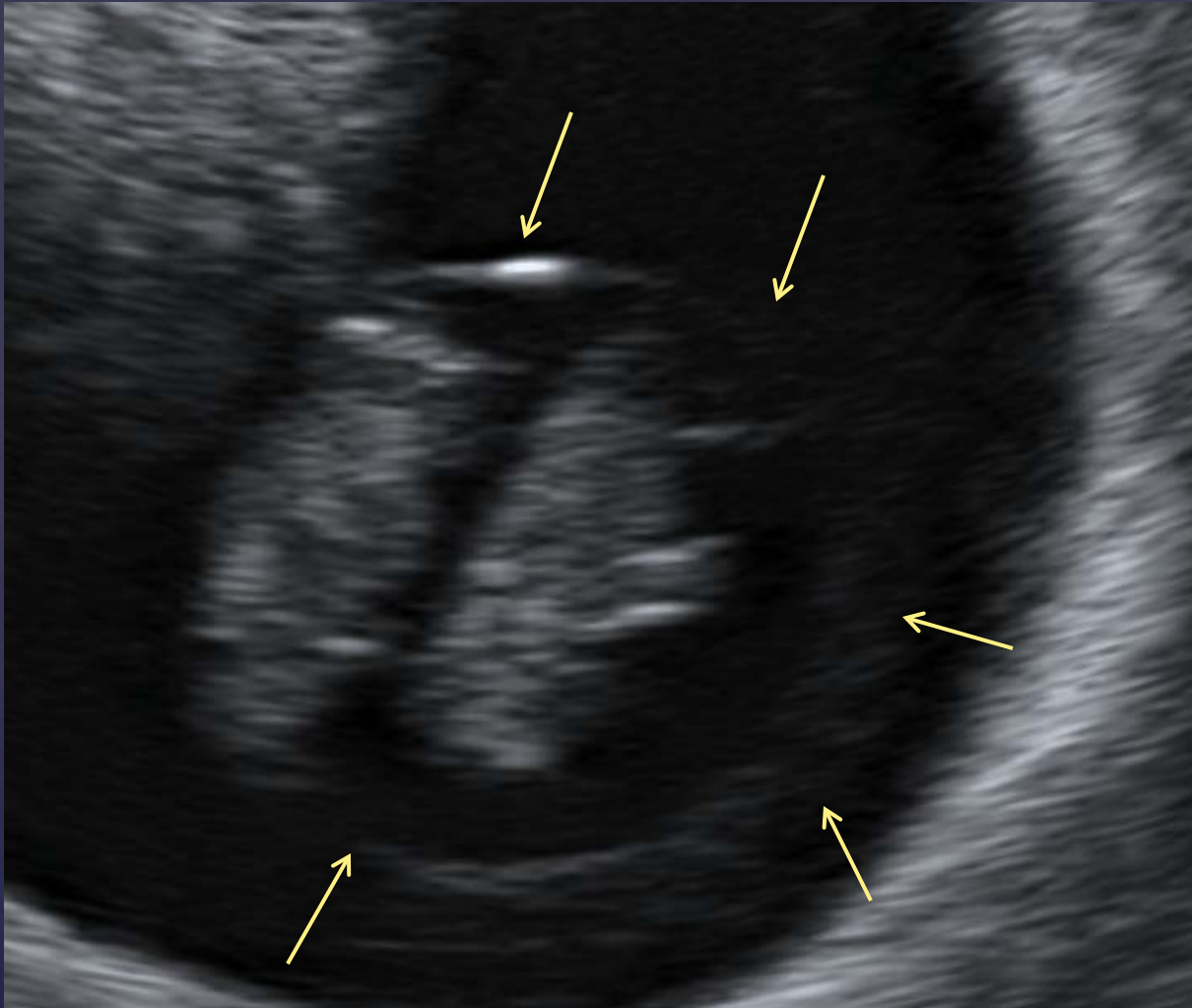
In the event of a multiple gestation, amnionicity and chorionicity should be documented if possible.



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Monochorionic-Monoamniotic

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

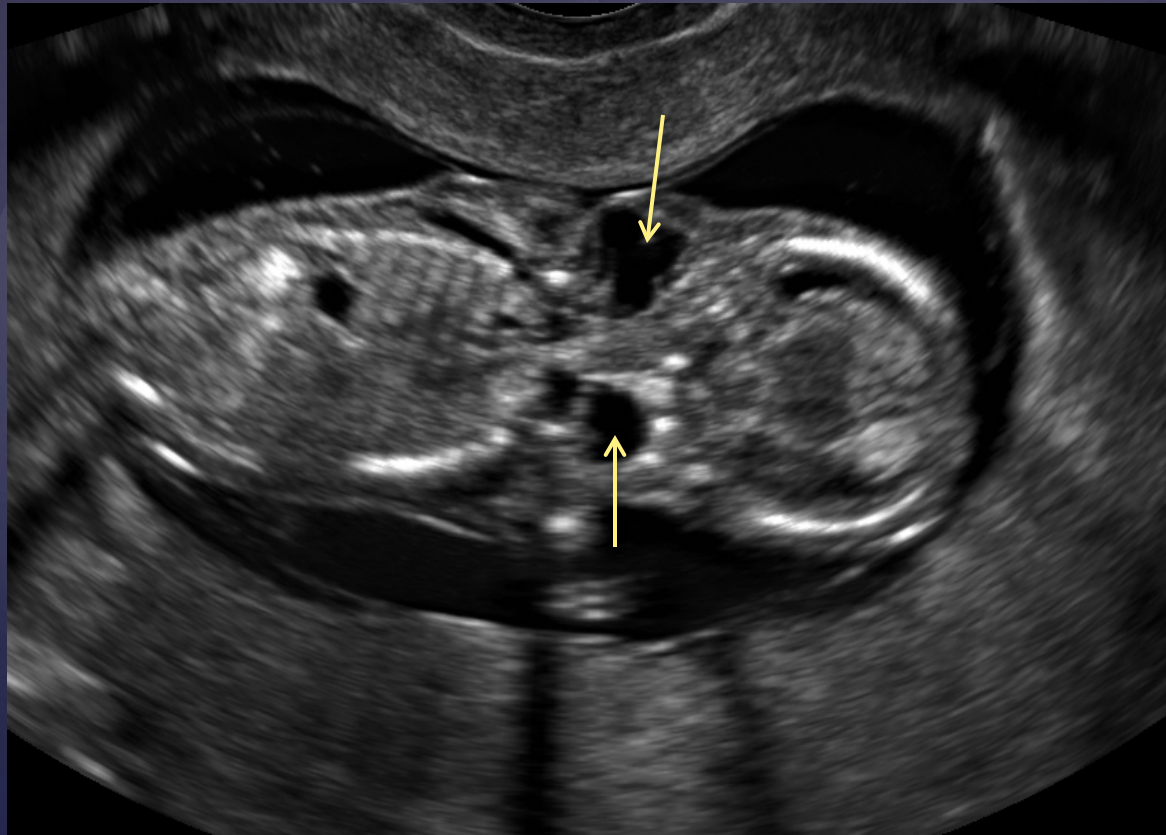


Abnormal cranial contour



Megacystis

The nuchal region should be imaged and abnormalities such as cystic hygroma should be documented.



*In patients desiring risk assessment for aneuploidy; a specific NT measurement (in conjunction with biochemistry) can be used to determine the risk of aneuploidy.***

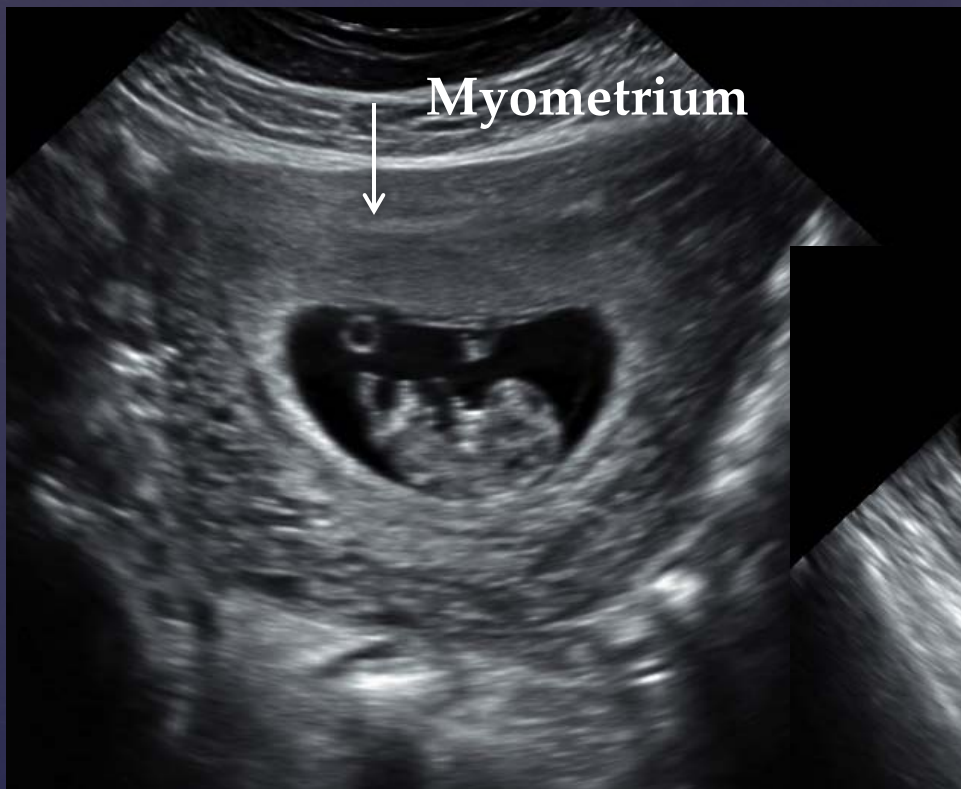


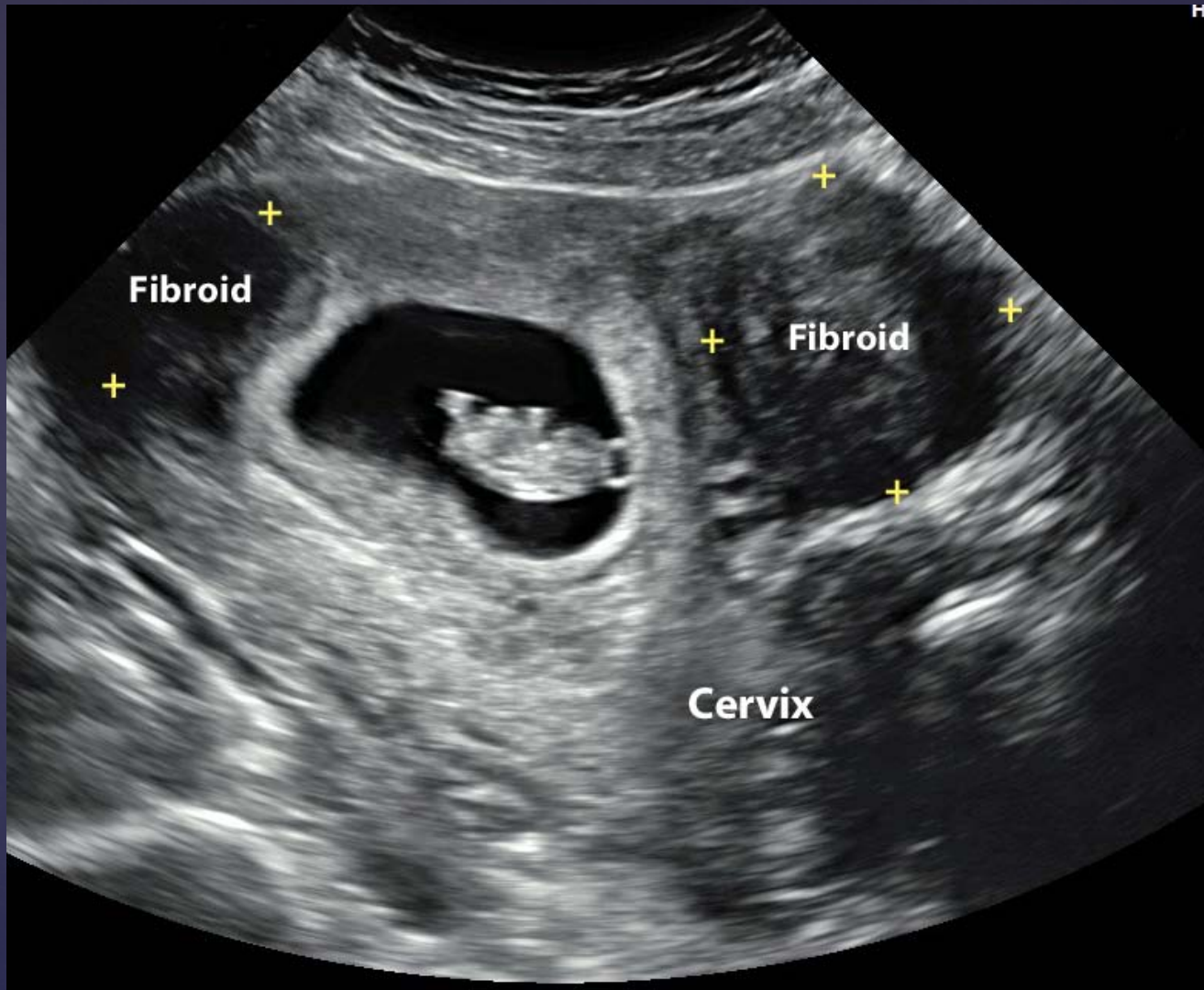
Quality Assessment
Program

*In patients desiring risk assessment for aneuploidy; a specific NT measurement (in conjunction with biochemistry) can be used to determine the risk of aneuploidy.***



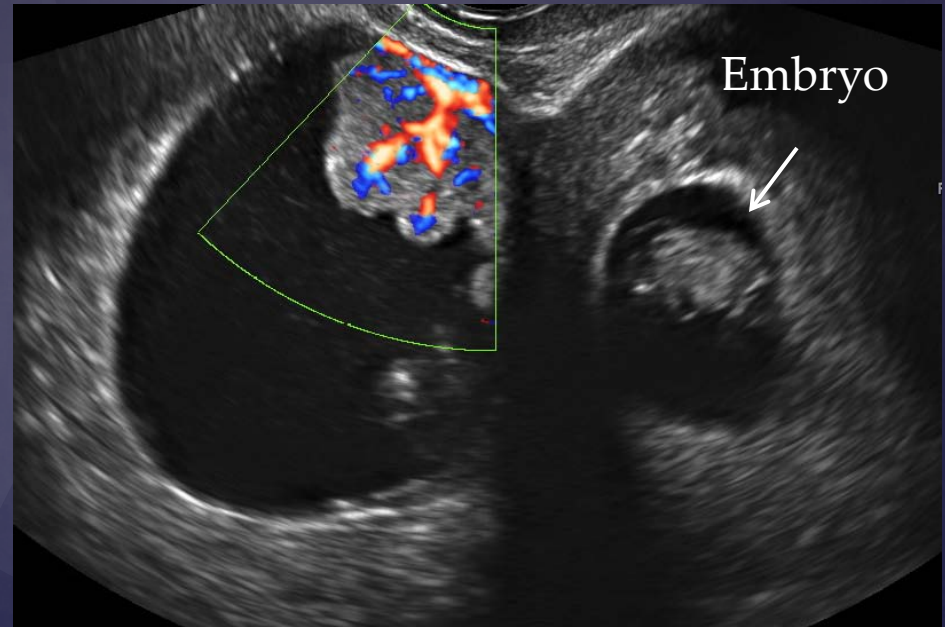
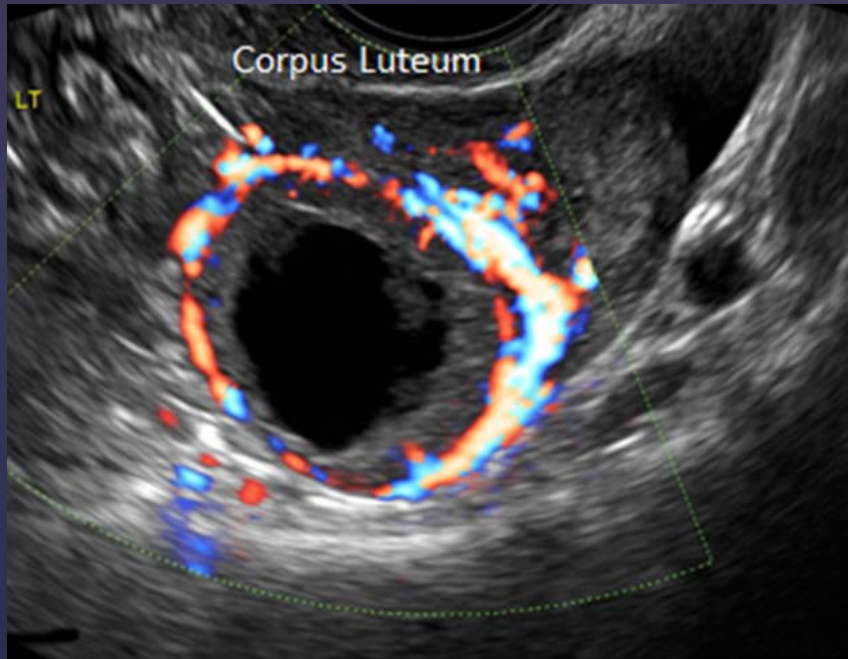
The uterus, cervix, adnexal structures and cul-de-sac should be evaluated. Abnormalities should be imaged and documented.





