

The Short Axis Echocardiographic Scan. An Easy Implementation to Improve the Detection Rate of Perimembranous Ventricular Septal Defects in the Fetus.

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BACKGROUND.

The anatomic position of perimembranous ventricular septal defects (VSD) is definitely close to tricuspidal apparatus and their detection rate by fetal echocardiography (FE) is weak by the long axis and the 5-chamber views. Conversely to FE, neonatal echocardiography includes the basal short-axis view as part of a standard examination. We tried to assess if the introduction of the short axis view in FE may improve the prenatal detection rate of perimembranous VSDs.

SETTING.

Tertiary level Center for prenatal diagnosis in which all examinations are performed by a Gynecologist skilled in FE and a Pediatric Cardiologist together. This is a single Center prospective study.

METHODS.

From 2014 to present all the fetuses in whom an isolated subaortic VSD was suspected on the 5-chamber view of the fetal heart were assessed afterward by the short axis scan. The transducer was then rotated 90 degrees towards the left shoulder of the fetus to obtain the view of the right outflow tract surrounding the cross section of the aortic root. When present, a VSD is detectable both by 2D and Color Flow Doppler as an interruption of the aortic profile and as a reddish sequence respectively, just below the tricuspid valve. An echocardiography was performed for final diagnosis in all fetuses within 2 weeks after birth.

RESULTS.

Overall an isolated subaortic VSD was suspected by the long axis view in 18 fetuses at a mean gestational age of 22.1 ± 2.7 weeks. In 12/18 fetuses (66.7%) the VSDs were confirmed by the basal short axis and at postnatal follow-up the diagnosis was confirmed 10/12 (83.3%). The remainder 2/12 (16.7%) were false positive cases. Eventually, neither of the 6 cases in which the VSD was not confirmed by the basal short axis view revealed a VSD at postnatal analysis.

CONCLUSION

The short axis view of the fetal heart seems useful in confirming the presence of a perimembranous VSD suspected by the classical 5-chamber and long axis views. The introduction of this scan could increase the detection rate of perimembranous VSDs which require a more specific counselling than other types of VSD