

Sample of (original) abstract

Is The “I”-Sign In The Three-Vessel Tracheal View a Valid Tool for Prenatal Diagnosis of Dextro-Transposition of The Great Arteries?

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Objectives: Prenatal diagnosis of d-transposition of the great arteries (d-TGA) remains low compared to other major congenital heart defects. One study from Japan (Ishi Y. et al, 2013) found that three-vessel trachea(3-VT) view was abnormal and in the shape of I-sign in most of the fetuses with prenatal diagnosis of d-TGA. In this study we examined how often the 3-VT view was abnormal in large case series of prenatally diagnosed d-TGA in large single institution.

Methods: This was a review of all d-TGA cases that were diagnosed in our institution between November 2007 and May 2014. Fetuses with l-TGA and double outlet right ventricle with malposed great vessels were excluded. Routine anatomic surveys, including outflow tract views were performed between 18-22 weeks. The short axis of the right ventricle was obtained by rotating the transducer to the fetal left shoulder is the standard right ventricular outflow view used on routine examinations at our institution; targeted sonographic exams add the crossing, aortic arch, and SVC-IVC views. The 3-vessel view at the level of the pulmonary bifurcation was added to both exams in 2010. All patients with suspected cardiac anomaly were referred to a pediatric cardiologist, who performed a fetal echocardiogram that included the 3-VT view

Results: A total of 24 fetuses were diagnosed with d-TGA prenatally. The large majority of the d-TGA cases were isolated anomalies. There were 70,000 deliveries during the study time period, which gave d-TGA frequency of 3.4 per 10,000. The 3-VT view was obtained in 22 fetuses, all of whom (i.e., 100%) had an anteriorly displaced aortic arch in a shape of an “I”. In the remaining two patients the 3-VT view could not be obtained. In one case this was due to a fetal “back-up” position and in the other a flexed fetal head with shadowing of the mediastinum.

Conclusions: In this analysis, we have demonstrated that the 3-VT view could be seen reliably in 92% of examinations, and when visualized, it was abnormal in 100% of fetuses with a d-TGA. The 3-VT view We believe this view is easily taught, quick to perform, and could potentially aid greatly in the prenatal diagnosis of d-TGA.