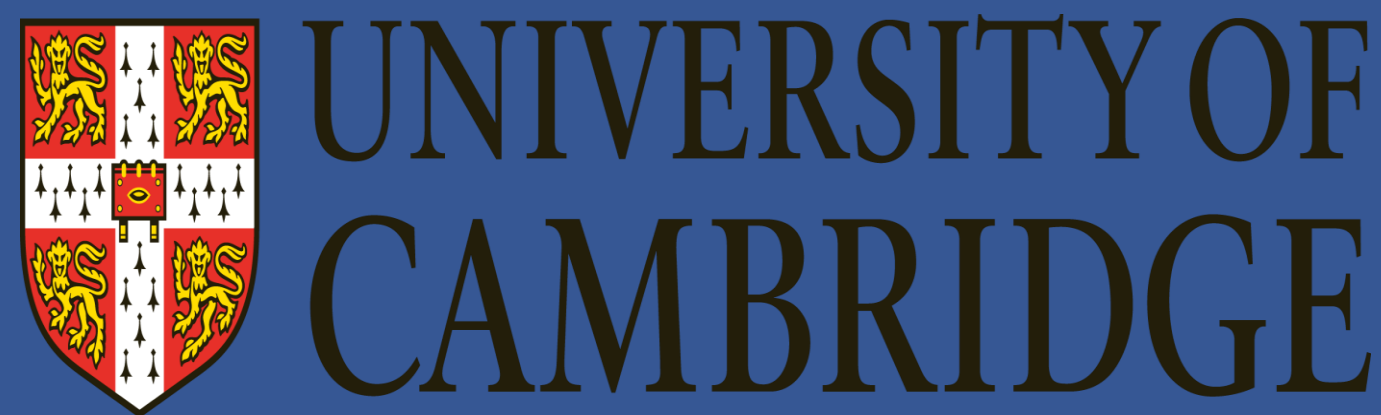
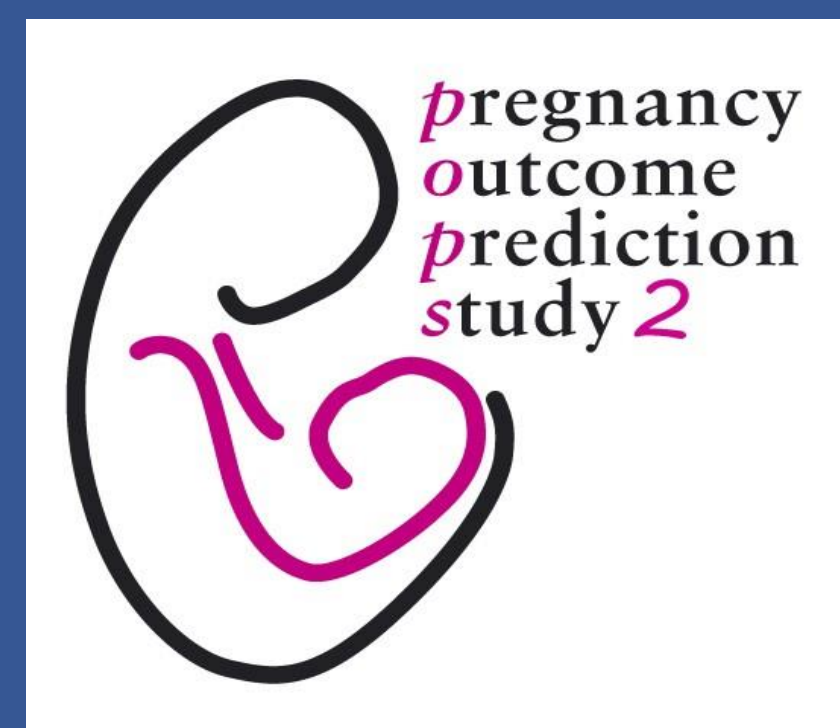


ULTRASOUND APPEARANCES OF PLACENTA AND CORD ABNORMALITIES



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INTRODUCTION

Early detection of placental abnormalities is important to ensure the correct care is provided for the safety of both mother & baby.

