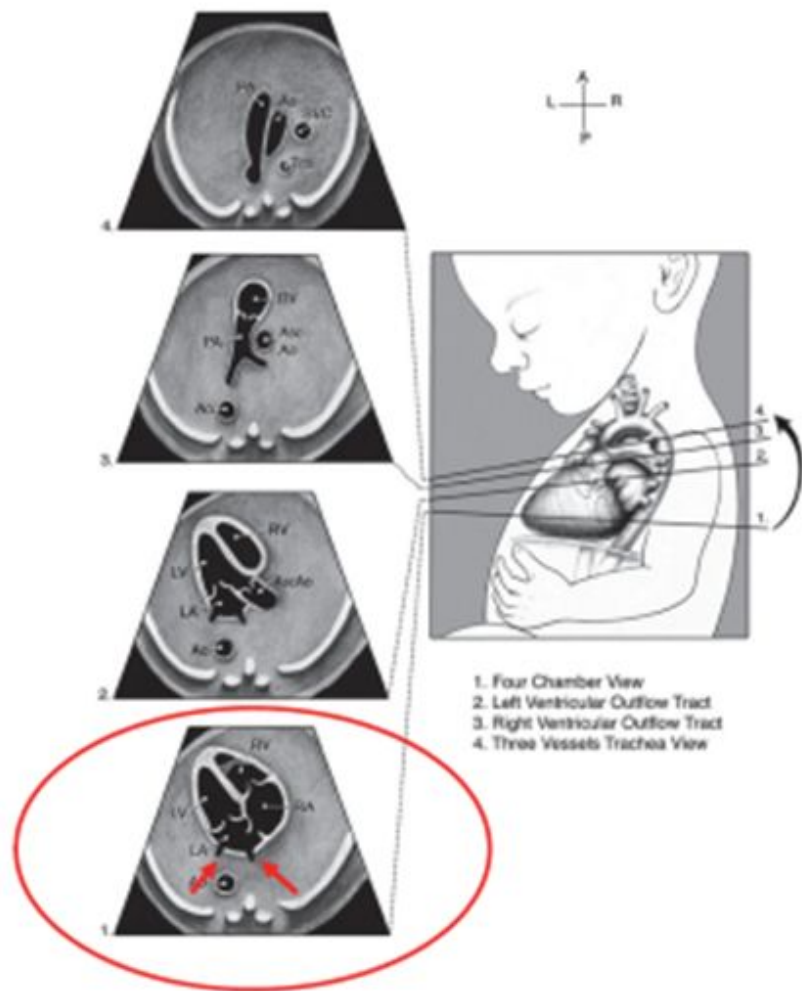


Fundamentals of Fetal Echo

Brief recap of Philips course

Imaging of venous structures

- Pulmonary veins
 - Imaging plane: transverse lower-mid thoracic plane (same as 4 chamber)
 - At least one vein, on either side, to be shown connecting to LA
 - Evaluate by 2D, CFM and DS

