Ductal and Aortic Arch Anomalies Detected in Fetal Life by Echocardiography

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Introduction: Ductal and aortic arch anomalies can be diagnosed by echocardiography and computed tomography in neonates. However prenatal diagnosis is rarely reported. Here we present our experience in detecting ductal and aortic arch anomalies by fetal echocardiography.

Methods: The records of patients with ductal and aortic arch anomalies from 2007 to 2014 were evaluated retrospectively. Autopsy findings, postnatal evaluation and karyotype analyses were enrolled in the study.

Results: In 8 patients right arcus aorta + left ductus arteriosus + aberrant left subclavian artery; in 4 patients right arcus aorta; in 1 patient left arcus aorta with abnormal left subclavian artery; in 1 patient bilateral ductus + right arcus aorta + aberrant left subclavian artery; in 2 patients ductal aneurysm and in 1 patient double arcus aorta were detected. Trizomi 18 was detected in one patient with bilateral ductus arteriosus. Di George syndrome was determined in one patient with right arcus aorta and Williams syndrome was detected in one patient with ductal aneurysm. Atrioventricular septal defect and ventricular septal defect were accompanied right arcus aorta in two patients. Ventricular septal defect and isthmus hypoplasia were detected in one patient with ductal aneurysm. Postnatal echocardiographic evaluation demonstrated right arcus aorta in 7 patient without any symptom. Ductus arteriosus was shrinked and closed spontaneously in one baby with the diagnose of ductal aneurysm during postnatal period. The other baby with the diagnose of ductal aneurysm + Williams syndrome + ventricular septal defect + isthmus hypoplasia underwent surgery for ductus arteriosus closure and ventricular septal defect and coarctation repair. Intrauterine fetal death accrued in 2 patient and the diagnosis were verified by autopsy. Postnatal echocardiographic evaluation of one patient with aberrant left subclavian artery revealed left arcus aorta. Clinical follow up was considered due to no symptom was detected during the neonatal period. The baby with diagnose of double arcus aorta underwent surgery because of respiratory distress after delivery.

Conclusion: Ductus and arcus anomalies on fetal ultrasonography may indicate chromosomal abnormalities that may complicate postnatal management. When arcus anomalies are identified, fetal karyotype analysis is warranted.