VASA PREVIA

Occurs in 1:1275-5000 spontaneous pregnancies & 1:260 IVF pregnancies.

It occurs when the fetal vessels cross between the internal os & fetal presenting part. These vessels are unprotected by Wharton's jelly or placental tissue and are therefore at risk of rupture. Unfortunately there is a poor ultrasound detection

Cord presentation can be confused with vasa previa. Ask the patient to cough or move - a free loop of cord will move. Always ensure the free loop does not insert into lower segment

An arterial vessel with a normal fetal heart rate provides a clear diagnosis of vasa previa.

Always use colour Doppler if suspicious of cord at the internal os.

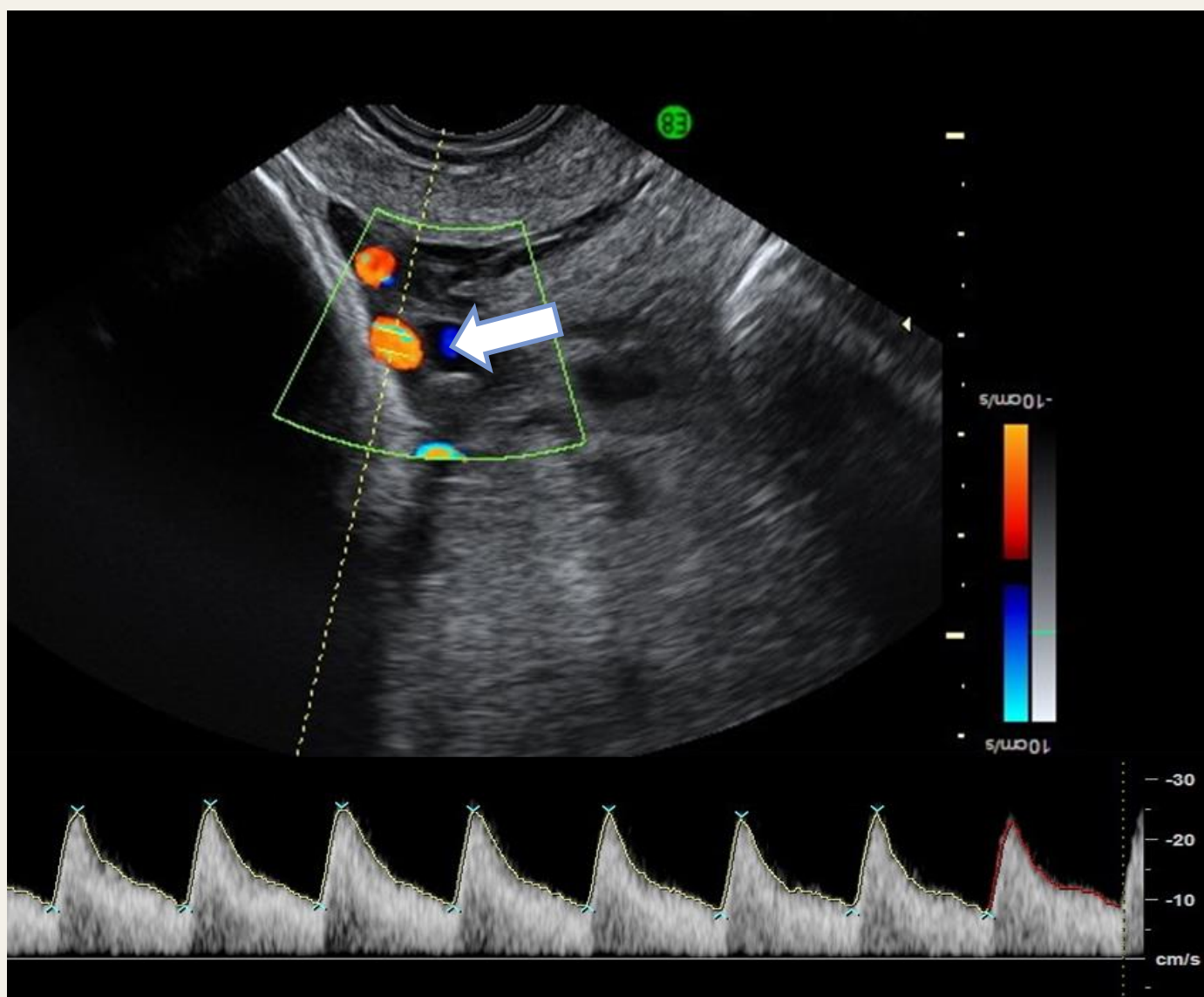


Image showing fetal vessels between fetal head and internal os. Fetal wave form seen on Doppler

CHORIOANGIOMA

It appears as a well circumscribed hypoechoic solid mass close to the insertion point of the umbilical cord. Chorioangioma grow due to the abnormal proliferation of vessels arising from chorionic tissue.

These tumours are often difficult to identify antenatally if they are small.

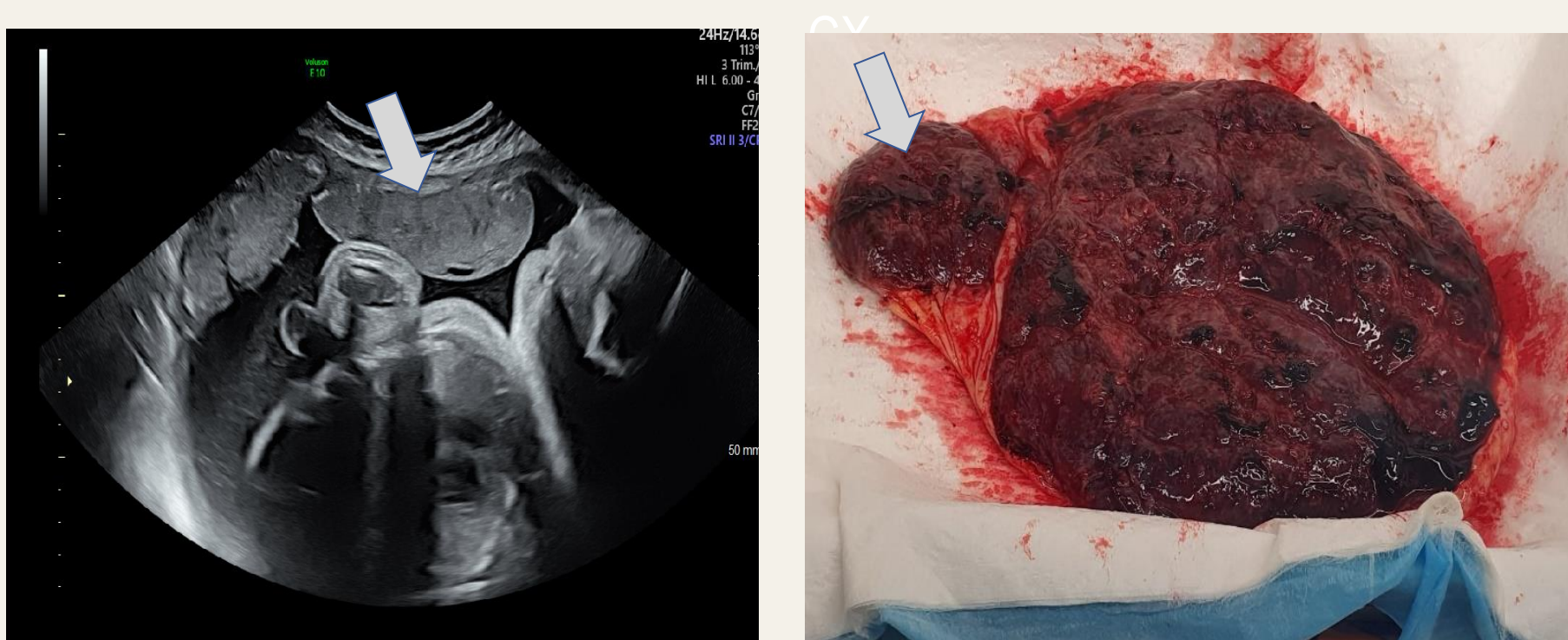
Anechoic cysts & low resistance pulsatile flow are identified within. The presence of colour Doppler flow can identify the blood vessels feeding the tumour and also rule out a hematoma.