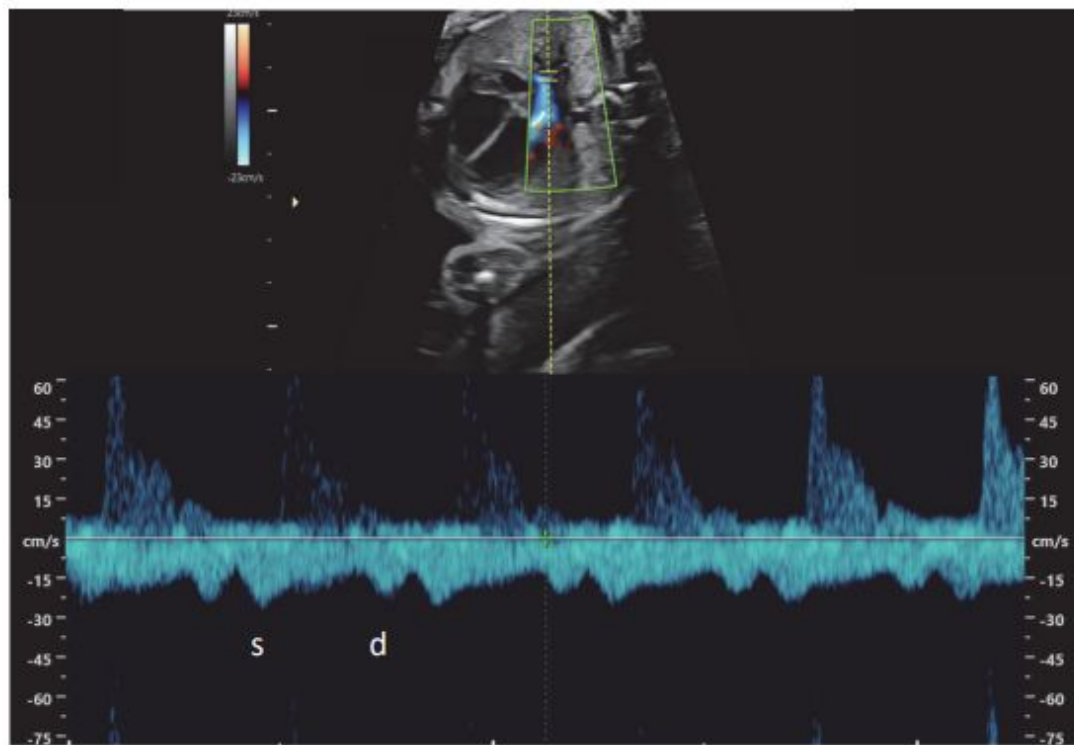


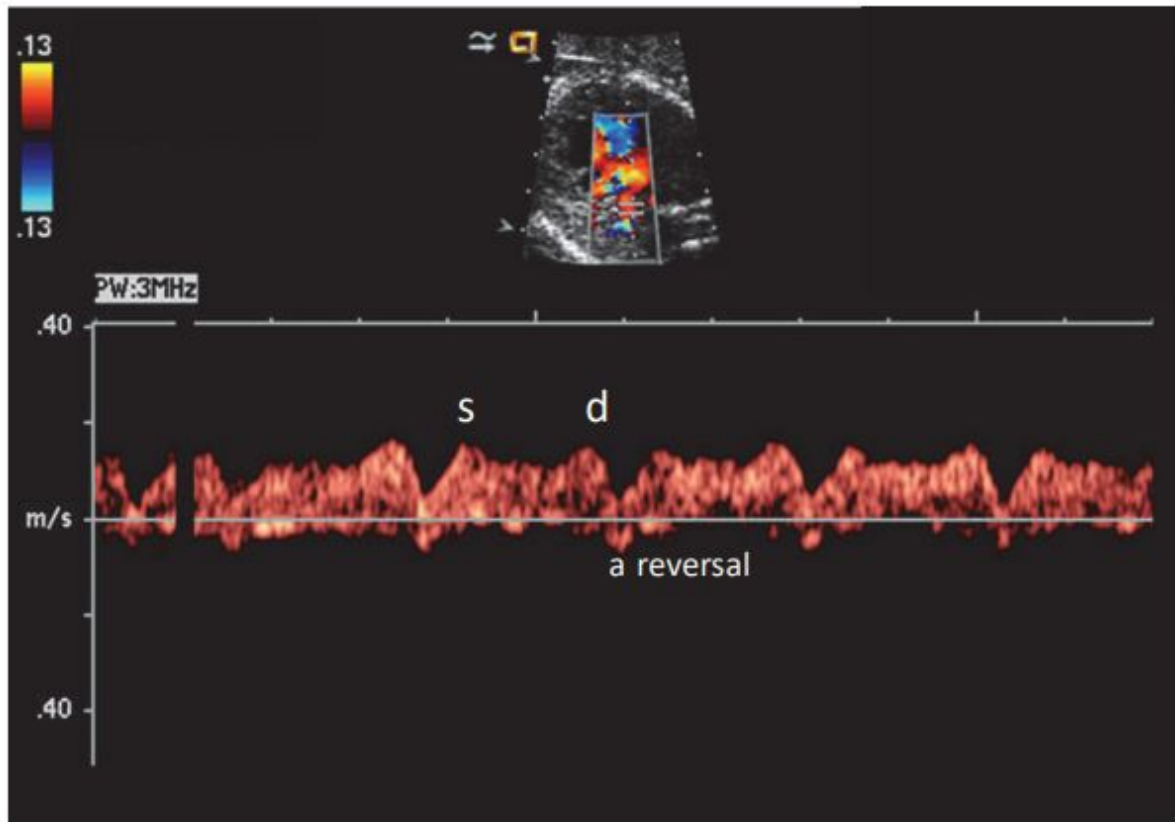
Pulmonary vein Color Doppler

Put color box on heart as shown here. Once color is on, decrease scale until you see filling of pulmonary veins. To confirm they are veins, doppler is required. Normal and abnl doppler images on next two slides.