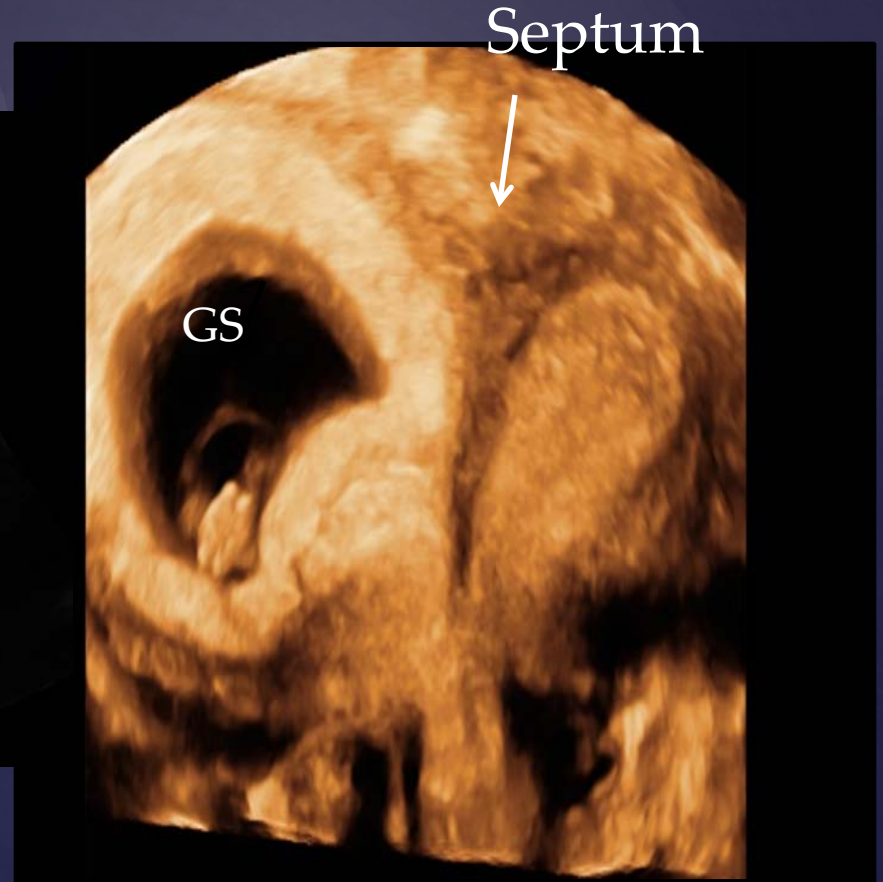
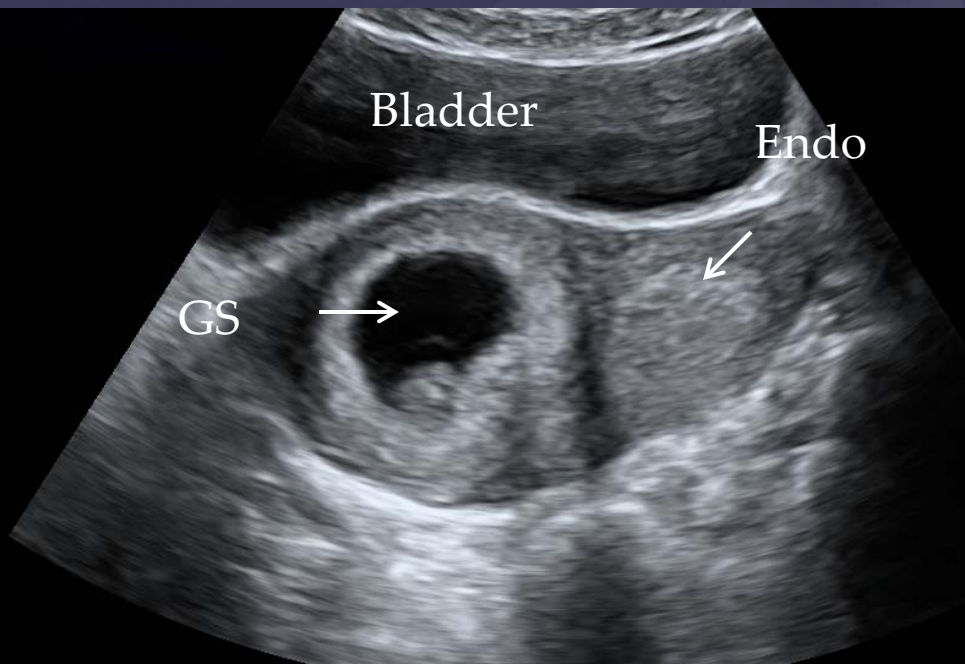
The presence and number of leiomyomata should be documented. The measurement of the largest or any potentially clinically significant leiomyomata should be documented.

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

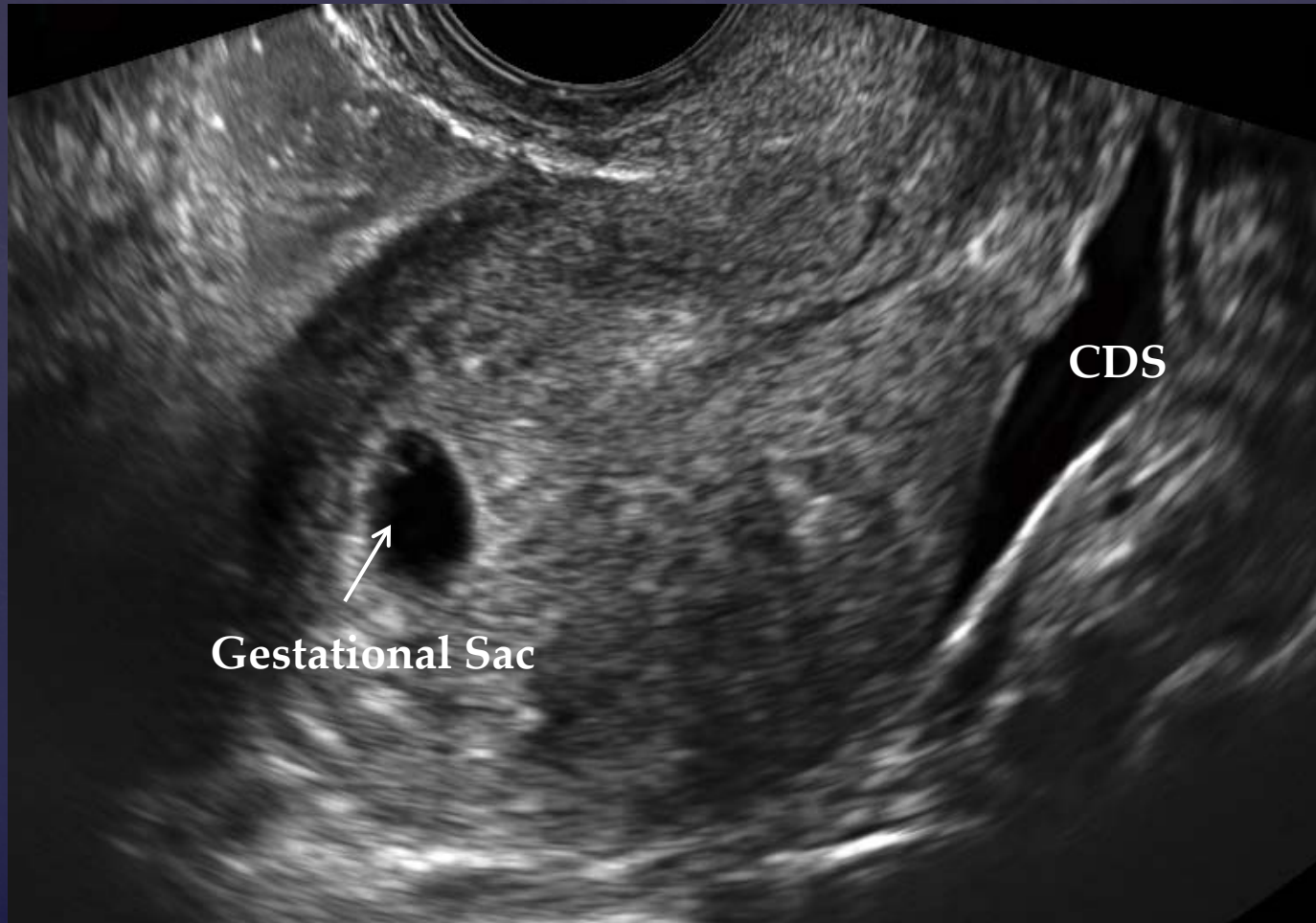



**** **NEW**

Uterine anomalies should be documented.



*The presence or absence of fluid in the
cul-de-sac should be noted.*

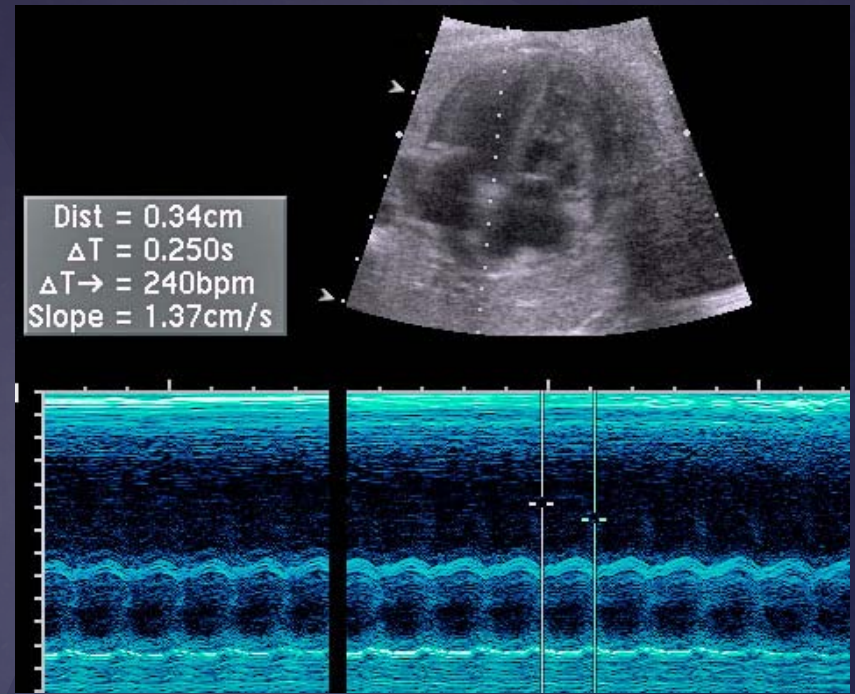




*AIUM Practice Guideline for the
Performance of Obstetric
Ultrasound Examinations*



Second and Third Trimester Ultrasound
Evaluation



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

FETAL NUMBER should be documented.

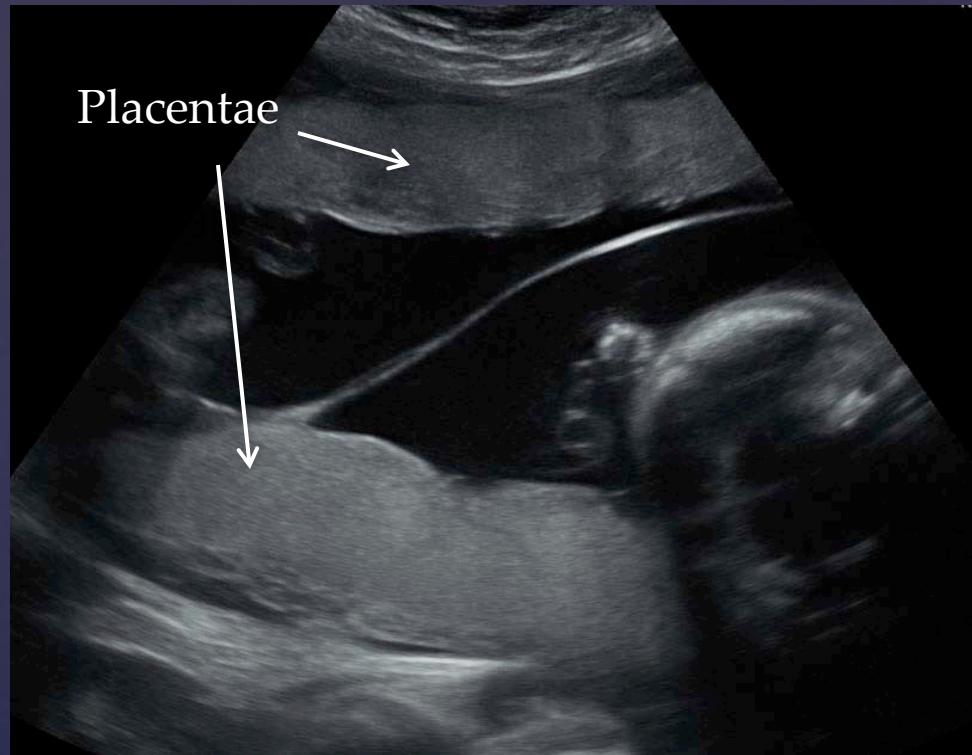


Multiple Gestations :

- Chorionicity
- Amnionicity
- Comparison of fetal sizes
- Estimation of AFV in each sac.
- Genitalia when visualized.



Amnionicity and Chorionicity



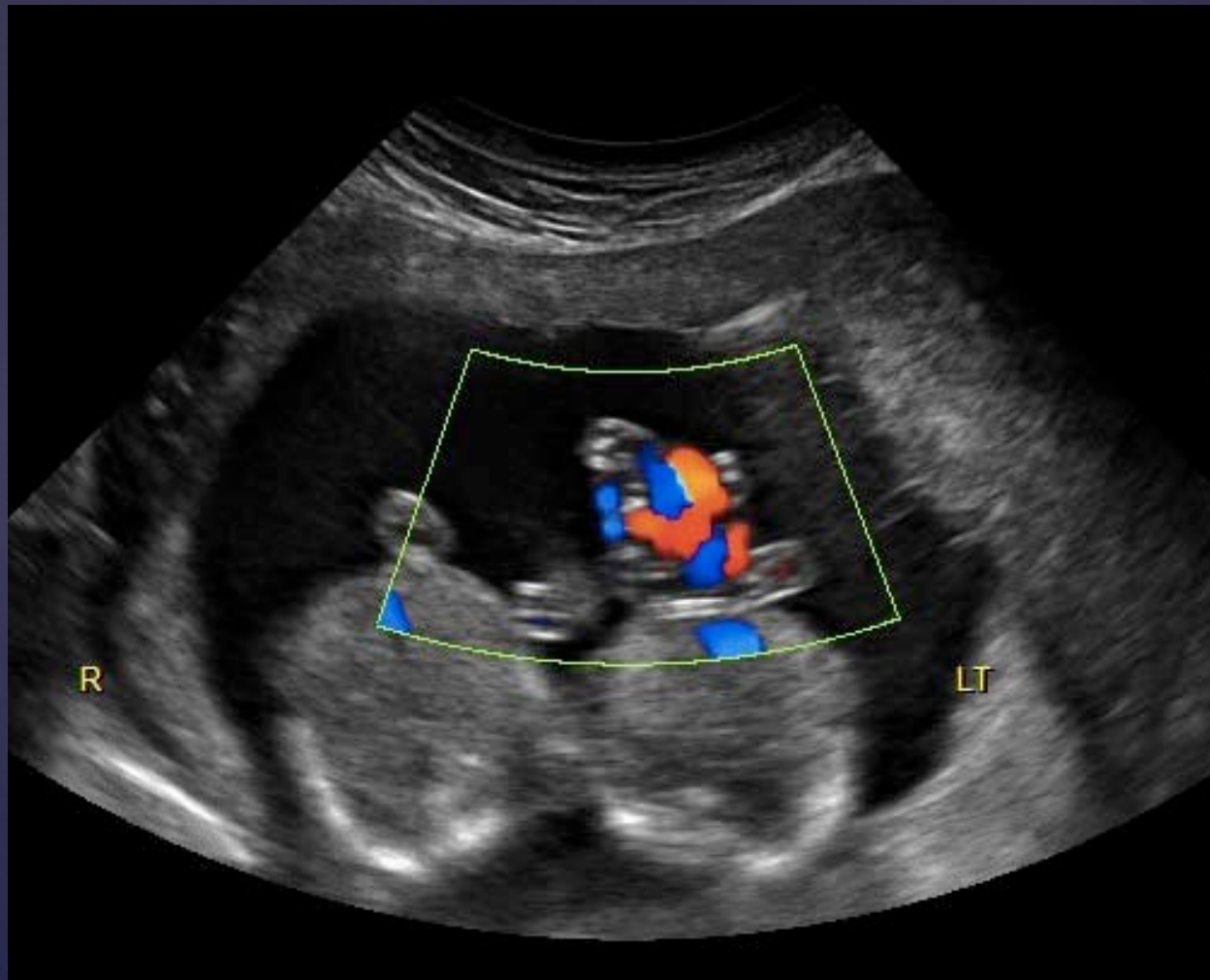
Diamniotic-Dichorionic Twins

Amnionicity and Chorionicity



Monochorionic - Diamniotic Twins

Amnionicity and Chorionicity

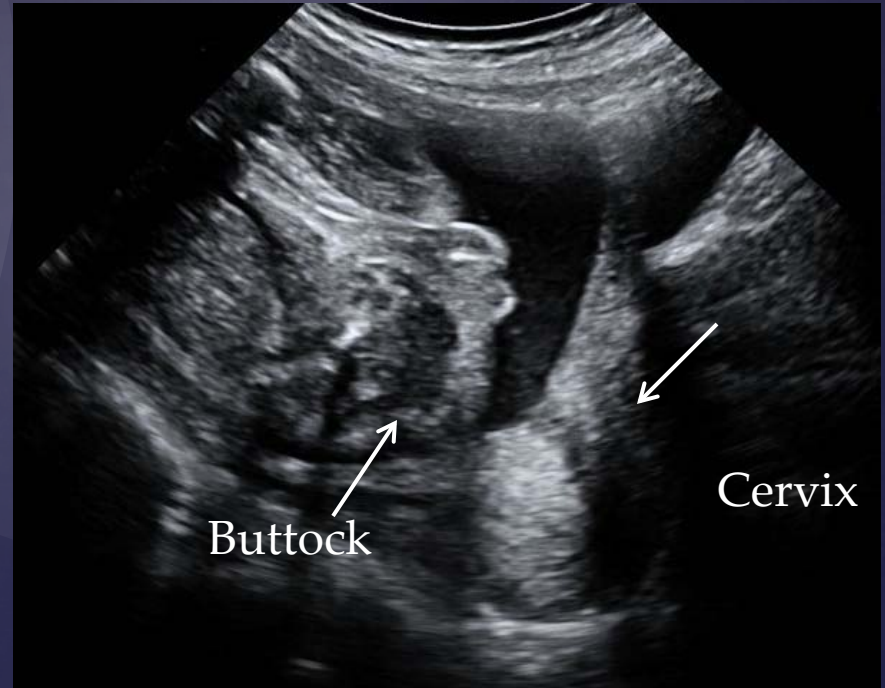


Monochorionic - Monoamniotic Twins

FETAL PRESENTATION should be documented.