SUCCENTURIATE LOBE

This is an accessory lobe of the placenta, which is smaller than main bulk of placenta. This attaches to the placenta by blood vessels.

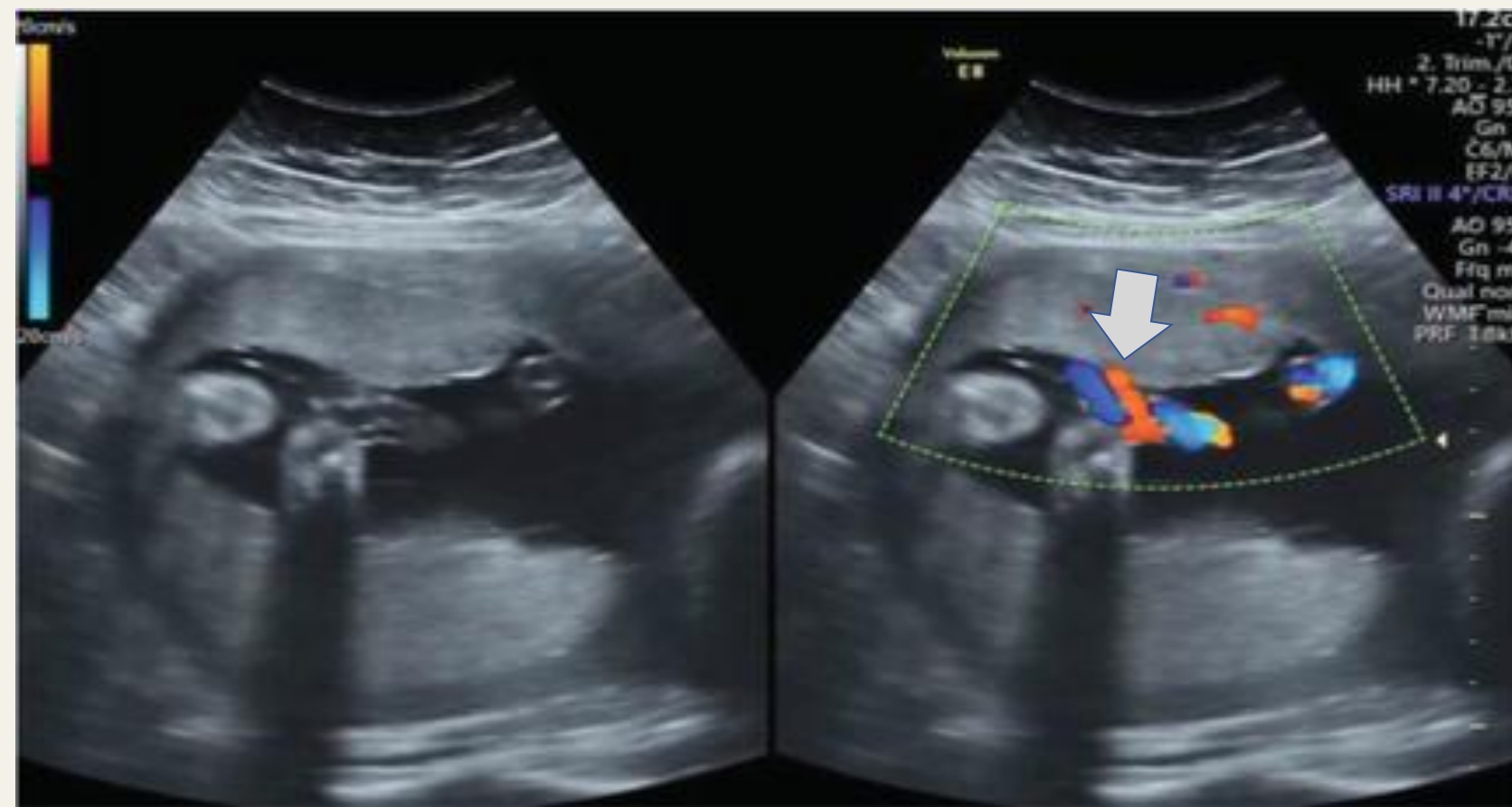
Antenatal diagnosis helpful in preventing RPOC and PPH.