Normal



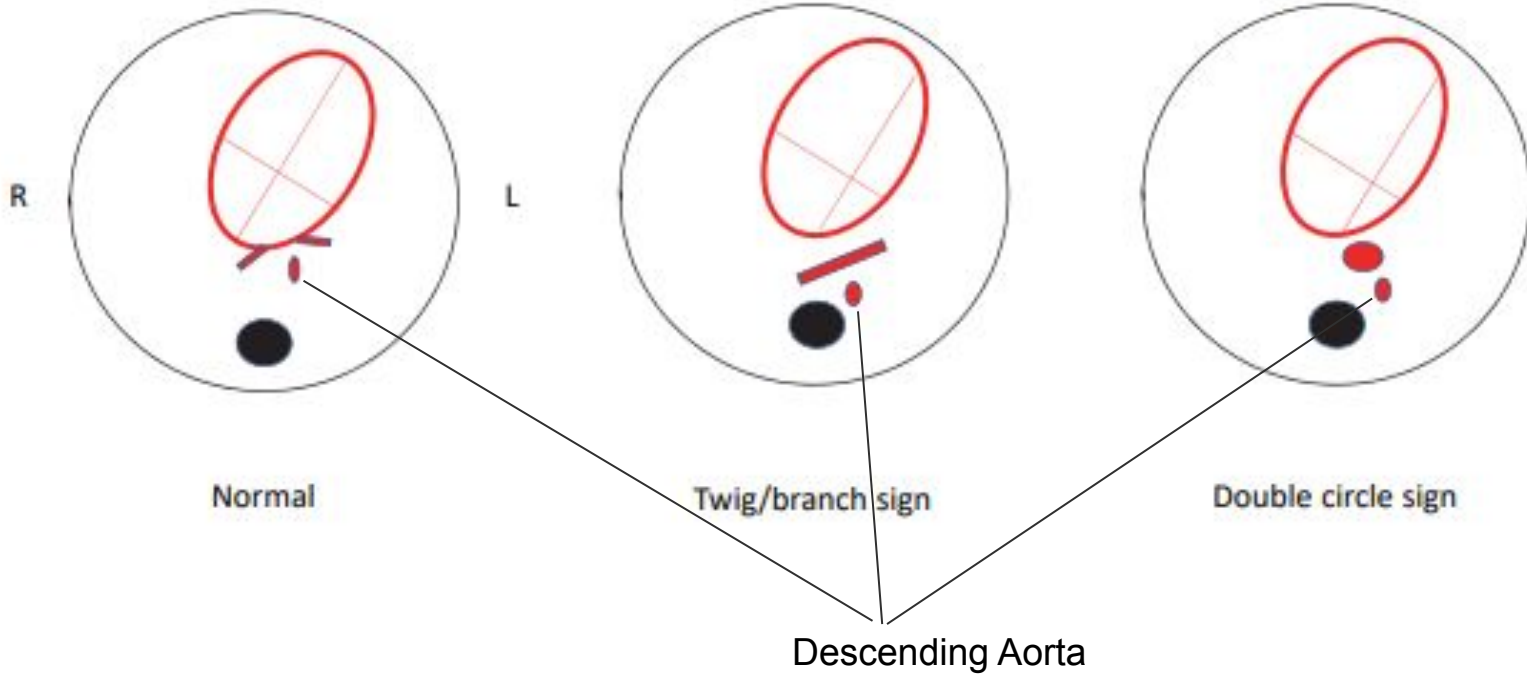


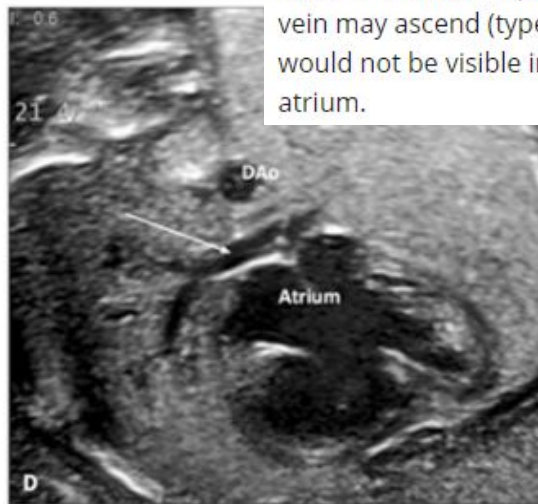
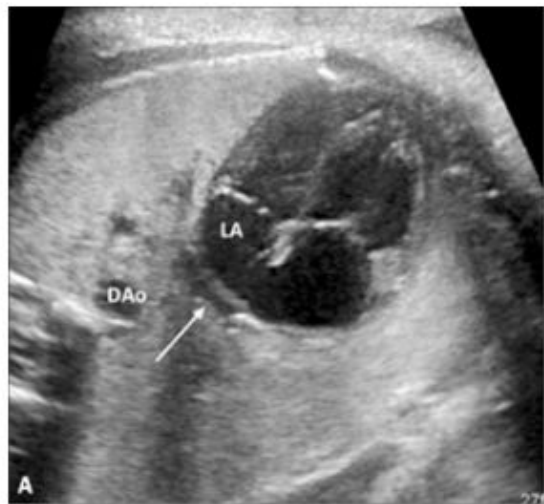
Abnormalities of the pulmonary veins

Pulmonary vein abnormalities-TAPVR

