

Prenatal diagnosis of vascular rings: single center experience

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OBJECTIVES: In this study we analyzed our experience in the prenatal ultrasound diagnostics vascular rings and the impact of volume growth on its accuracy.

METHODS: We analyzed fetal echocardiograms and clinical histories of 42 patients with a diagnosis of vascular ring at our institution from 2004 to 2016. We evaluated the learning curve of the the prenatal diagnosis of vascular rings.

RESULTS: Between 2004 and 2008 the total number of fetal echocardiographies increased from 27 per year to an average of 1000 per year. Overall, from 2004 to 2016, 6793 pregnant women were examined. Until 2012 there was no vascular ring diagnosis established prenatally. In the period from 2012 to 2016 we diagnosed 42 cases of vascular rings. There were 3 diagnoses of vascular ring established in 2012, 2 in 2013, 11 in 2014, 12 in 2015 and 14 in 2016. The double aortic arch was diagnosed in 5 cases, of which in 1 case there was present a left superior vena cava draining to the coronary sinus. Right aortic arch with left ductus arteriosus and aberrant left subclavian artery was diagnosed in 37 cases. Among the 37 diagnosis the vascular ring was isolated in 28 and associated with other structural congenital heart disease in 9 (1 persisted left superior vena cava draining to the coronary sinus, 7 ventricular septal defects, in of which in 1 case there was present a persistent left superior vena cava draining to the coronary sinus, 1 congenitally corrected transposition of the great arteries with ventricular septal defect and pulmonary atresia).

CONCLUSIONS:

Prenatal ultrasound diagnostics of vascular rings has high sensitivity and specificity. The 3-vessel and trachea view, the aortic arch long-axis view, the transverse view of the upper abdomen, demonstrating the abdominal aorta are essential for the reliable correct diagnosis.