Succenturiate lobe seen antenatally. Postnatal photo of the placenta

BI-LOBE PLACENTA

The placenta is separated into two equal size lobes separated by membranes. This is often seen in later trimesters as the lobes separate as the uterus grows. It is important to identify which lobe the cord inserts into. Ensure the vessels between the two lobes does not transverse the internal os to rule out vasa previa and velamentous cord insertion

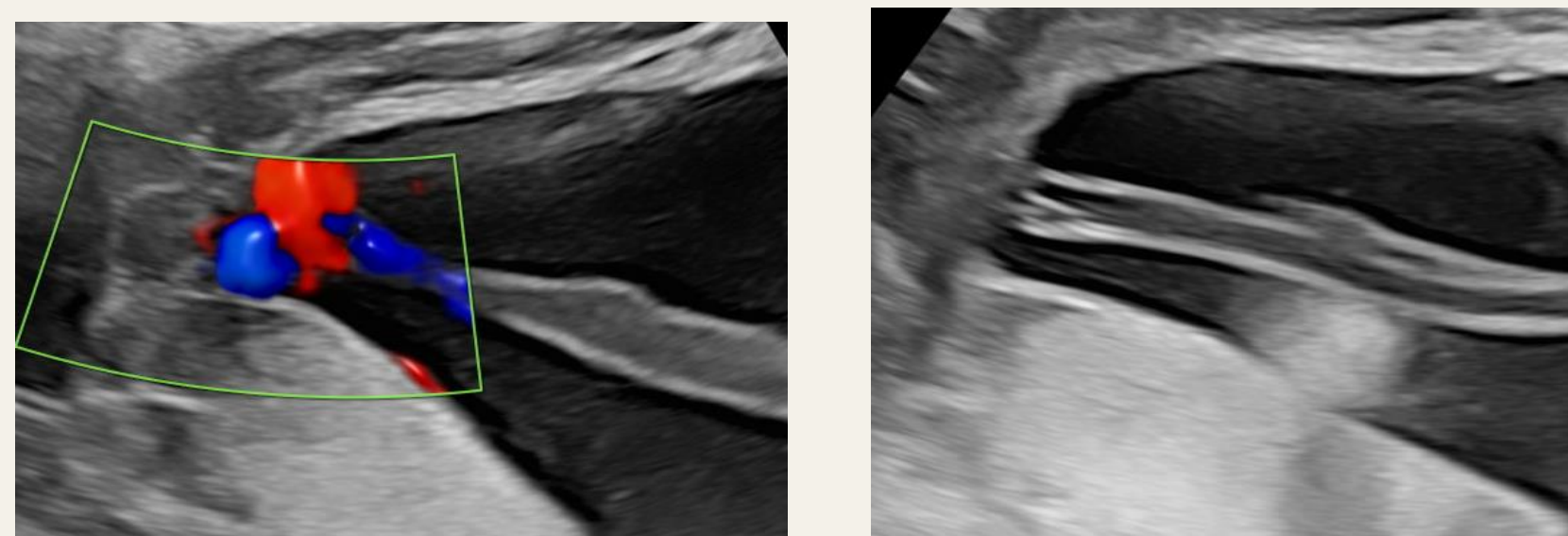


Bi-lobed placenta showing cord insertion into anterior lobe

VELAMENTOUS CORD INSERTION

This occurs when the umbilical cord inserts into the fetal chorio-amniotic membrane outside the placenta margin. It is common with bi-lobed/succenturiate lobe placentas and can also be a cause of vasa previa