Cephalic

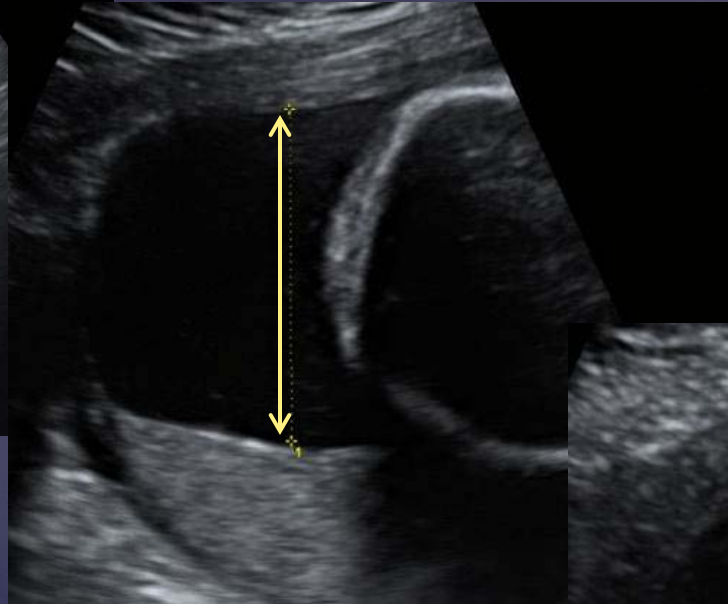


Breech

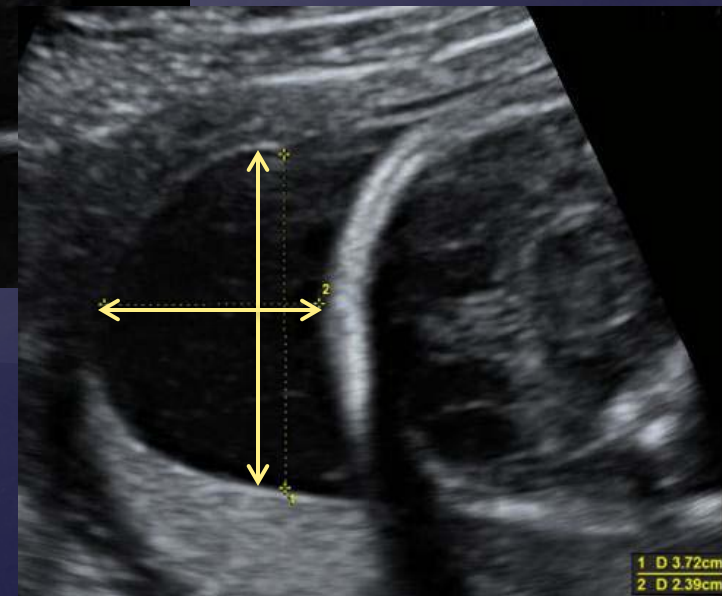
A qualitative or semi-quantitative assessment of AMNIOTIC FLUID VOLUME should be documented.



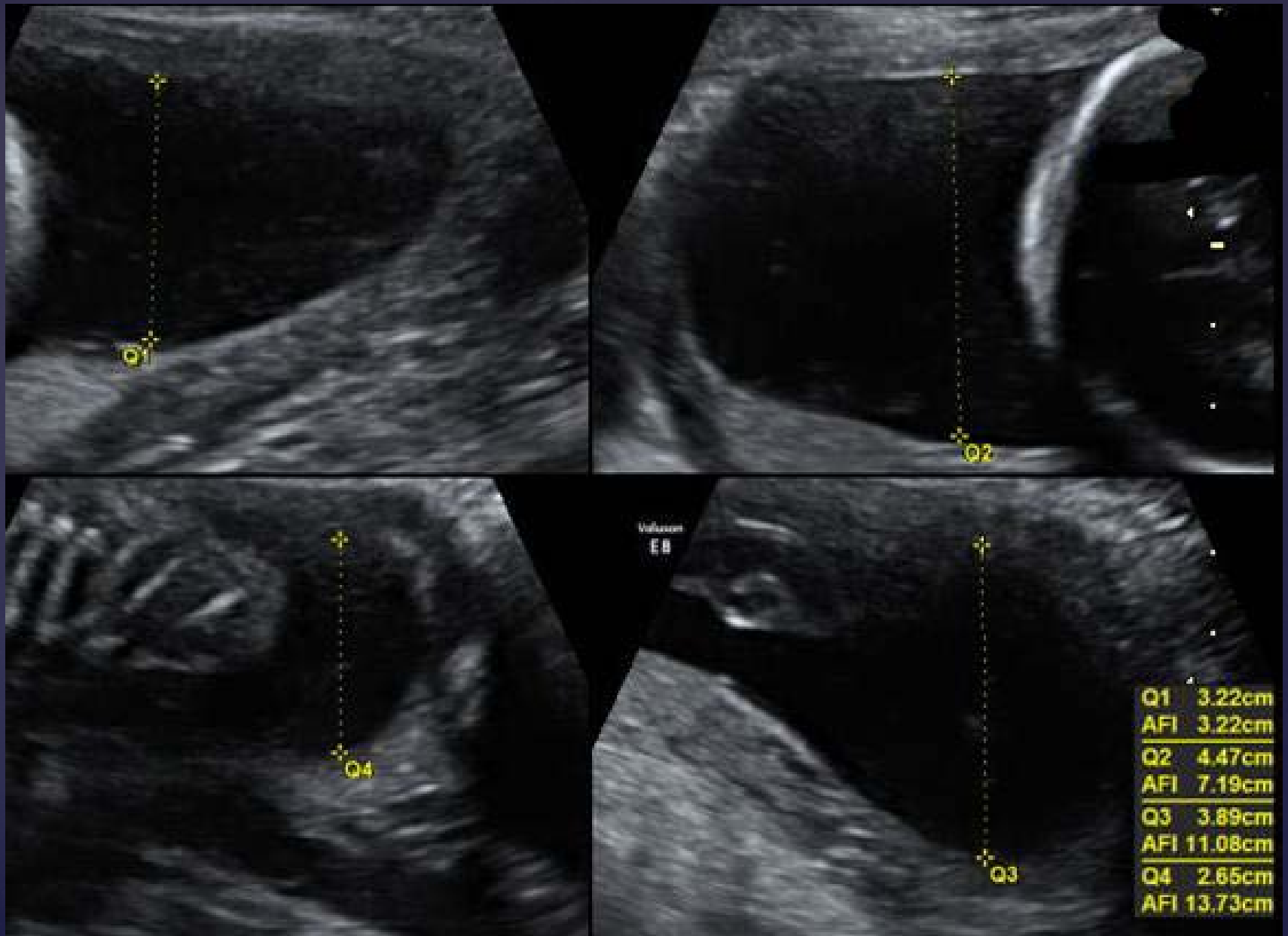
Subjective Assessment



Single deepest vertical pocket

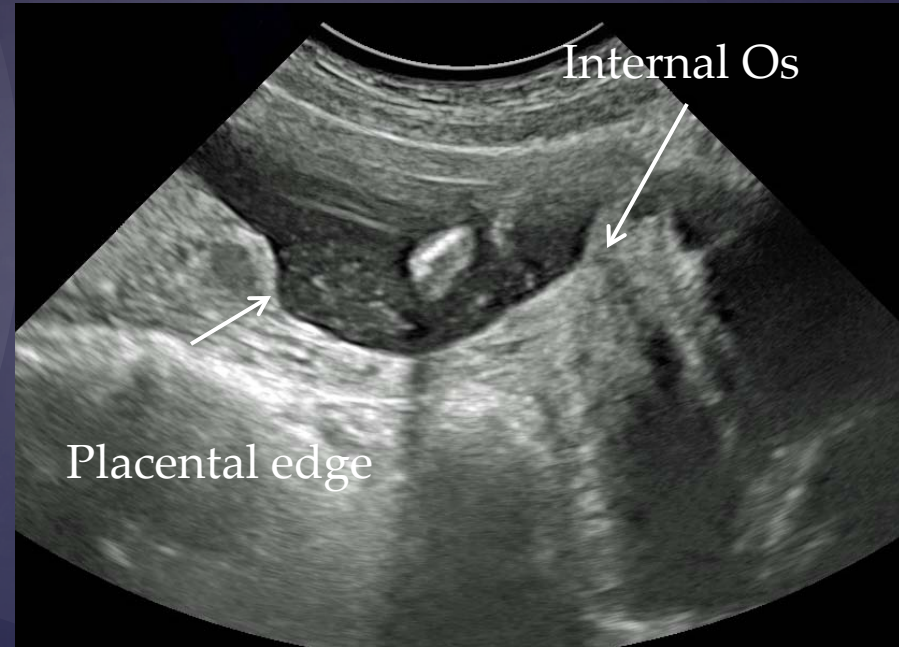
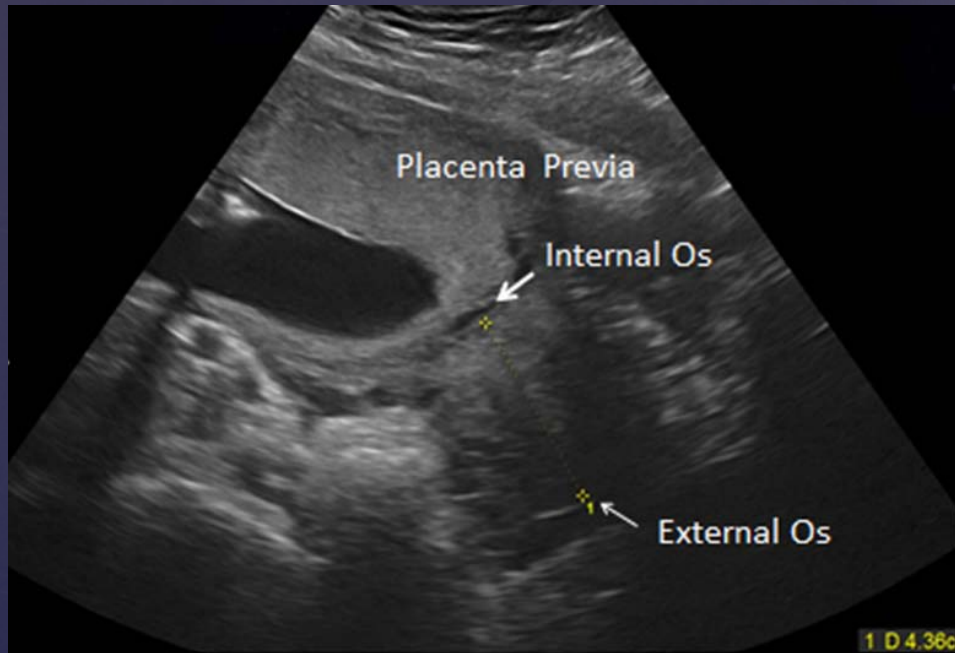


2-diameter pocket

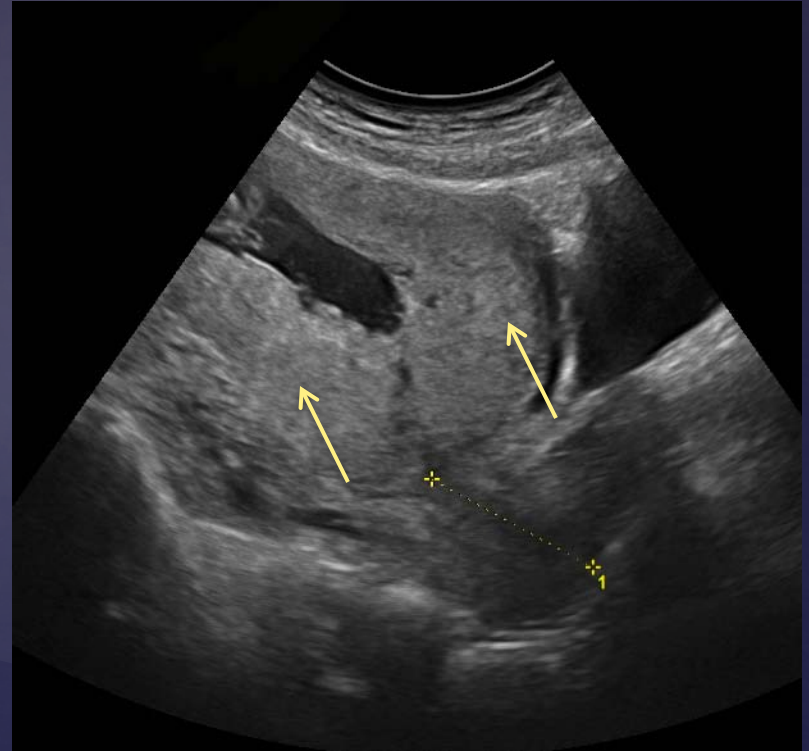
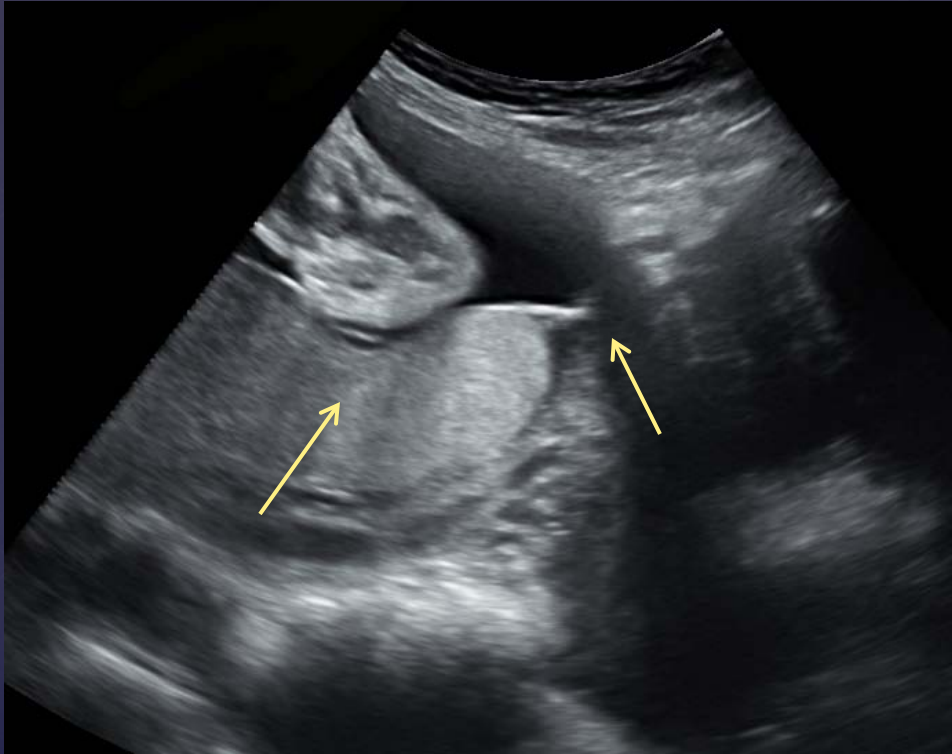