Note:

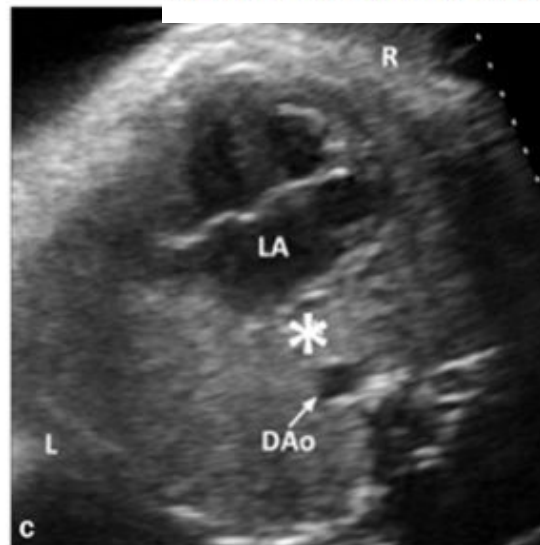
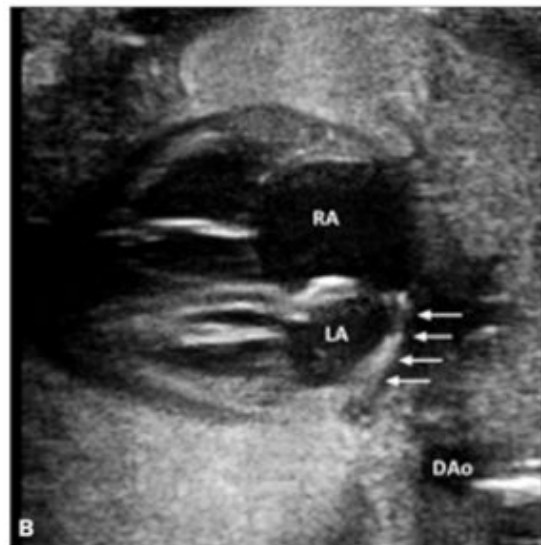
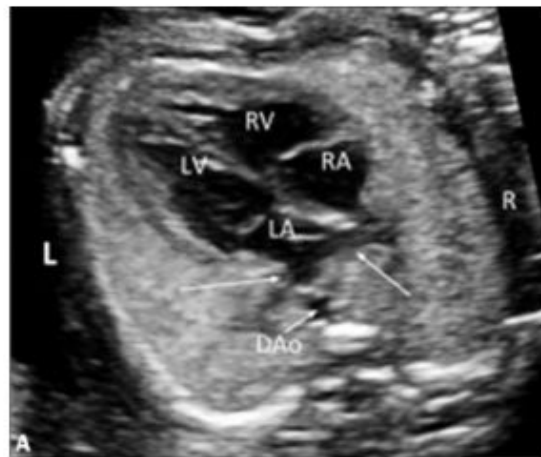
- Left heart < right heart
- Increased space between LA roof and aorta