As these vessels are unprotected due to no Wharton's jelly, there is a high risk of damage during labour or/and delivery if not diagnosed antenatally.



MARGINAL CORD INSERTION

This is when the umbilical cord inserts less than 2cm away from the placental margin. This can evolve into a velamentous cord insertion.

Antenatal diagnosis is important for care during labour and delivery. Therefore making antenatal diagnosis helpful, however, there is a lower chance of complications than with a velamentous cord insertion.



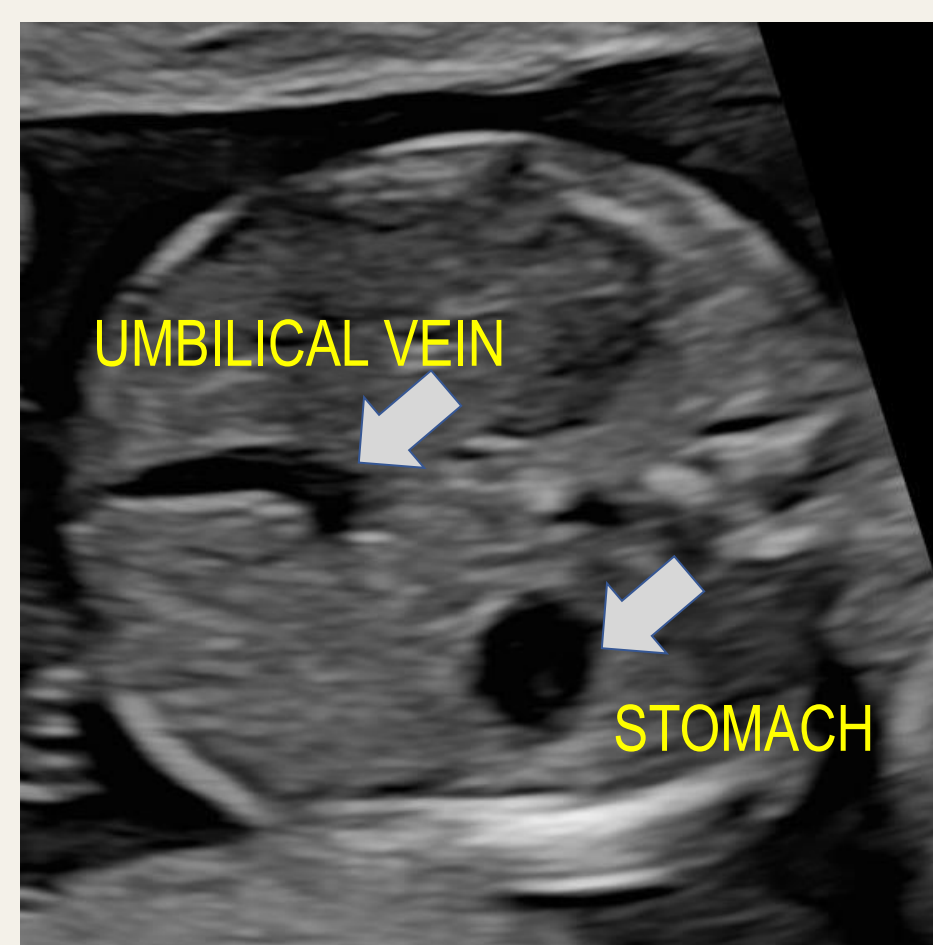
Cord insertion 17mm from placental edge

PERSISTENT RIGHT UMBILICAL VEIN (PRUA)

This can be easily identified whilst performing the AC measurement as the upper third of the umbilical vein will be seen to curve towards the stomach rather than away.