Amniotic fluid index

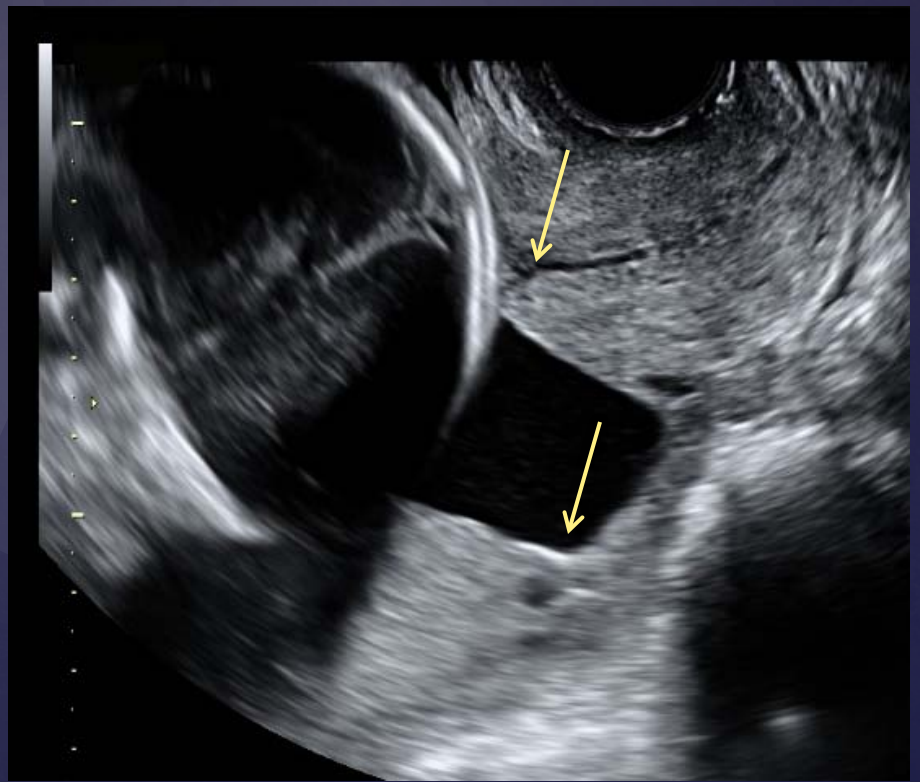
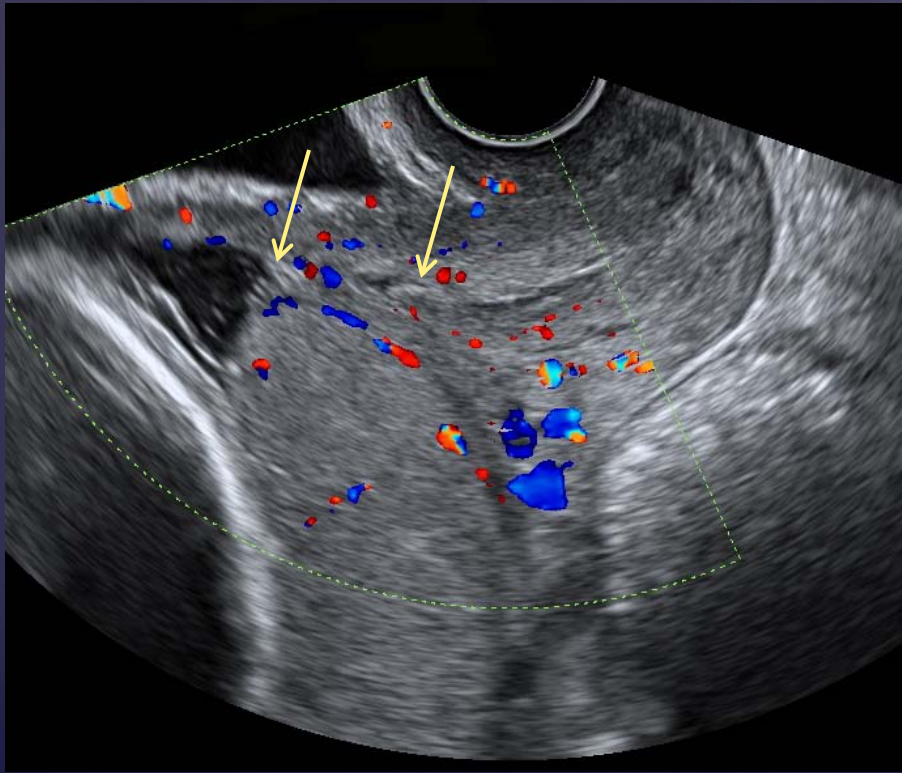
Placental location, appearance, and relationship to the internal cervical os should be documented.



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



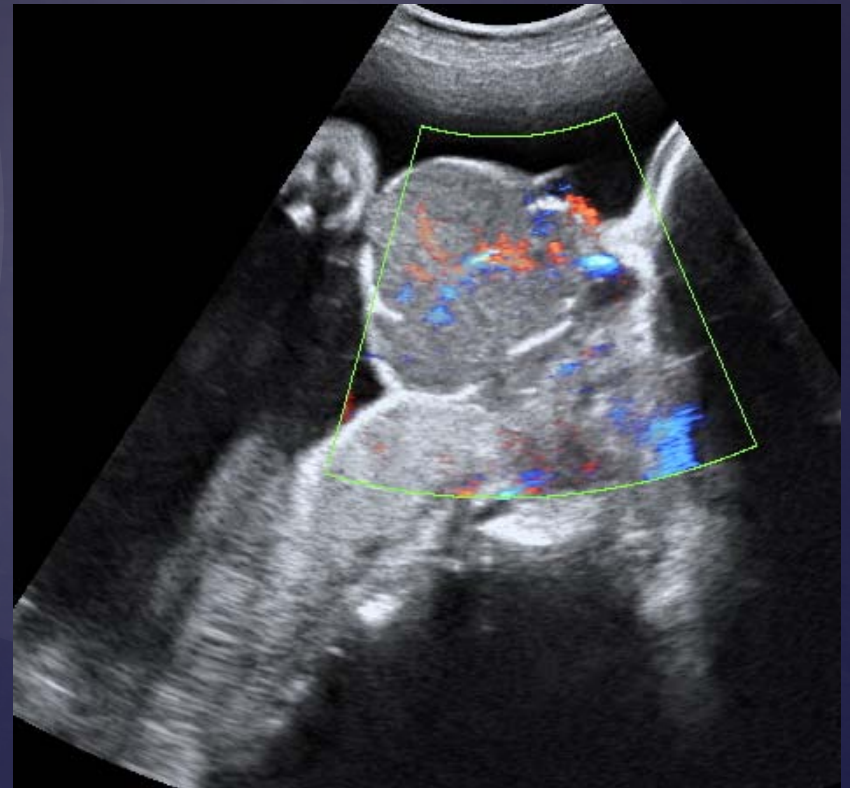
Transperineal or transvaginal views may be helpful in visualizing the internal cervical os and its relationship to the placenta.



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

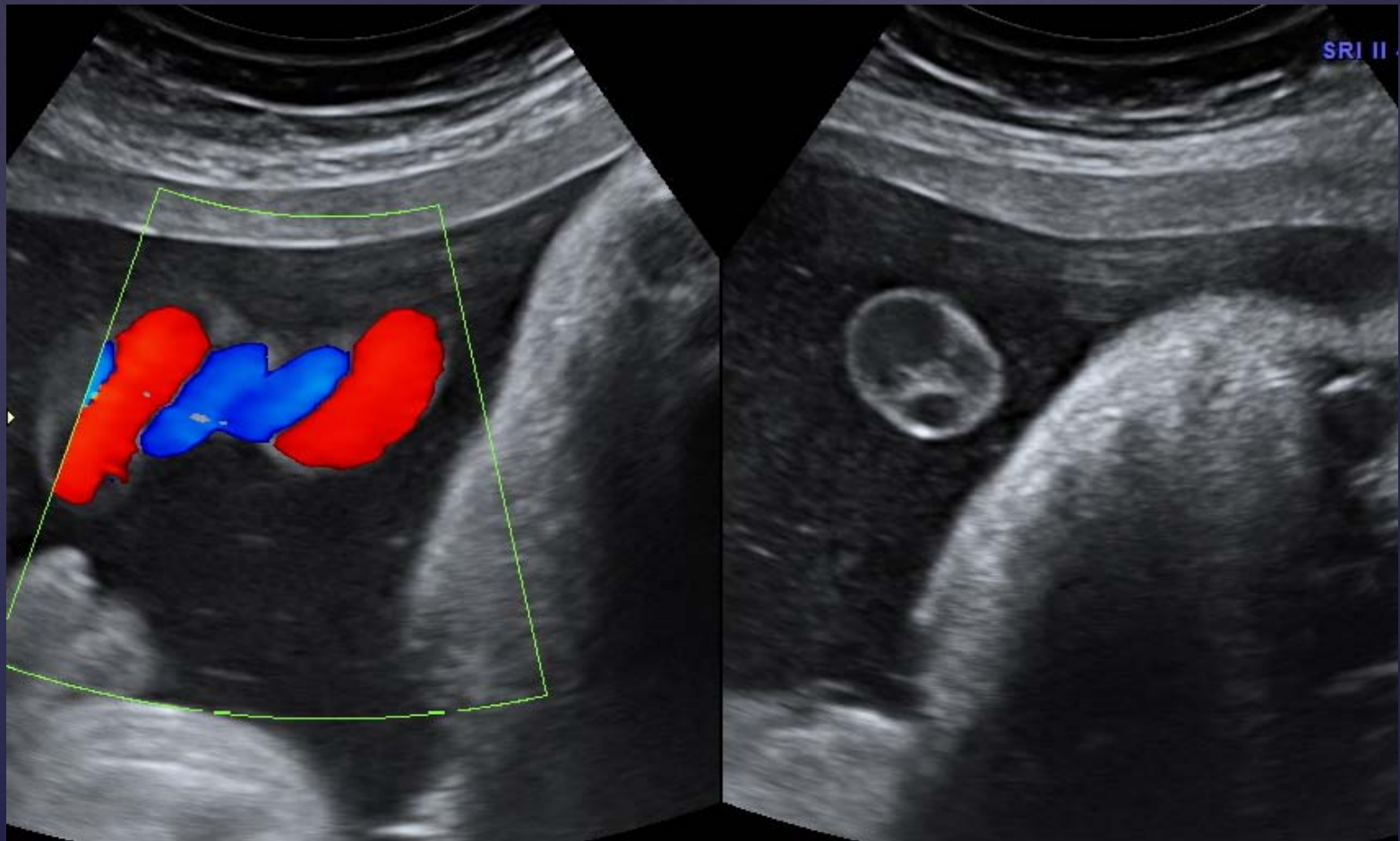


Placenta Accreta



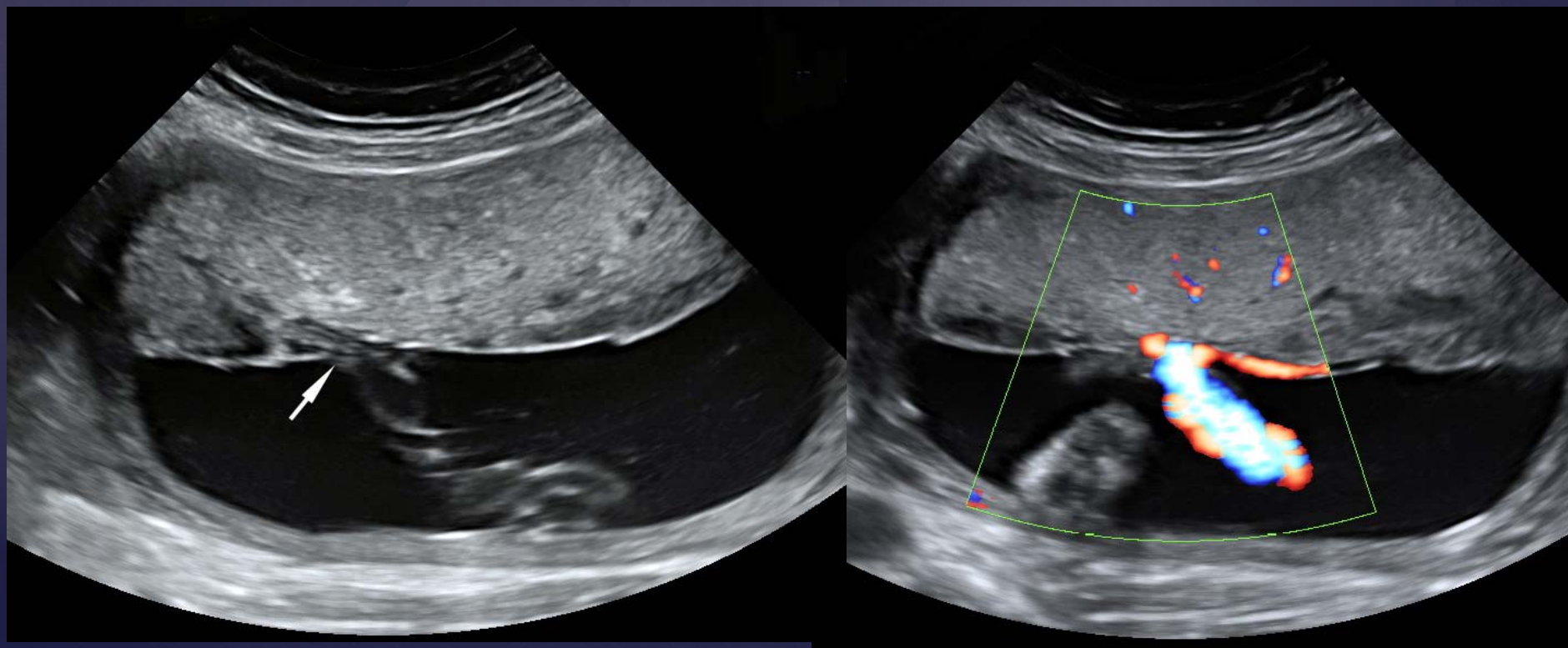
Chorioangioma

The UMBILICAL CORD should be imaged and the number of vessels in the cord documented when technically feasible.

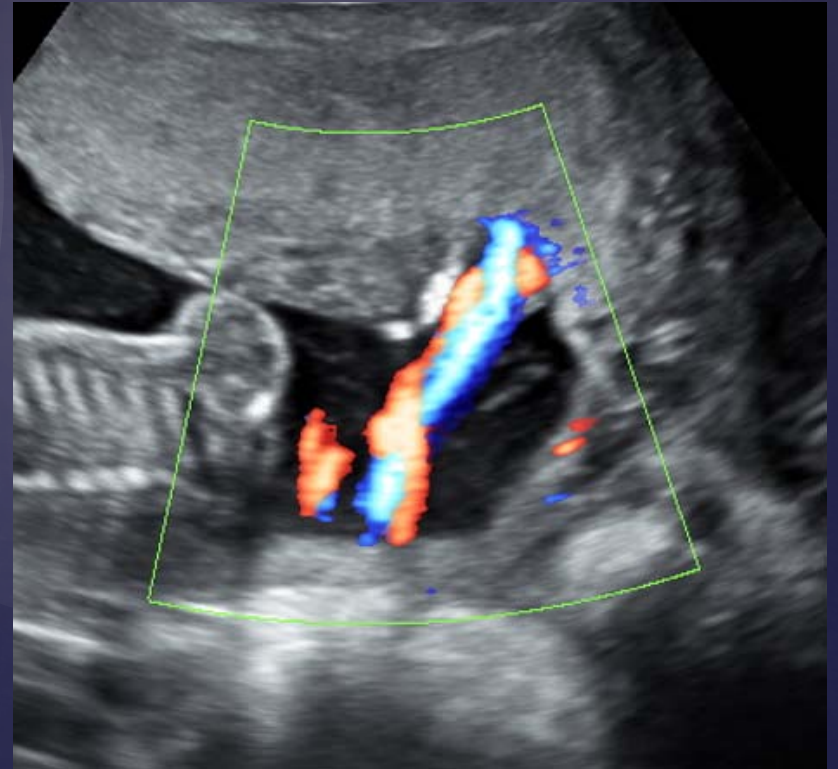


*** NEW

The PLACENTAL cord insertion site should be documented when technically feasible.

