Fetal Isolated Atrial Septal Aneurysm: Does It Matter?

Objectives: to describe the associated cardiac findings and the outcome of fetuses diagnosed with isolated atrial septal aneurysm (ASA).

Background: few case series have been published regarding fetal ASA and its impact on heart development and on postnatal outcome.

Methods: we included all consecutive fetuses diagnosed with isolated ASA between January 2016 and November 2018. ASA was defined as a large redundant structure that herniated more than 50% across the length of the left atrium.

Results: 20 cases with fetal ASA were identified with a prevalence of 2%. Median gestational age at diagnosis was 33 weeks (27-36 weeks). Reason for referral was suspicion of ASA at the third trimester echo scan in 12/20 fetuses, and of ventricular size disproportion in 8/20. 9/20 fetuses presented isolated ASA. 11/20 fetuses had associated size disproportion both at the level of the ventricles and the great vessels, with retrograde flow in the aortic arch in 4/11. Acceleration of flow through the pulmonary veins and/or the mitral valve was detected in 10/20 and 6/20 had some degree of tricuspid regurgitation. None presented ascites or hydrops. None presented premature atrial complexes or atrial arrhythmias except one who developed atrial flutter at 38 weeks of gestation. The arrhythmia did not respond to transplacental therapy and required an urgent cesarean section and external cardioversion. All other patients were in good clinical condition at birth and did not need of any treatment except one that developed neonatal aortic coarctation. None developed pulmonary hypertension or low cardiac output syndrome. At a mean follow up of 8 months (±5.3), 1/20 had a large atrial septal defect and 11/20 had still a patent foramen ovale (PFO).

Conclusions: prenatal diagnosis of isolated ASA is not uncommon and it is frequently associated with size disproportion both at the level of the ventricles and of the great arteries. However, in our experience, only one patient developed aortic coarctation after birth. It was not observed a strong association between fetal ASA and atrial arrhythmias. Short term outcome was good for all liveborn infants even if most of them showed a PFO at last scan.