Colour Doppler can confirm this finding. This occurrence is due to the right umbilical vein remaining open and the left umbilical vein atrophies. Isolated incidences are normal, however studies have shown links with cardiovascular abnormalities.

The gall bladder will be situated between the stomach and the right umbilical vein.



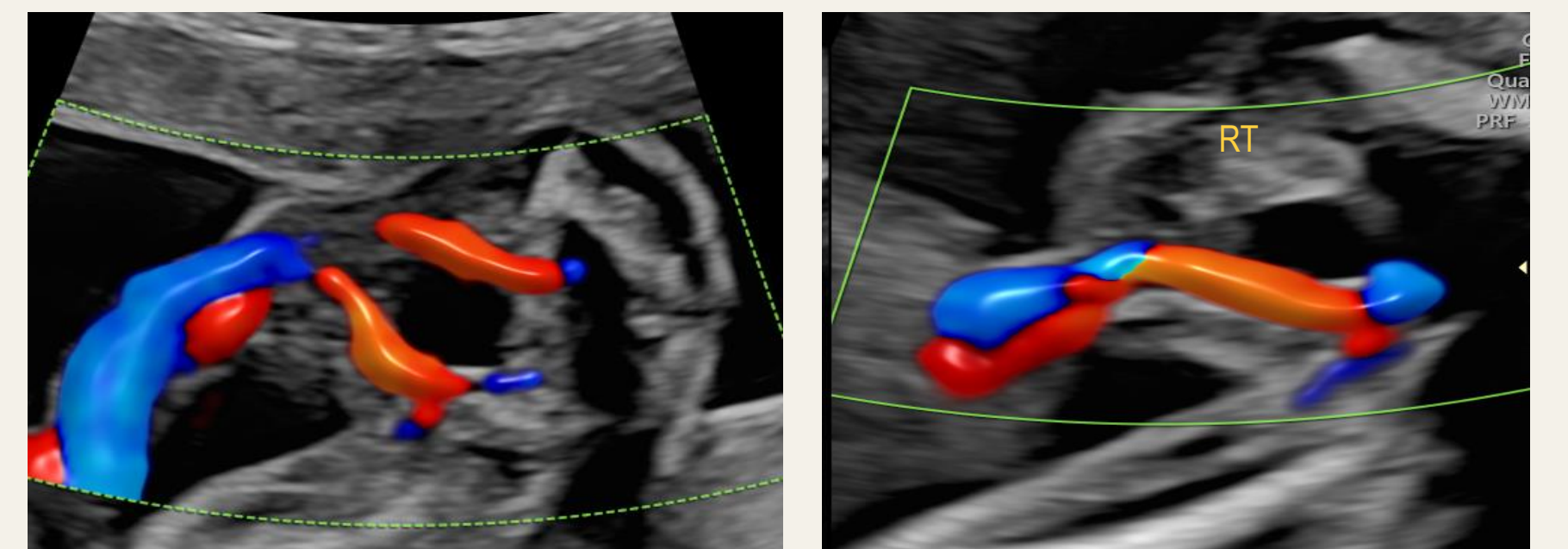
SINGLE UMBILICAL ARTERY (SUA)

To assess the number of arteries in the cord assess at the level of the bladder by applying colour Doppler. **Never** assess a free loop of cord as fused arteries are normal.

Absent left umbilical artery is more common (61.1%) than an absent right (38.9%)

Some studies have shown a risk between single umbilical arteries with cardiac and chromosomal abnormalities. These are 9x higher where the right artery is absent compared with the left.