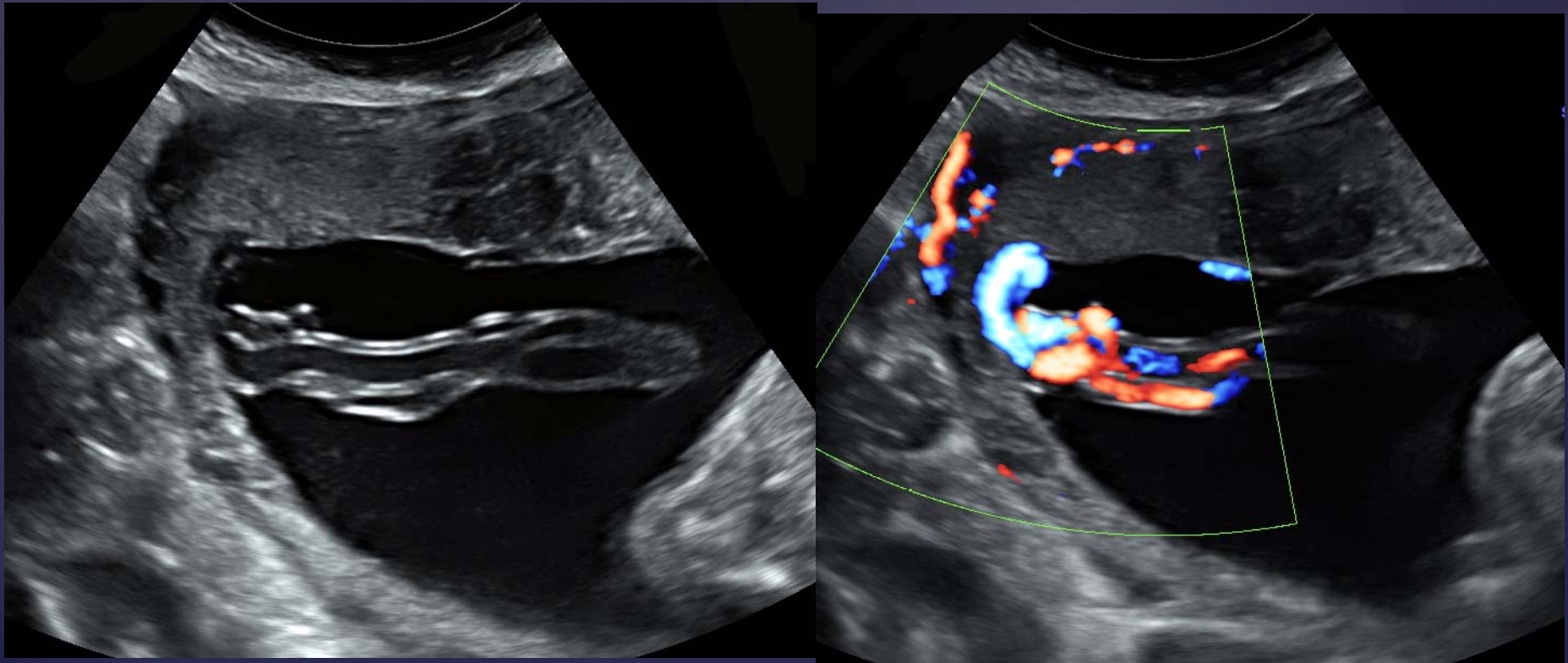


The PLACENTAL cord insertion site should be documented when technically feasible.



Marginal Cord Insertion

The PLACENTAL cord insertion site should be documented when technically feasible.



Velementous Cord Insertion

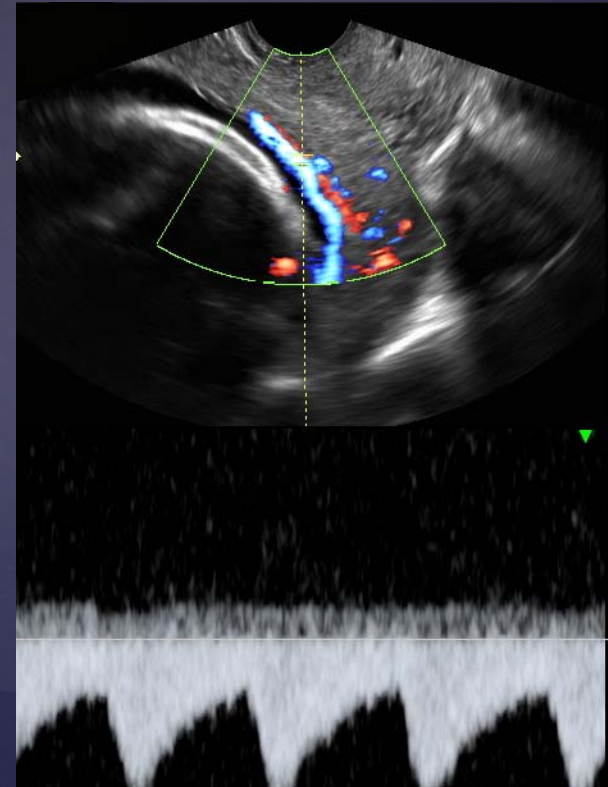
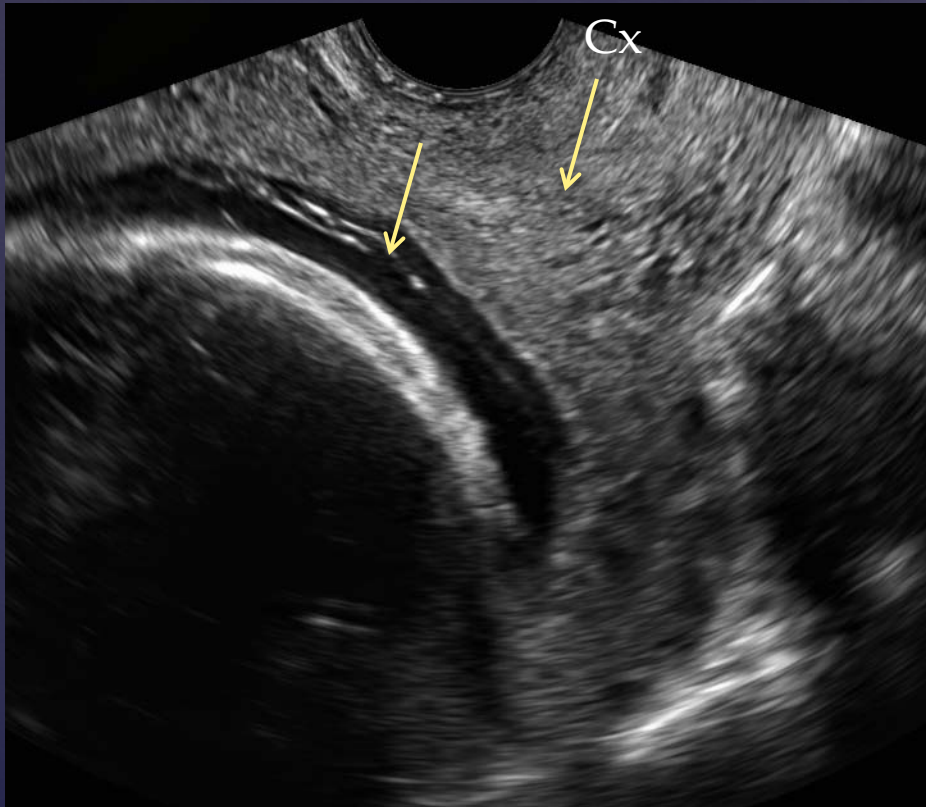
The PLACENTAL cord insertion site should be documented when technically feasible.



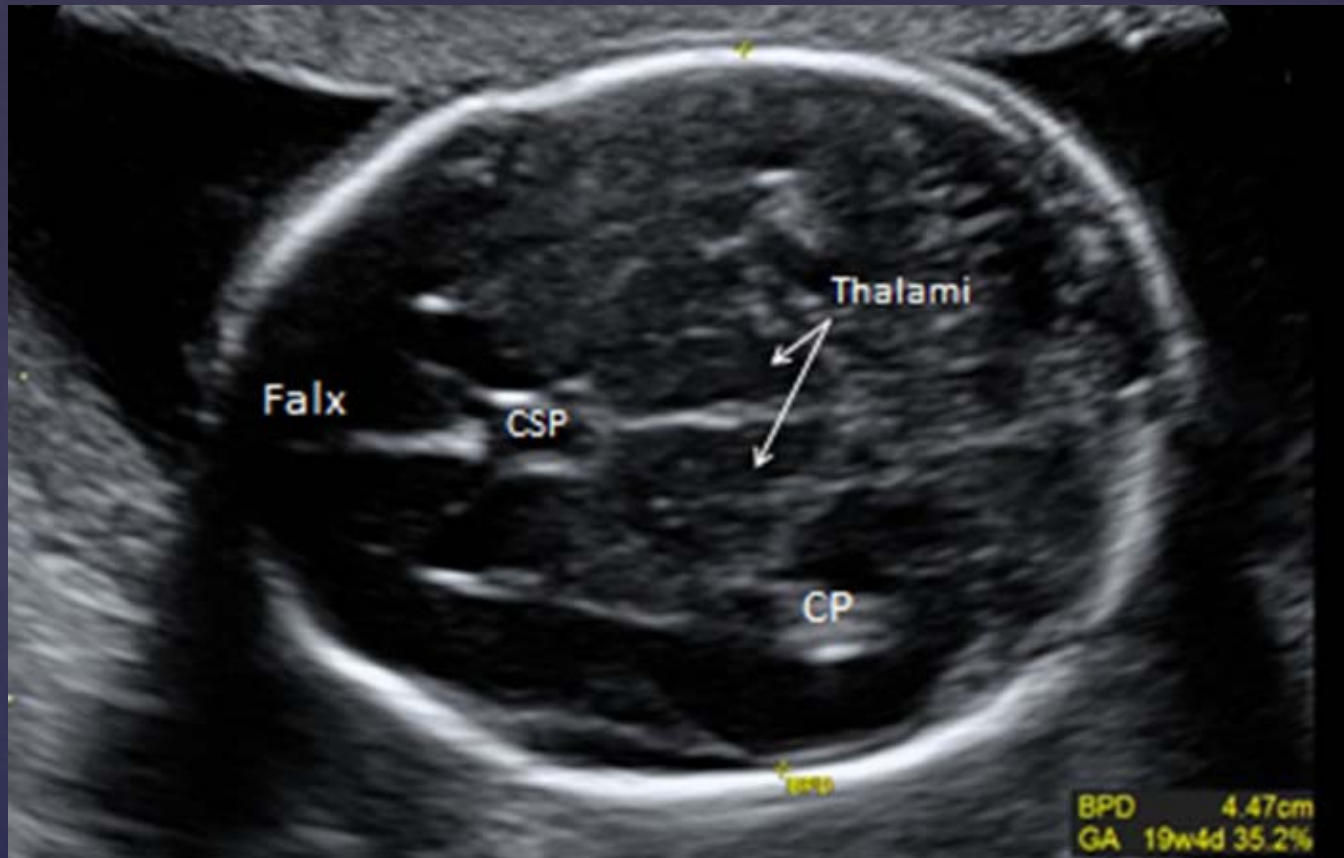
Velementous Cord Insertion



Velementous cord insertion that crosses the internal cervical os: VASA PREVIA



Biometry: BPD



Measured at the level of the thalami and cavum septi pellucidum or columns of fornix. 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.

Variation in head shape (dolicho- or brachy-) may make HC more reliable than BPD for estimating GA.

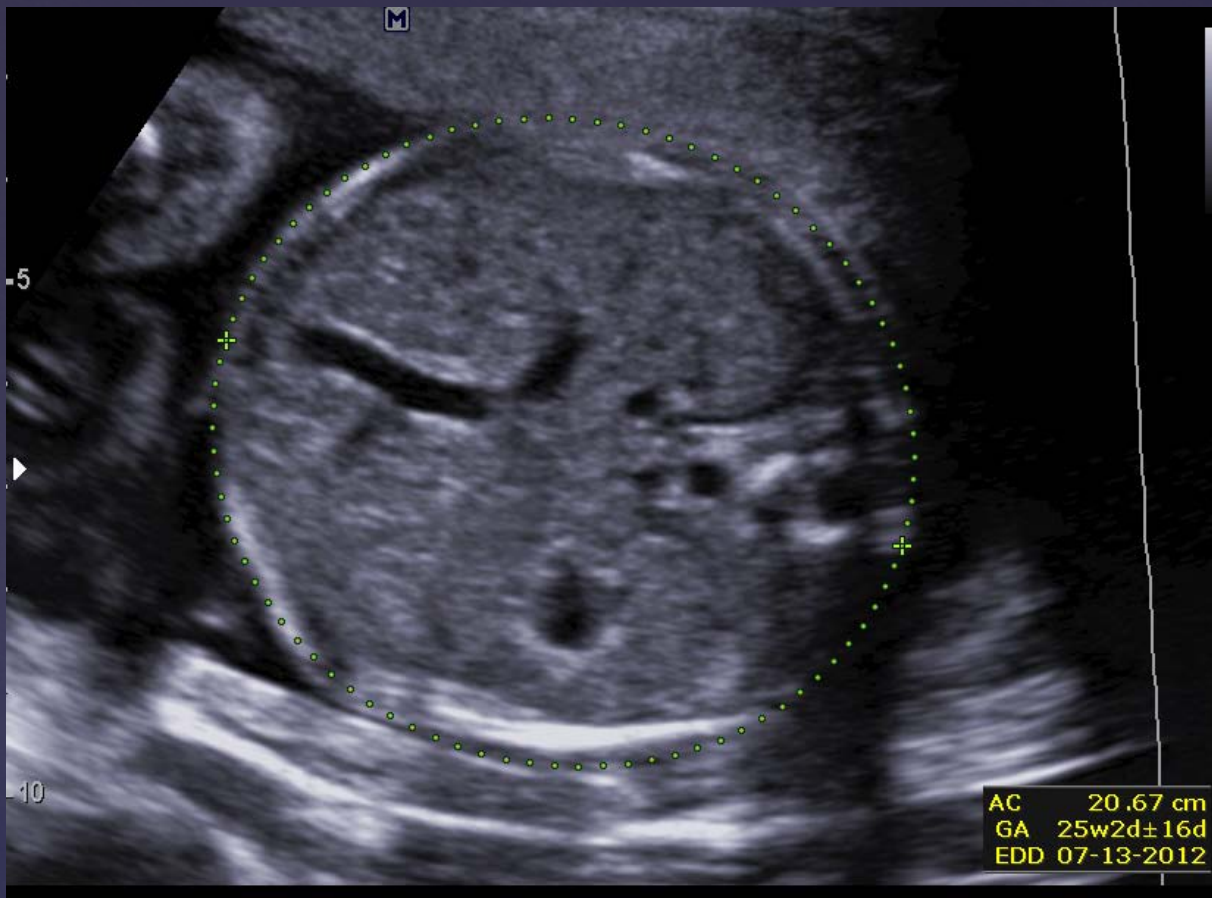


Head circumference is measured around the outer perimeter of the skull at the same level as the BPD.

Femur Length after 14 weeks



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.

Fetal Weight Estimates: BPD, HC, AC, AD, FL



- Appropriateness of Growth
- Scans 2- 4 weeks apart
- Error +/- 15%

Maternal Anatomy: Evaluation of the uterus, adnexa and cervix should be performed when appropriate.



Presence and number documented.

The measurement of largest or potentially clinically significant leiomyomata should be documented.



Maternal Anatomy: Evaluation of the uterus, adnexa and cervix should be performed when appropriate.



Document location size and appearance of adnexal masses

Maternal Anatomy: Evaluation of the uterus, adnexa and cervix should be performed when appropriate.

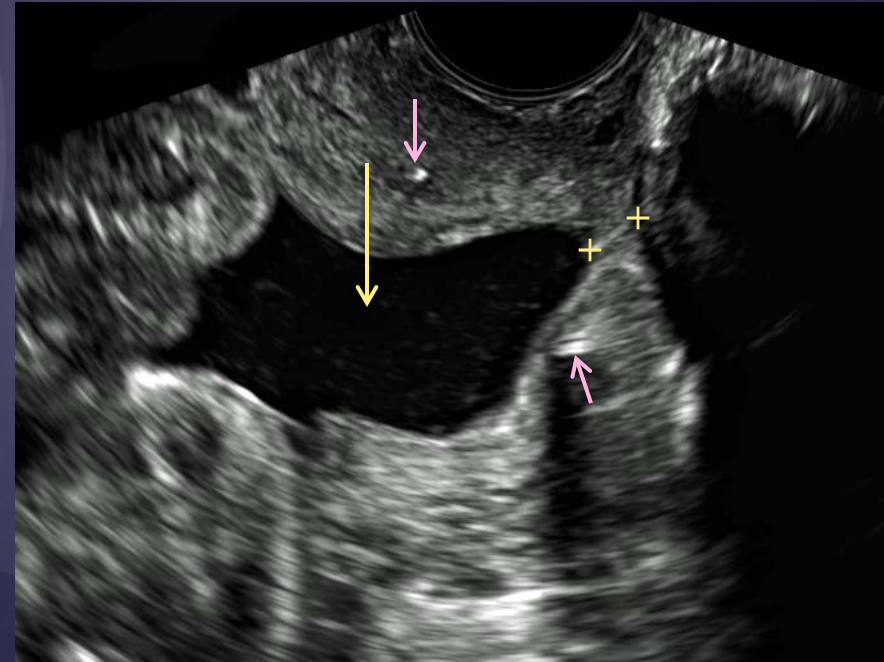
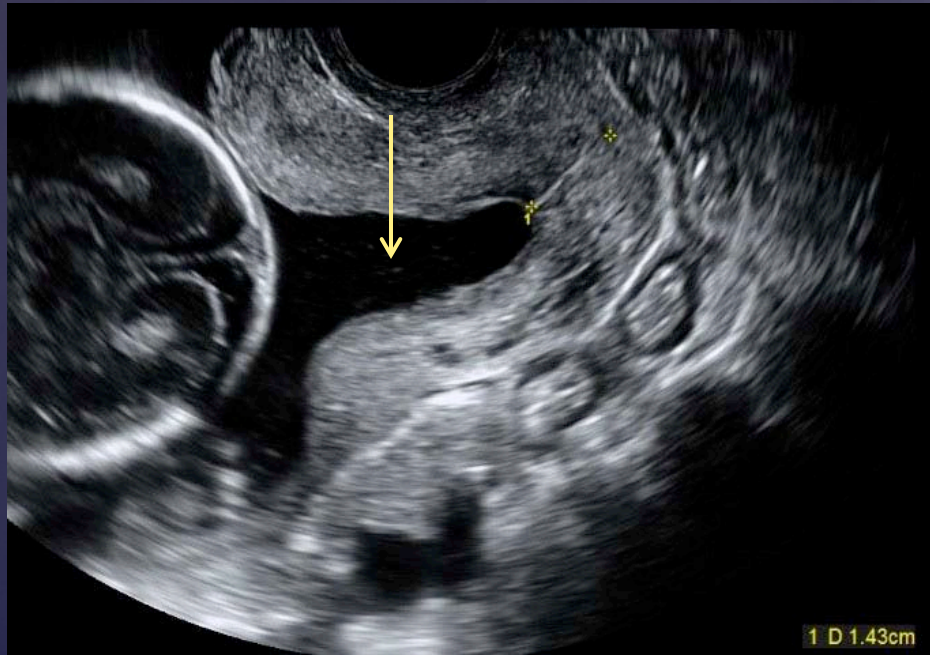


For the purposes of Accreditation: Document normal ovaries — or if you don't see them document adnexa. Otherwise we don't know that you looked.

