

EP09.18 Feasibility and reproducibility of showing outflow tract coronal section by using SlowflowHD in conotruncal heart defects in the first trimester

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Objectives

To demonstrate the coronary cross-sectional blood flow image of the outflow tract by slowflow and explore its repeatability and effectiveness in the diagnosis of early pregnancy conical arteriovenous malformation.

Methods

Collecting early pregnancy NT screening fetal ultrasound images from the Prenatal Diagnosis Center of Ningxia Women and Children Hospital at Peking University First Hospital, from early July 2020 to December 2024. The coronary section was considered normal if it showed no abnormalities, classified as the normal blood flow group; if it showed abnormalities, it was classified as the abnormal blood flow group. Follow-up visits were conducted during mid-pregnancy or after birth to check the fetal heart condition, dividing the fetuses into those with normal cardiac structure and those with abnormal structures. Some induced labor cases were followed up with informed consent for fetal autopsy. The sensitivity and specificity of this method in diagnosing conotruncal heart defects were statistically analyzed.

Results

A total of 1,540 pregnant women were included in the statistics. in the first trimester, 62 cases of severe congenital heart disease were detected, including 29 cases with normal four-chamber heart structure and conical artery trunk malformation, and 23 cases with pulmonary valve stenosis; among the 33 cases with abnormal four-chamber heart structure, 29 fetuses had outflow tract anomalies. The incidence of pulmonary valve stenosis/closure was 59.6%, and the incidence of aortic developmental abnormalities was 10.5%. In the first trimester, using slowflow HD to scan the outflow tract coronary section had a sensitivity of 82.14%, specificity of 98.73%, positive predictive value of 95.32%, and negative predictive value of 98.22%.

Conclusion

The coronary section of outflow tract could be used as a new diagnostic mode for screening congenital heart disease in the first trimester, and it had high screening and diagnostic value for fetal conotruncal heart defects.