Single umbilical artery (SUA) is now included in the SBLV3 as a risk factor for fetal growth restriction



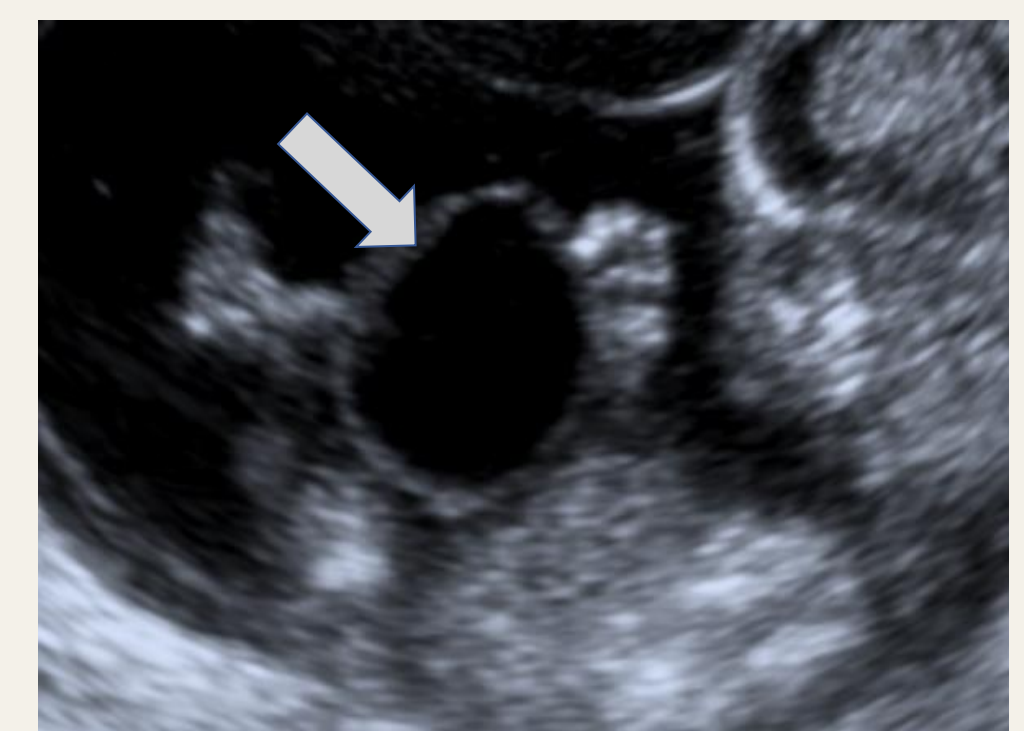
UMBILICAL CORD CYSTS

These are anechoic cystic structures seen along the umbilical cord.

If it is a true cyst it will be closer to the fetal cord insertion and are 4-6mm in size. Some will persist in the 2nd trimester.

Pseudo cysts are more common and can occur anywhere along the cord and represents oedema in Wharton's jelly

Umbilical cord cysts are only significant if there are multiple cysts. There is also a link with fetal trisomy and congenital abnormalities if they are still present within the 2nd trimester



CONCLUSION

It is important to assess the placenta and umbilical cord at all scans.

Diagnosis of abnormalities at any stage of the pregnancy can be beneficial to both mother and baby by potentially reducing maternal and fetal morbidity and mortality.

Succenturiate and bi-lobed placentas are often not identified until later on in pregnancy due to the placental masses moving away from each other as the uterus grows.

Identify the cord insertion into the placenta at the 1st or 2nd trimester scan. Colour Doppler is useful in identifying the cord vessels inserting into the placental edge. Reducing the PRF can help identify the vessels going into the placenta.

By identifying an abnormal cord insertion it can ensure care is taken during delivery.

SUA is now included in SBLV3 as a risk factor for fetal growth restriction.

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