A-D, Posterior venous confluence (twig sign; arrows) in different patients. The venous structure represents the confluence of the pulmonary veins; the draining vein may ascend (type I), descend (type II), or connect to the coronary sinus and would not be visible in this view. DAo indicates descending aorta; and RA, right atrium.

Figure 1

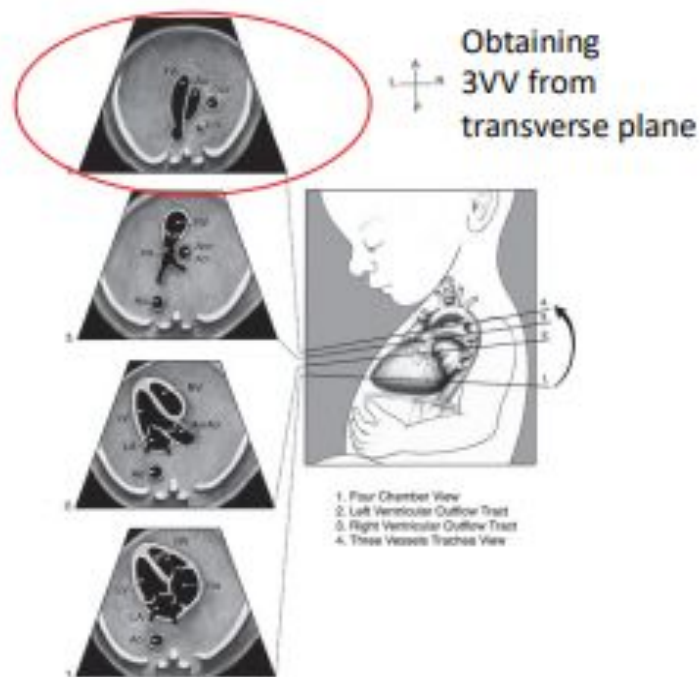


Normal (A) and abnormal (B and C) appearances. **A**, Normal pulmonary venous entry into the LA on an axial 4-chamber view. Note that pulmonary venous connections from the right and left lungs are clearly shown (arrows), and there is close proximity of the descending aorta to the posterior aspect of the LA. **B**, Absence of pulmonary venous drainage into the LA on a 4-chamber view in a fetus with isolated TAPVR. The posterior aspect of the LA is smooth, without visible vein ostia (arrows). **C**, An increased distance (asterisk) between the descending aorta and posterior aspect of the atrium is shown in a fetus with dextrocardia and TAPVR. DAo indicates descending aorta; LV, left ventricle; RA, right atrium; and RV, right ventricle.

3VV and 3VTV

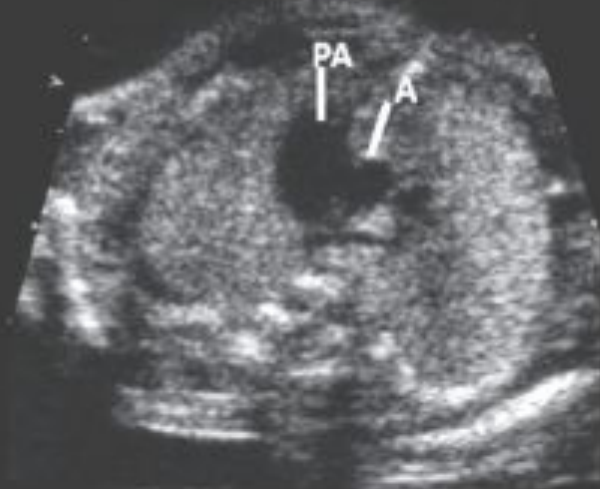
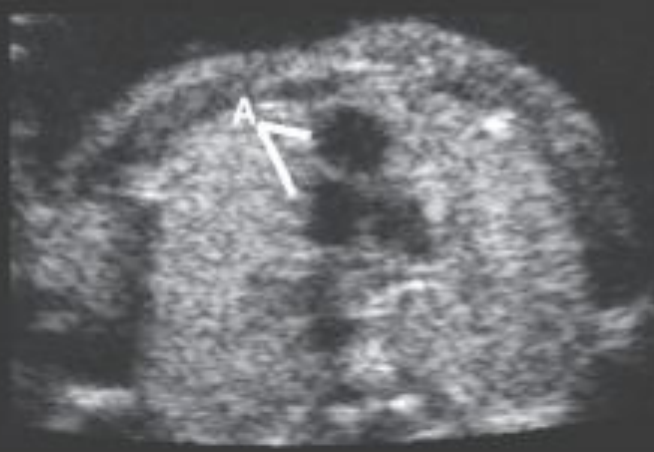
3 vessel view