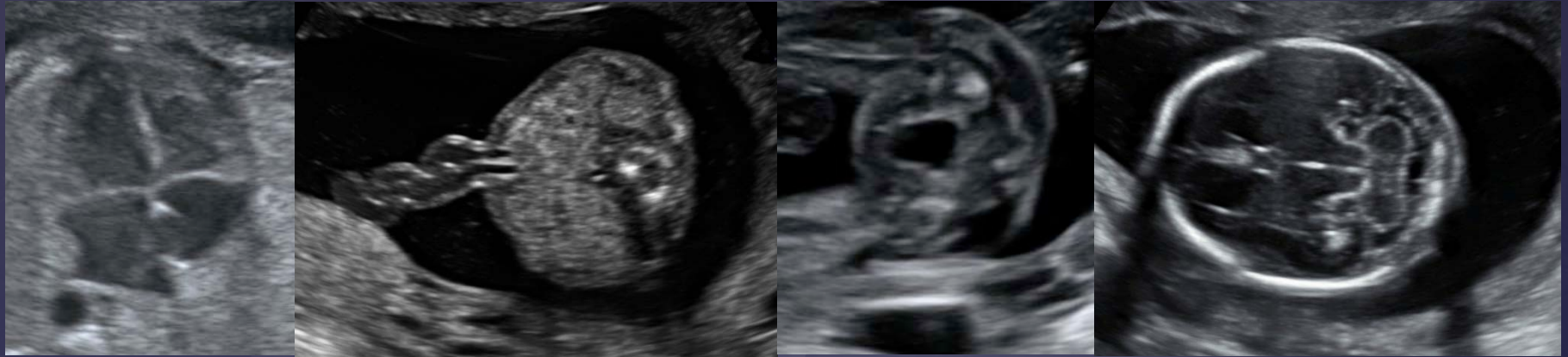
Maternal Anatomy: Evaluation of the uterus, adnexa and cervix should be performed when appropriate.



Transvaginal or transperineal ultrasound may be considered if the cervix appears shortened or cannot be adequately visualized during the transabdominal scan.

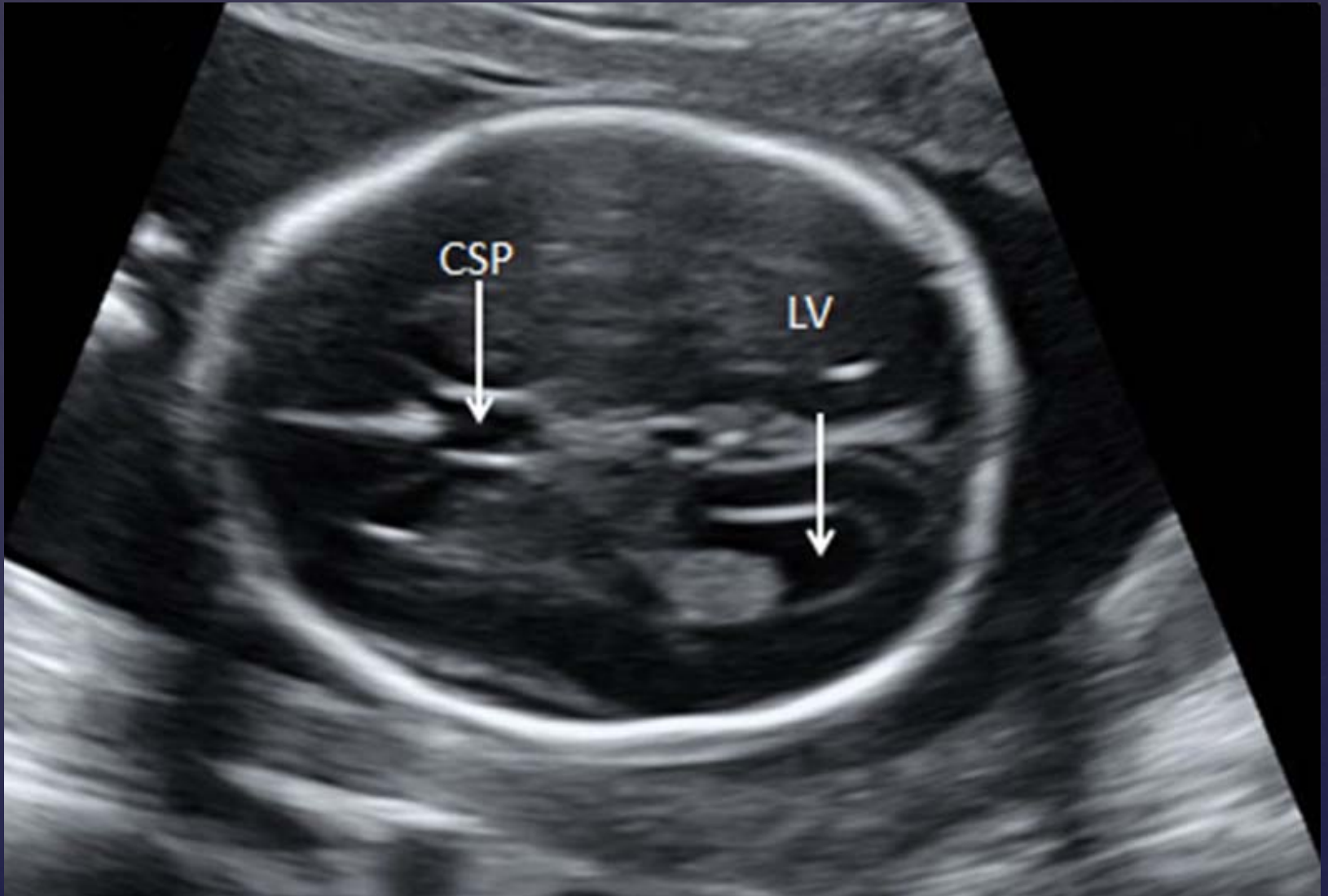


Fetal Anatomic Survey



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

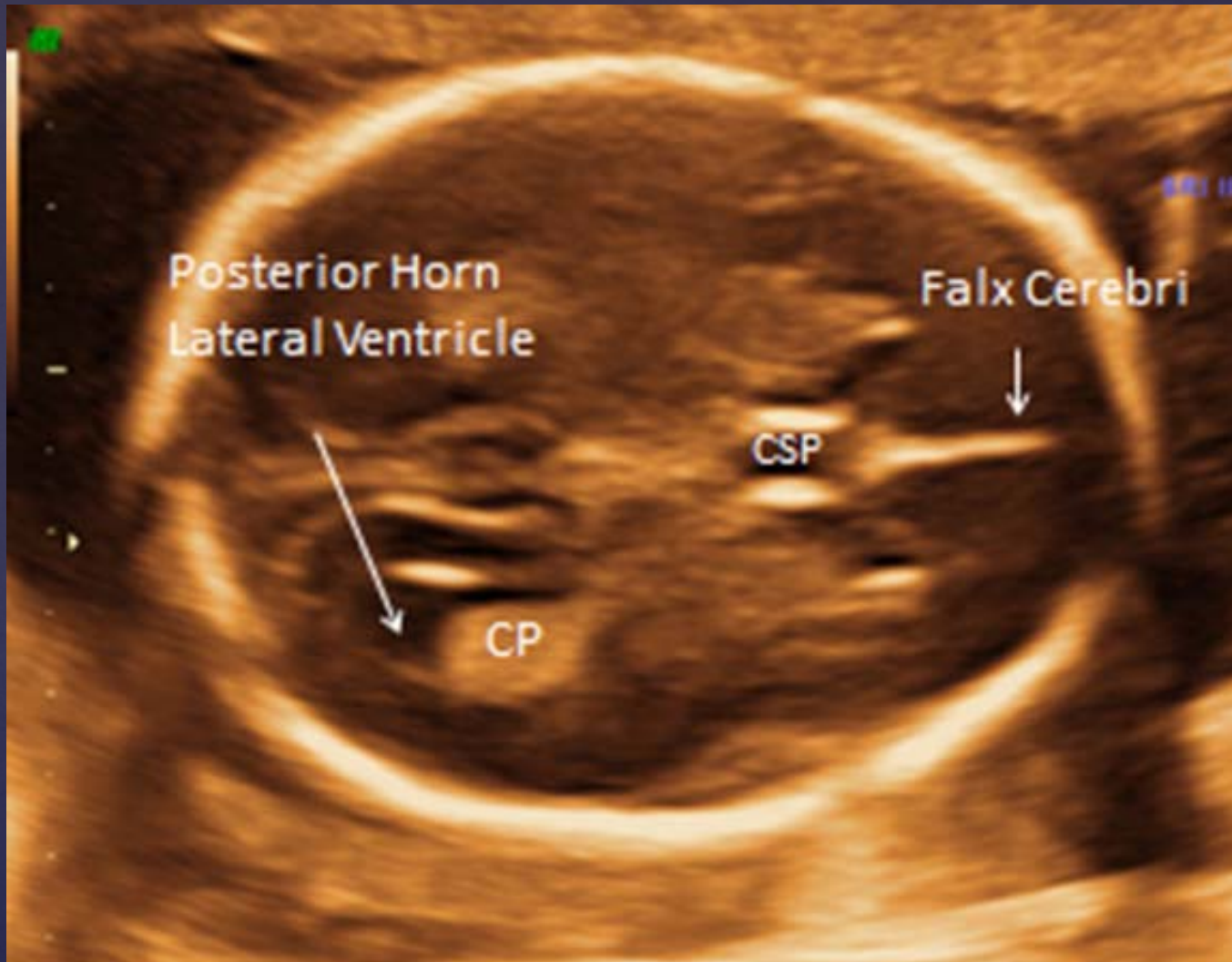
***For Practice Accreditation Purposes:* All anatomy must be labeled!! Send your best cases.**