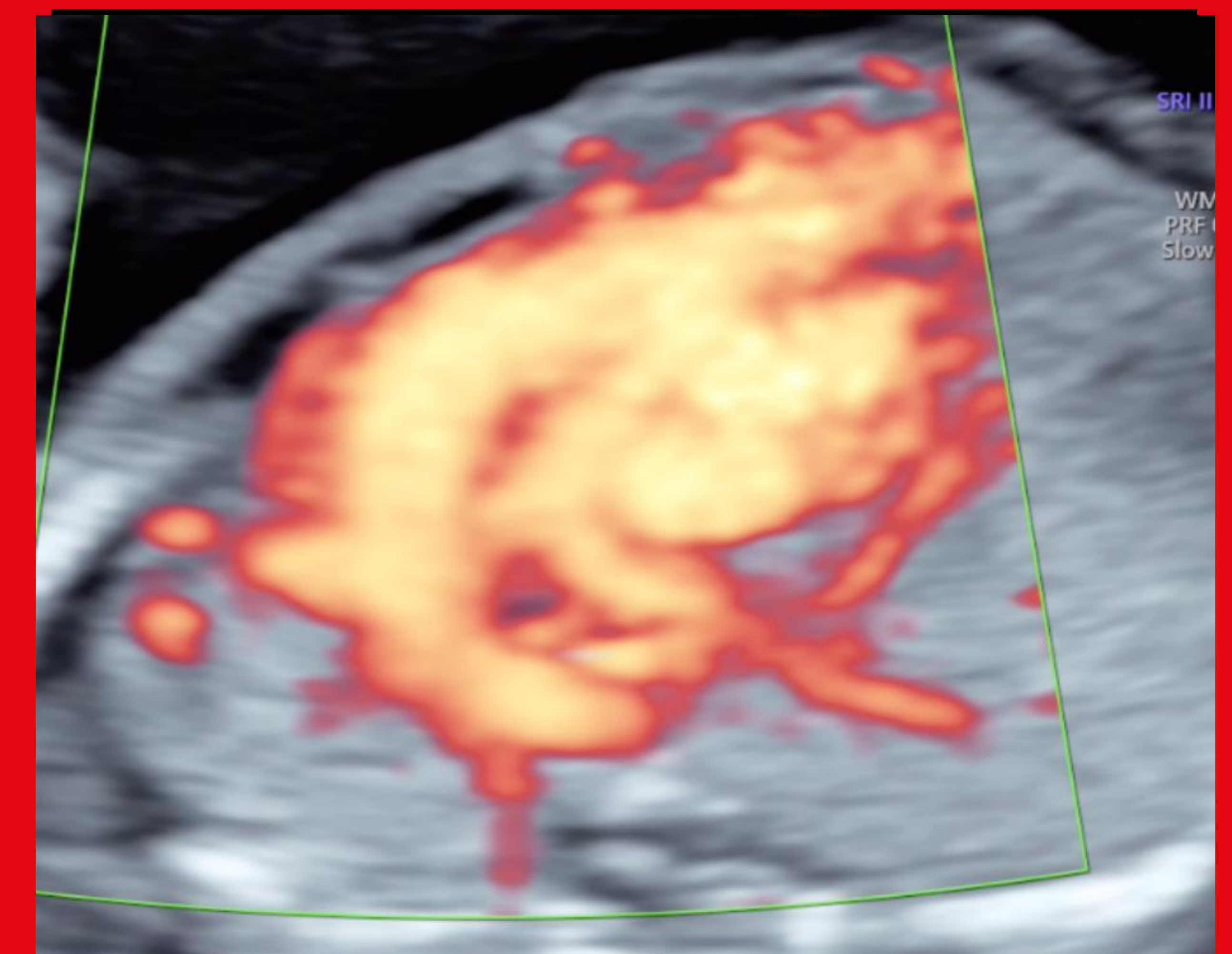


Figure 1. DORV

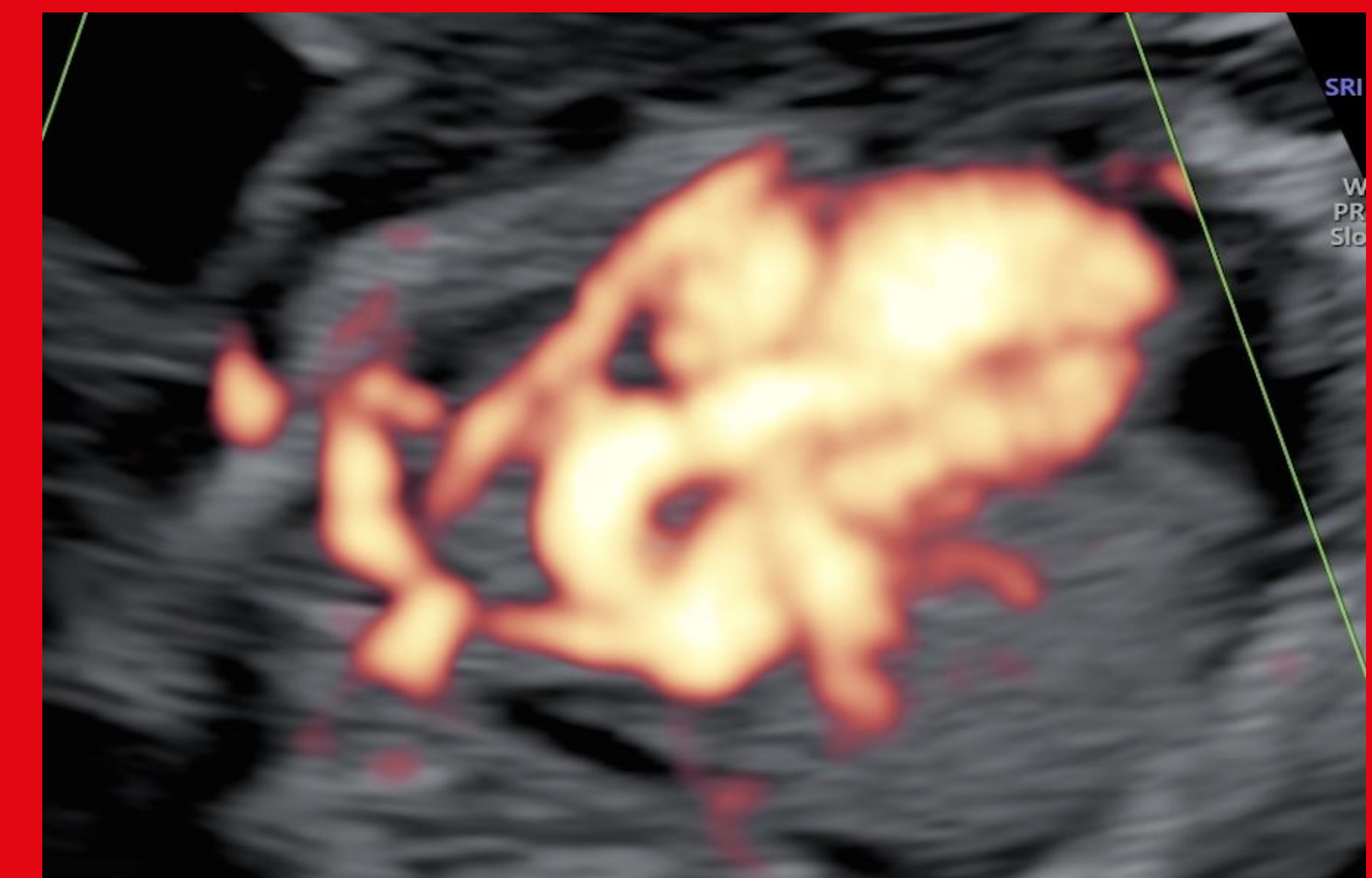


Figure 2. TGA and ARSA