- Obtained from transverse plane with cranial angulation of probe
- Adjunct to regular imaging as it improves diagnostic certainty
- Useful for conotruncal abnormalities



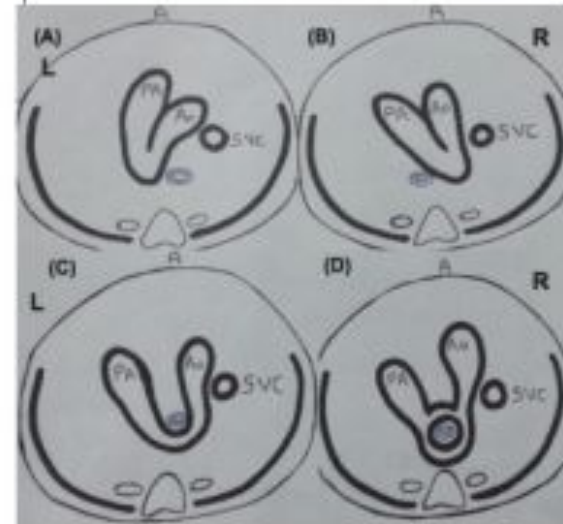
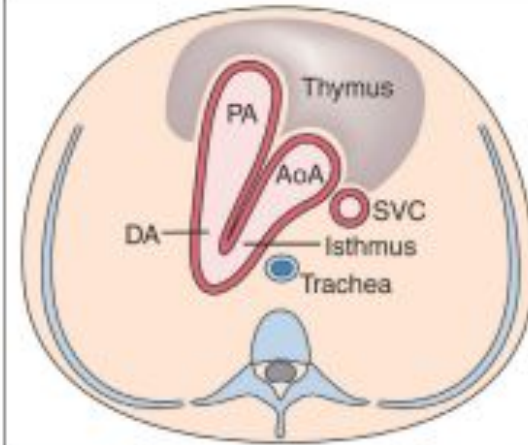
- 3 vessels from left to right
 - Pulmonary artery
 - Aorta/arch
 - SVC



A**B****C****D**

3 vessel trachea view

- Imaging plane: high transverse through upper thorax
- Vessels:
 - Ductus arteriosus
 - Aortic arch
 - SVC
- Important extracardiac landmark
 - Trachea
- Importance:
 - Arch sidedness
 - Vascular ring
 - Double aortic arch



- A- Normal
- B- Normal with right aortic arch
- C- Right Ao arch with PA remaining left
- D - Vascular ring, double aortic arch