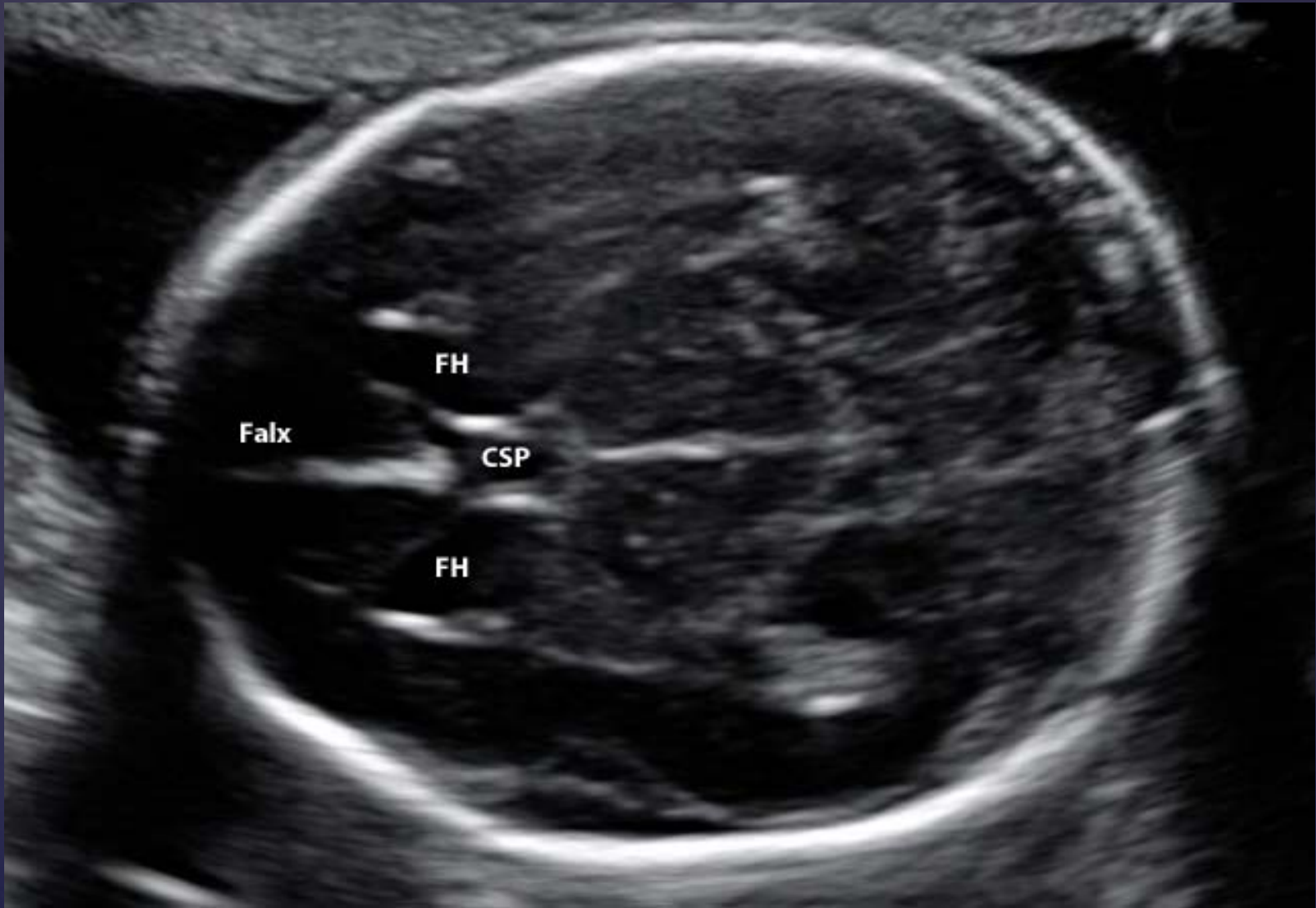
Lateral cerebral ventricles



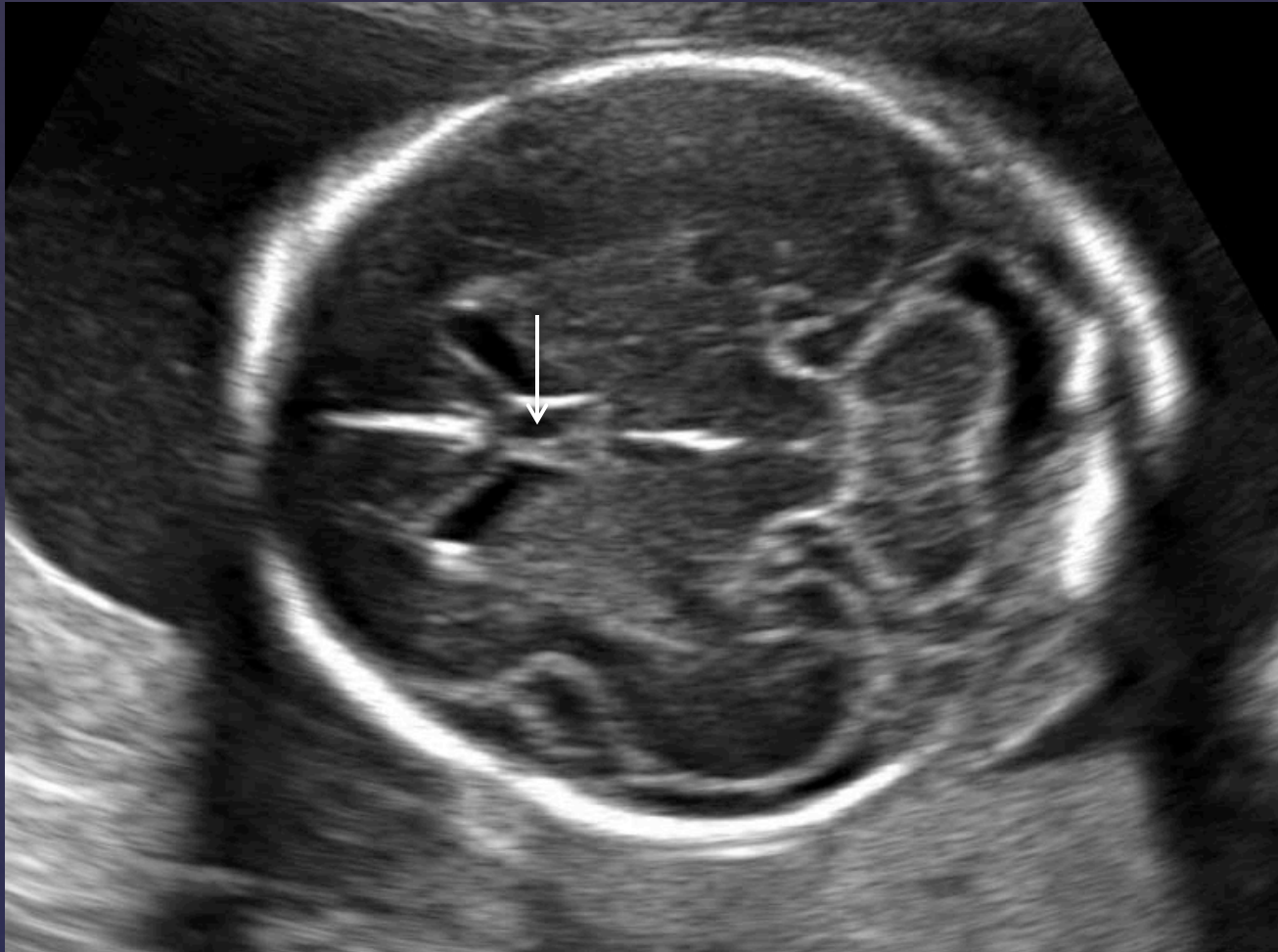
Choroid plexus



Midline falx

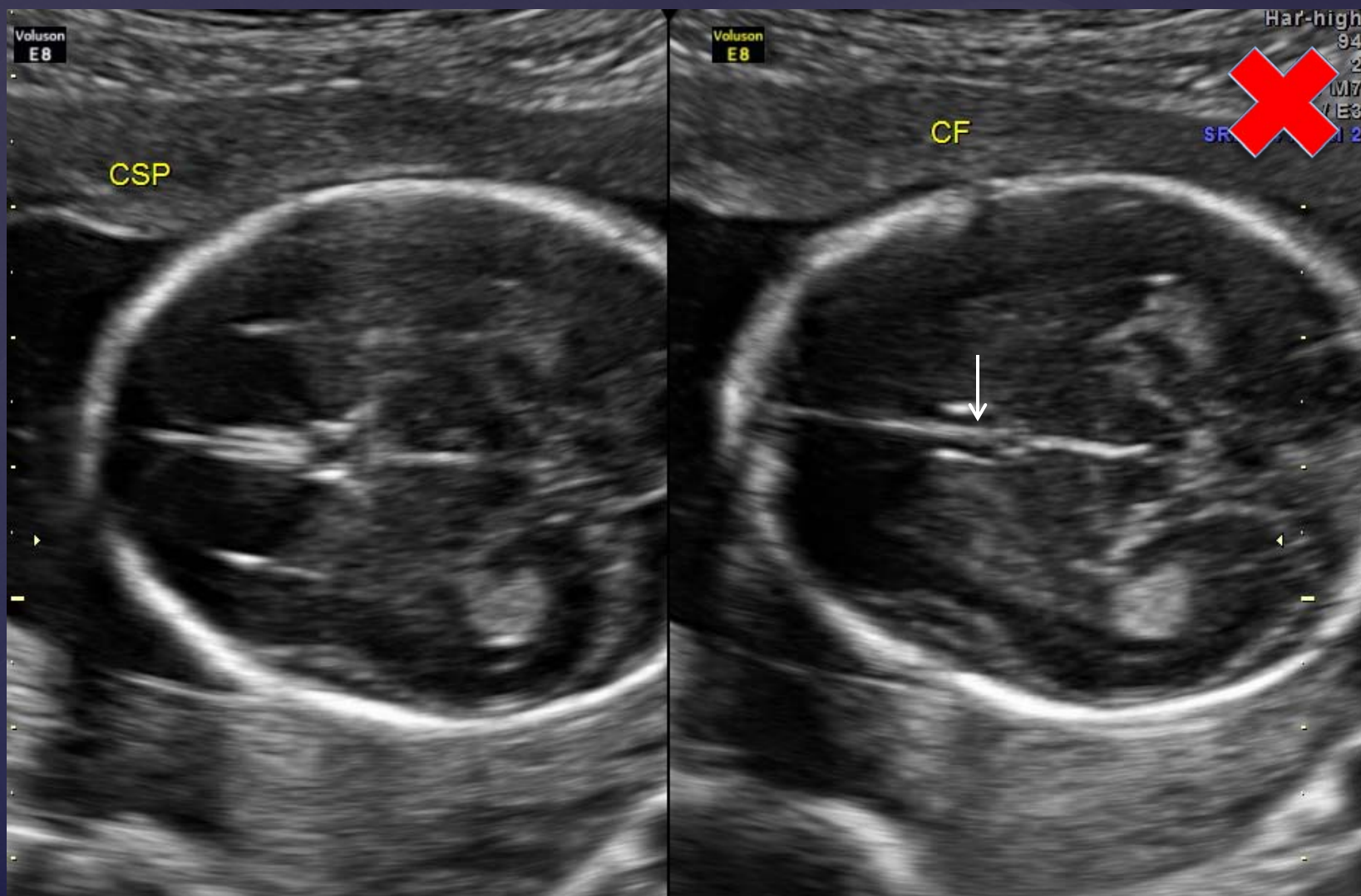


Cavum septi pellucidi



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.



Cerebellum

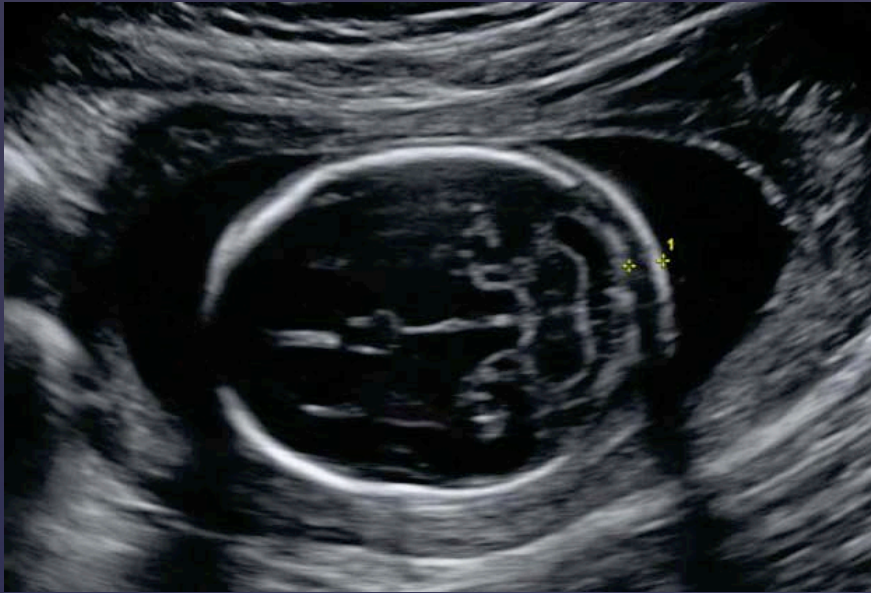


Cisterna magna



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

Nuchal fold measurement may be helpful during a specific age interval to assess the risk of 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.

4-chamber view

Apical

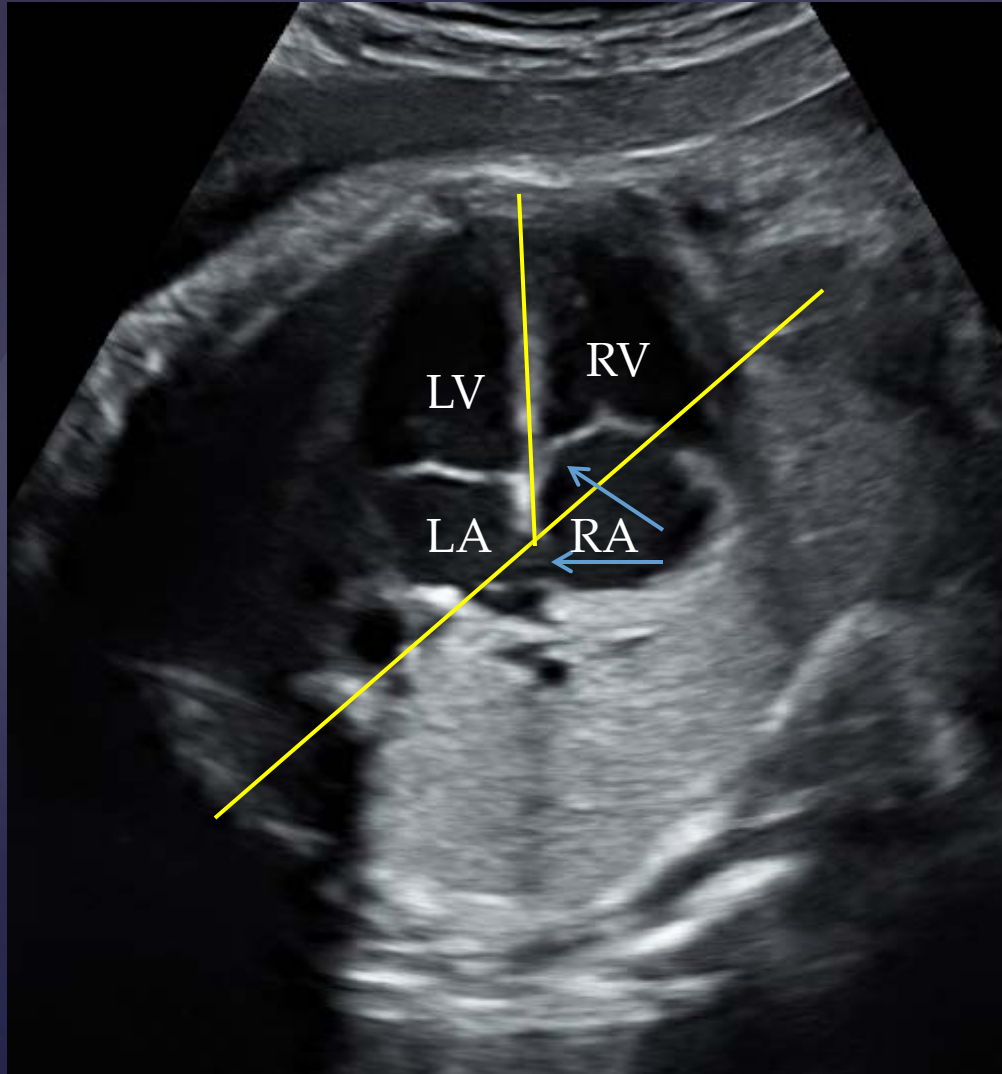


Basal



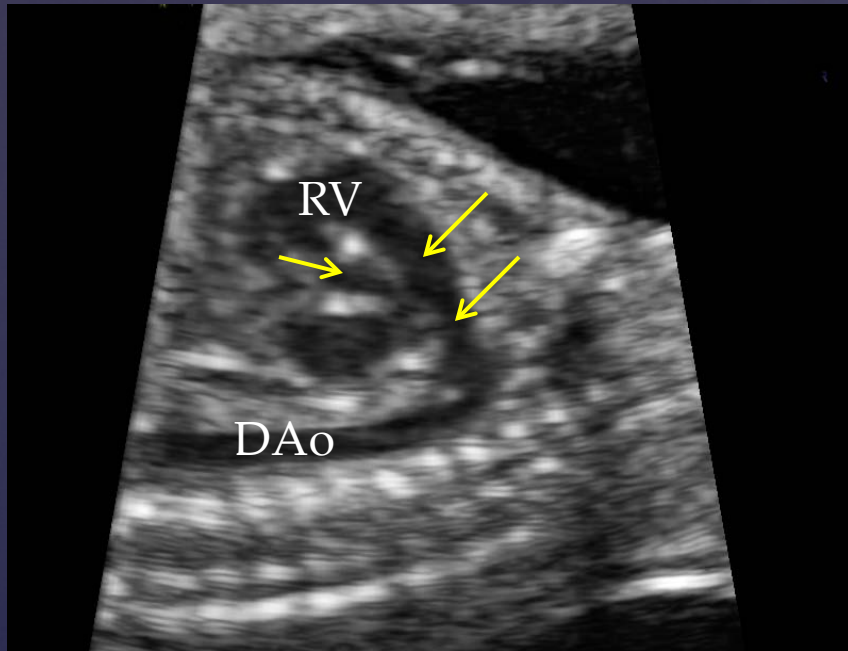
Sagittal View

4-chamber view



*** **NEW REQUIRED**

Cardiac Outflow Tracts: RVOT and LVOT

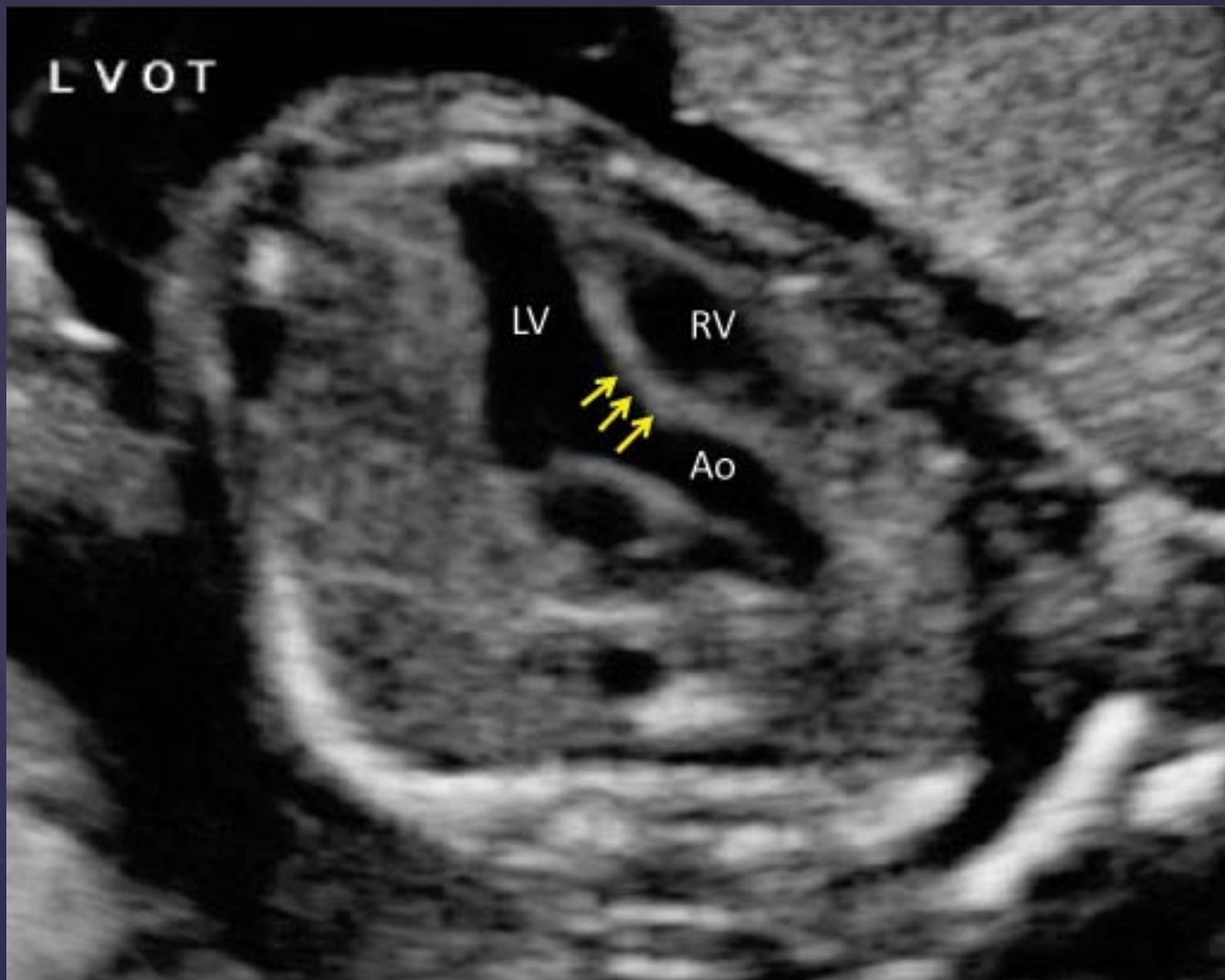


RVOT

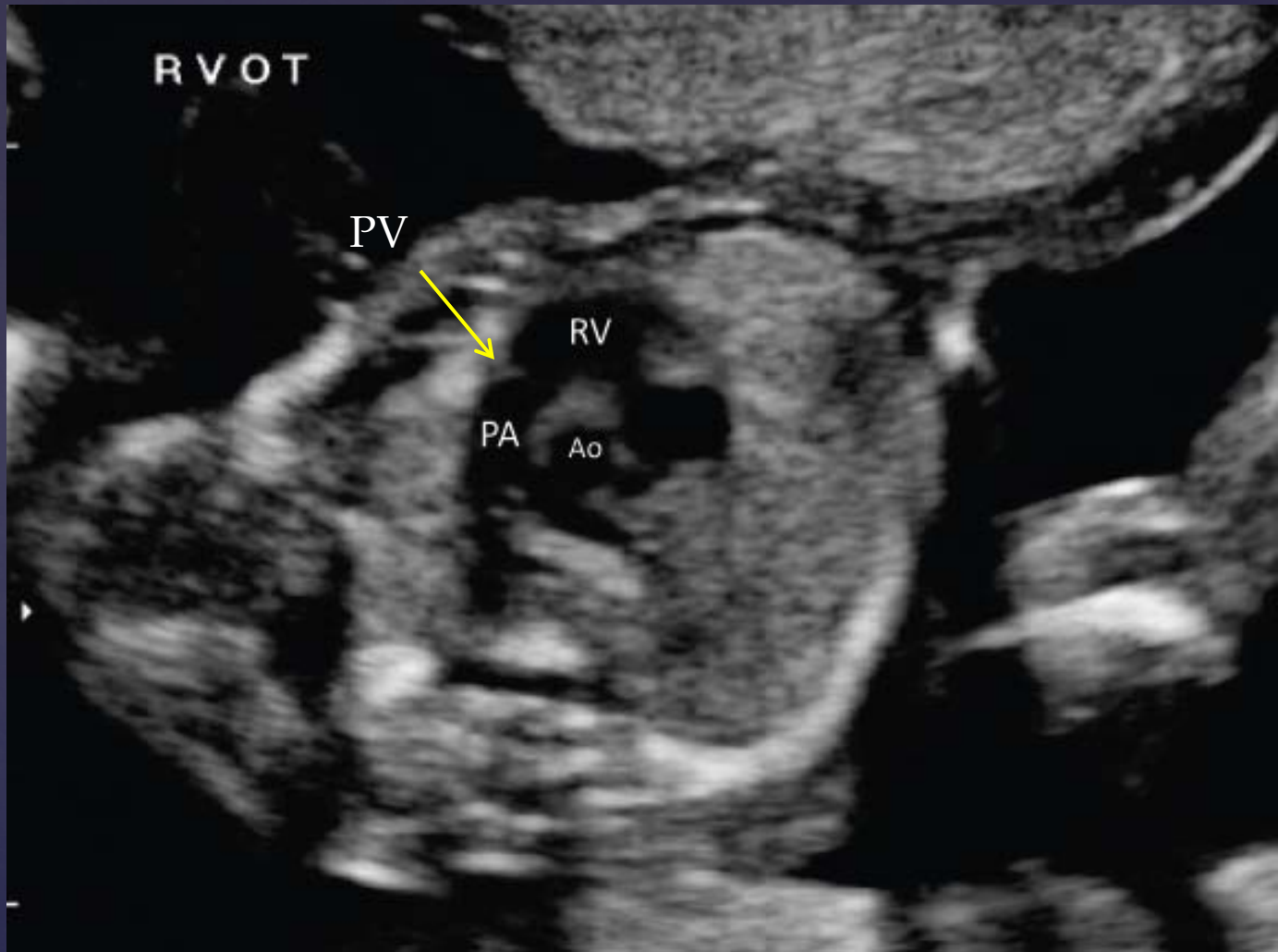


LVOT

Sagittal view of cardiac outflow tracts.



