The value of ultrasonography in prenatal diagnosis of Criss-Cross Heart

Xiaoying Lin

Department of Ultrasound, Bao'an Maternity & Child Health Hospital, Jinan University, Shenzhen, China

Email: linxiaoying0898@163.com

Objective: To explore value of ultrasonography in diagnosis of prenatal criss-cross heart (CCH).

Method: We summarize the characteristics of echocardiography and the key points for differential diagnosis of CCH by reviewing 2 cases identified in the Shenzhen Bao'an Maternity & Child Health Hospital. Ultrasonographic investigation were as following: (1) The typical four-chamber view of the heart was not able to be revealed in transverse plane of the fetal chest. (2) A four-chamber view seen in the sagittal plane of the fetal chest in which left and right ventricles were arranged up and down while the ventricular septum was horizontal. (3) Scanning from the upper abdomen to the chest cavity showed that left and right ventricle inflow channels were arranged in a criss-cross pattern. Most of the left ventricular inflow was from the left rear to the right front and a few from the right rear to the left front. Most of the inflow of the right ventricle was from the right rear to the left front, while a few was from the left rear to the right front. (4) In the transverse plane of the fetal chest color Doppler ultrasound displayed the criss-cross arrangement of the inflow tracts into the two ventricles.

Results: Case 1 is an infant of 23 weeks and fetal heart sound image revealed dextrocardia, CCH, single arterial trunk, severe pulmonary stenosis and ventricular septal defect; Case 2 is an infant of 23 weeks and heart sound image demonstrated dextrocardia, CCH, aortic arch stenosis and ventricular septal defect. Both cases were confirmed by pathological anatomy after labor induction. Fetal myocardial tissue of one case had a gene chip test and its result was normal.

Conclusion: Prenatal ultrasound is valuable to the diagnosis of fetal CCH as it can display in the sagittal section of the thorax the four-chamber view which cannot be viewed clearly in the transverse plane of fetal chest.

[Key words] fetal criss-cross heart, prenatal ultrasonography, diagnosis.

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