Left aortic arch

Double aortic arch

Right aortic arch w/ vascular ring

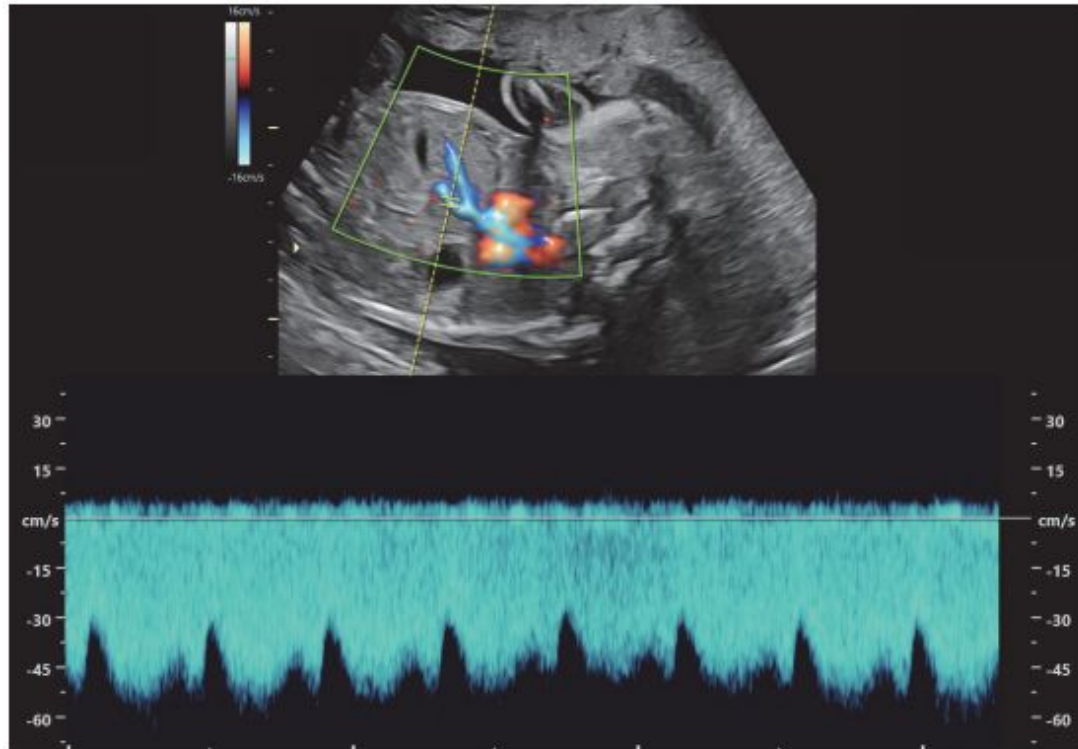


Ductus Venosus

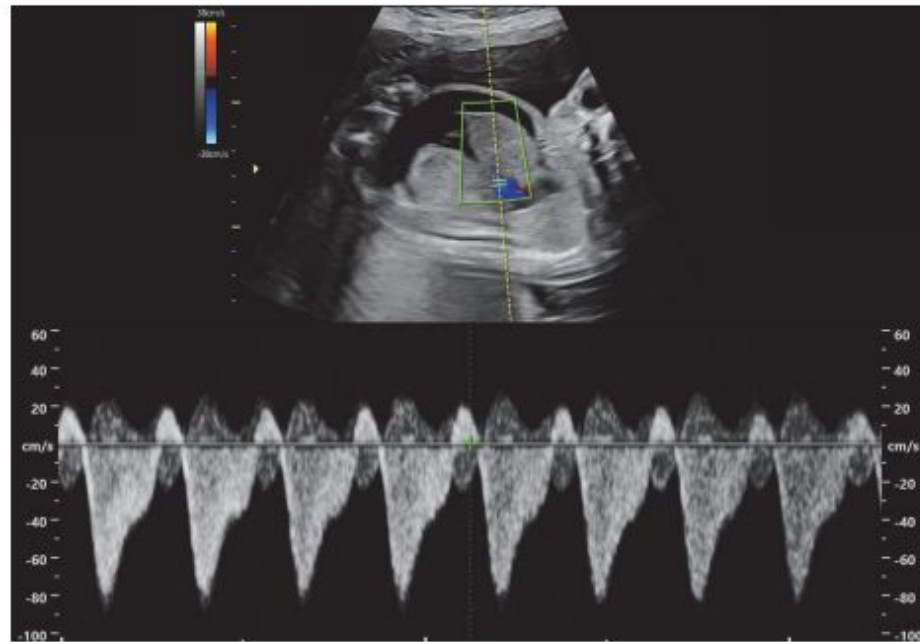
Ductus venosus Doppler

- 2D image: sagittal plane but focusing on the upper abdomen
- CFM box: broad to include hepatic vessels, IVC and track intra-abdominal UV course
- Gate: narrow
- WMF: low
- Scale: Set for venous flow(30-60cm/s)

Ductus venosus Doppler



Flow reversal in Ductus venosus



Umbilical Vein Doppler

If pulsations are one to one or two to one with arteries it proves it's not breathing related and the outcome is usually impending demise

Abnormal Umbilical vein Doppler