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



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



Evaluation of situs demonstrated on split image of the abdomen and thorax. Fetal position within the uterus must be evaluated.

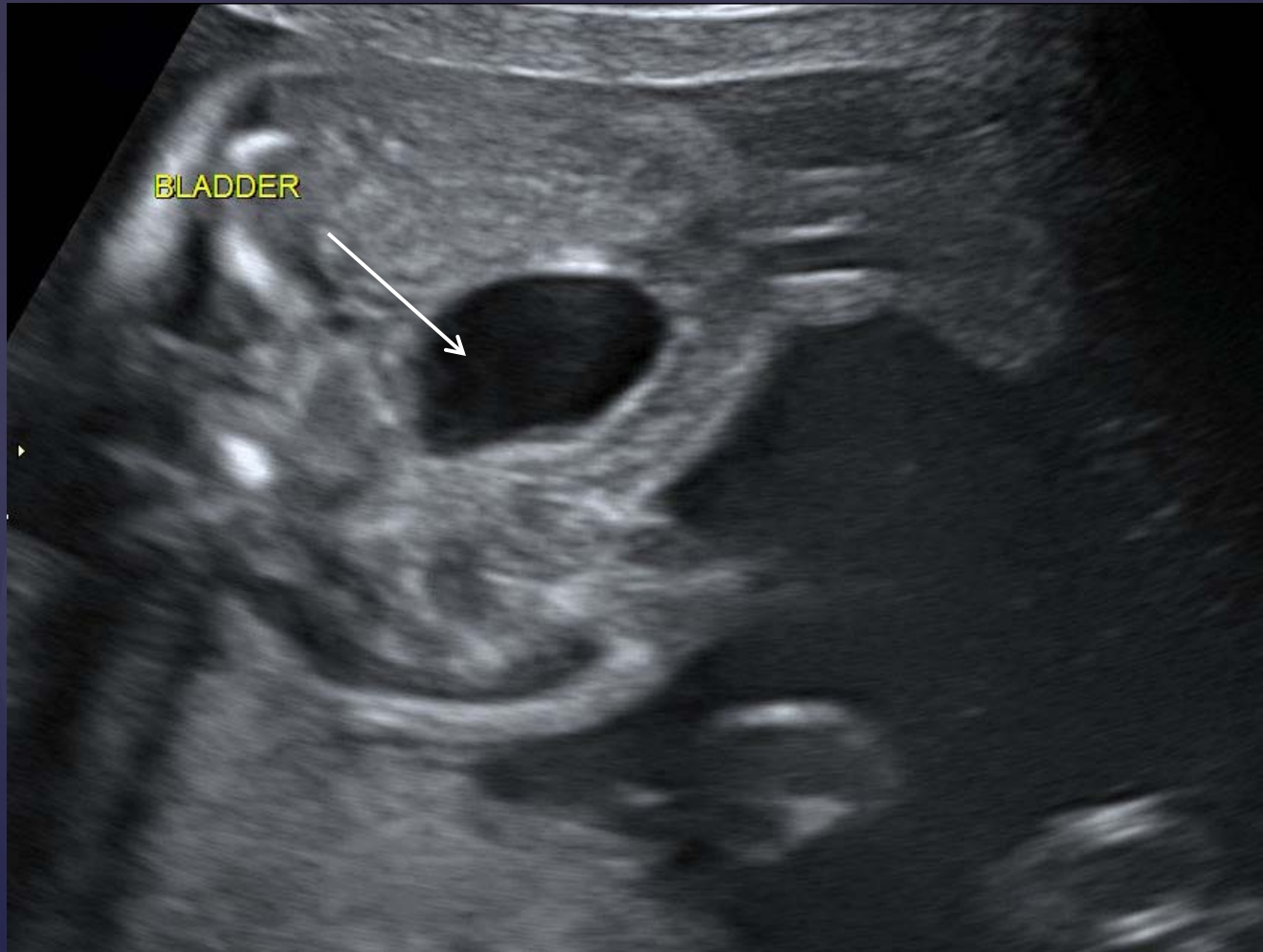


STOMACH : Presence, Size and Situs

Kidneys



Bladder

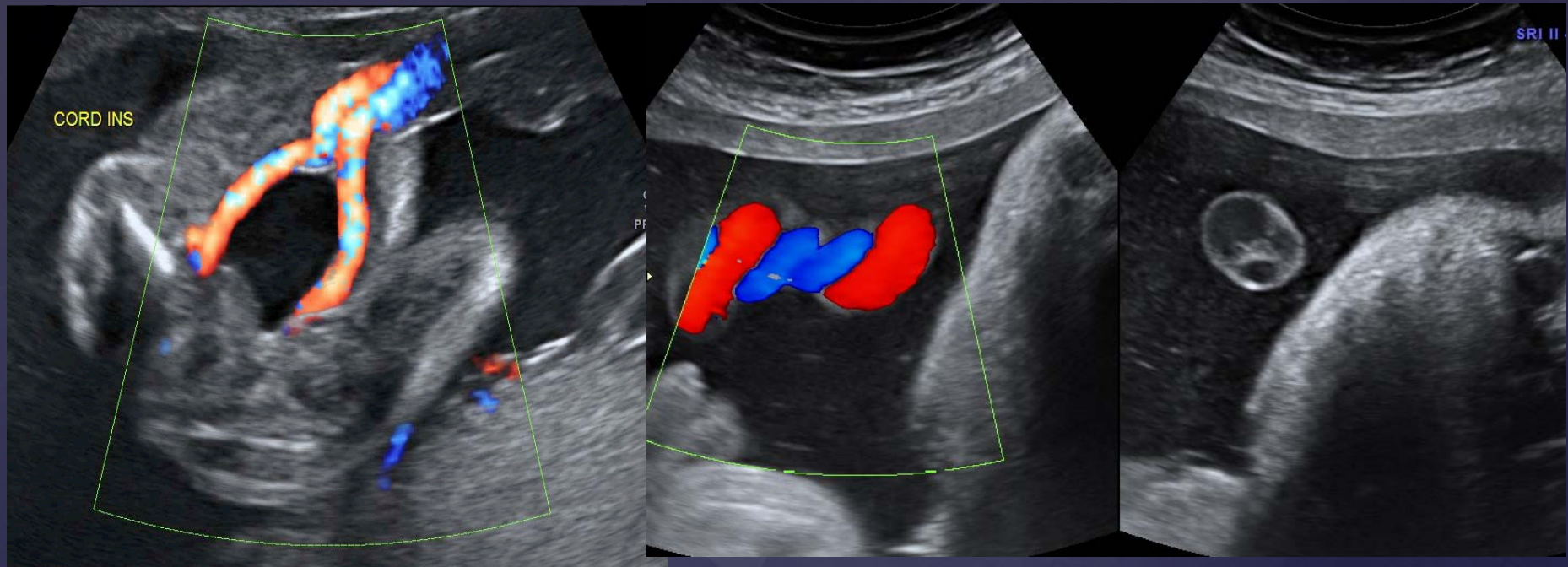


Umbilical cord insertion site into the fetal abdomen

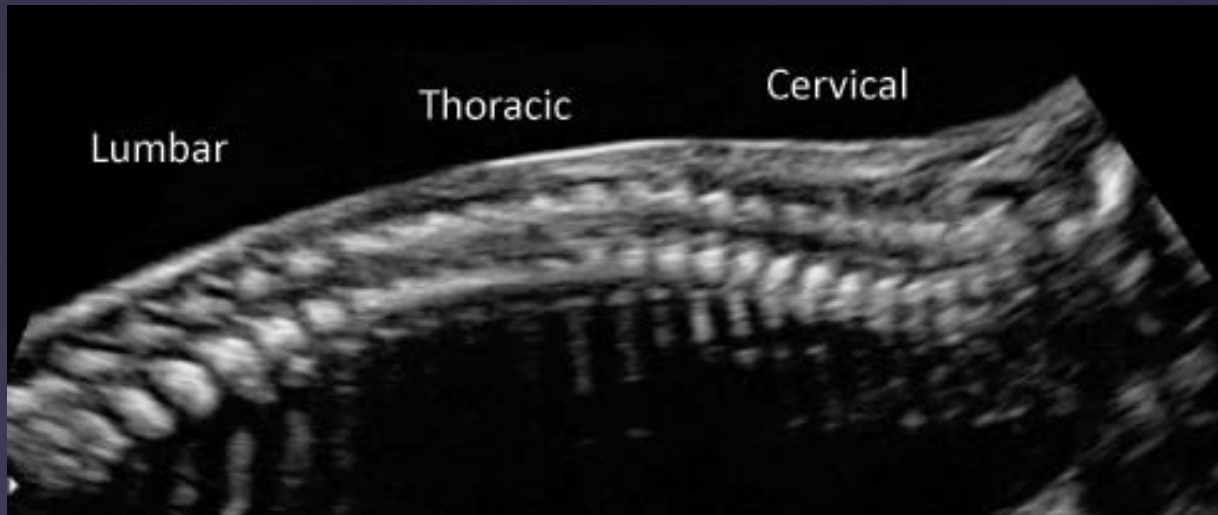


For Practice Accreditation Purposes: Color imaging does not provide the best view of the UCI.

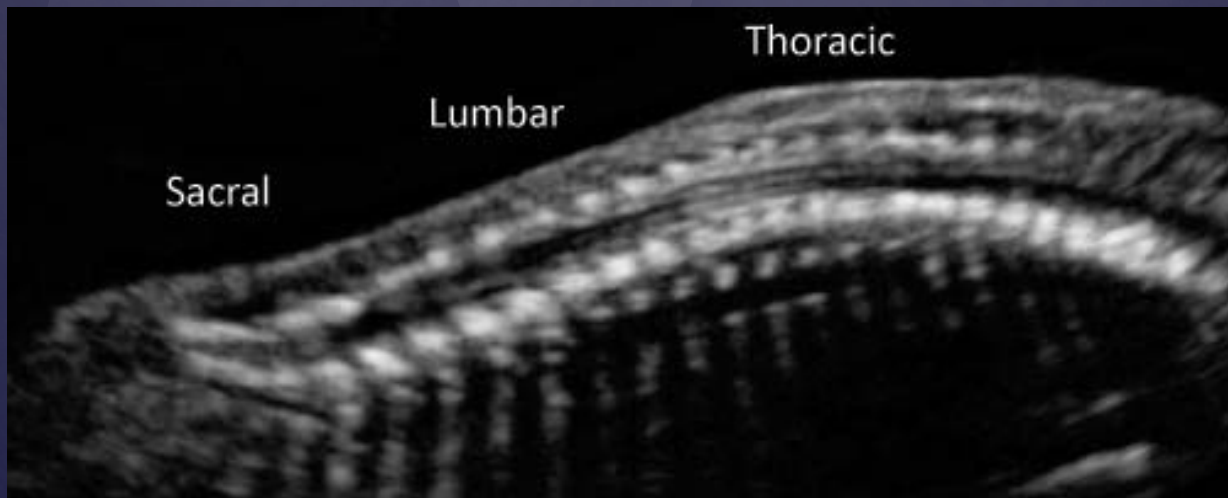
Umbilical Cord Vessel Number



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



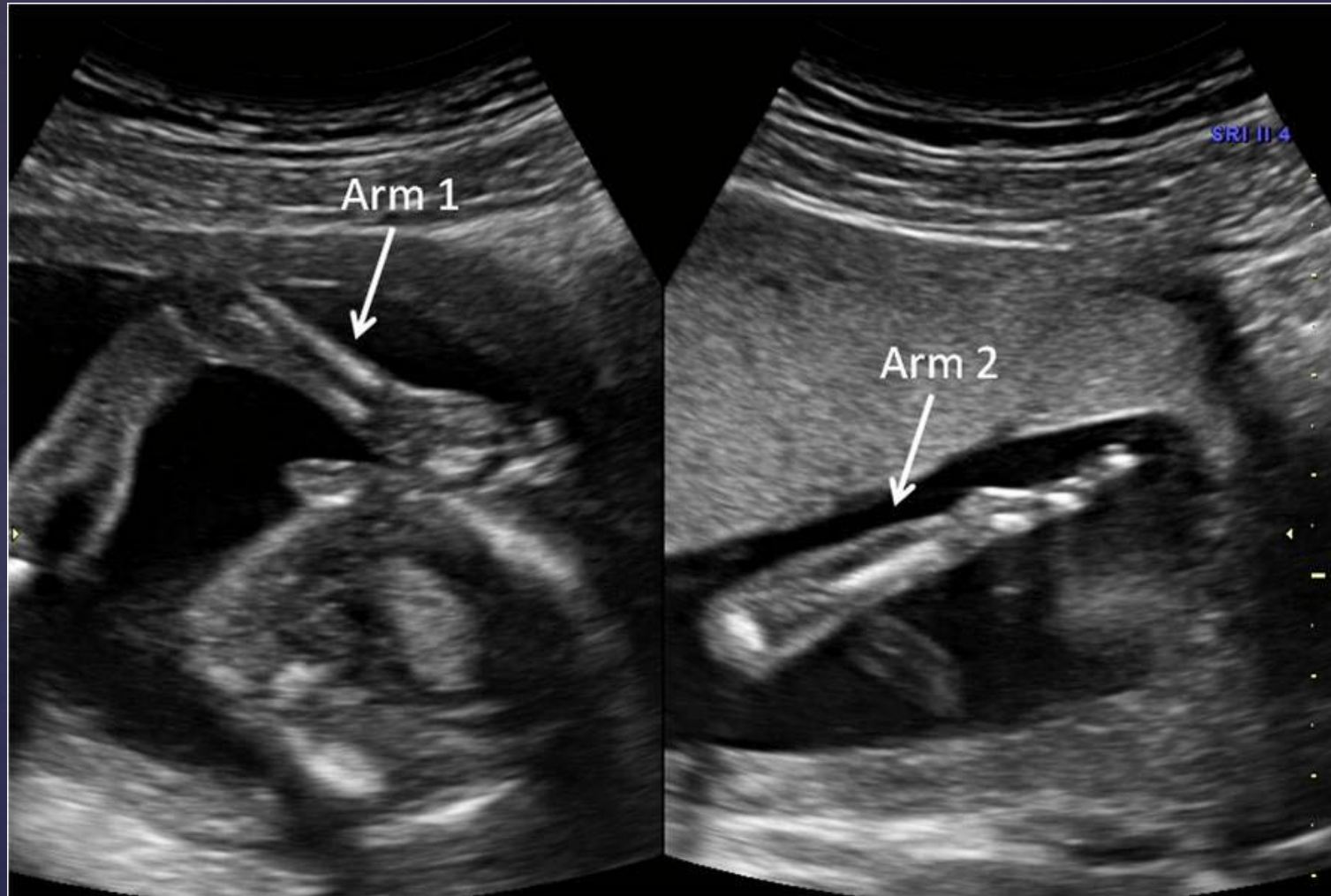


Transverse view of sacral spine showing the centrum (C) and lamina (L) .

Legs



Arms



For Practice Accreditation Purposes: Must be labeled A1/A2 or Rt/Lt if not both shown on single image.

Gender: Should be visualized in multiple gestations and when medically indicated.



Gender: Should be visualized in multiple gestations and when medically indicated.



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

Female



Second Trimester



Third Trimester

ALARA: As Low As Reasonably Achievable

- No Doppler in the first trimester unless clinically indicated.
- Thermal Index for soft tissue at < 10 weeks;
Thermal Index for bone ≥ 10 weeks
- TI number optimally $< .5$
but < 1.0 for sure!



Thank You.

