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Journal of Obstetrics Gynecology and Reproductive Sciences
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Opinion

Fetal Atrial Flutter: Early Detection and Treatment

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Received date: June 29, 2023; **Accepted date:** July 07, 2023; **Published date:** July 17, 2023.

Citation: Shabih Manzar, (2023), Fetal Atrial Flutter: Early Detection and Treatment, *J. Obstetrics Gynecology and Reproductive Sciences*, 7(5)
DOI:10.31579/2578-8965/176

Fetal atrial flutter (AF) can occur with structurally normal hearts or congenital heart disease, including atrioventricular septal defect, hypoplastic left heart syndrome, pulmonary atresia, and Ebstein's malformation. 1 It is important to detect fetal AF early and treat it appropriately. We present a case of fetal AF that was treated timely, resulting in no associated complications. The infant was born by cesarean section at a gestational age of 37 weeks with an Apgar score of 9 and 9. The birth weight was 2860 grams. The antenatal history was positive for fetal tachycardia. A fetal echocardiogram (Figure 1, panels A and B) showed atrial flutter with 2:1 conduction (atrial rate of 414 beats per minute with a ventricular rate of 202 beats per minute).

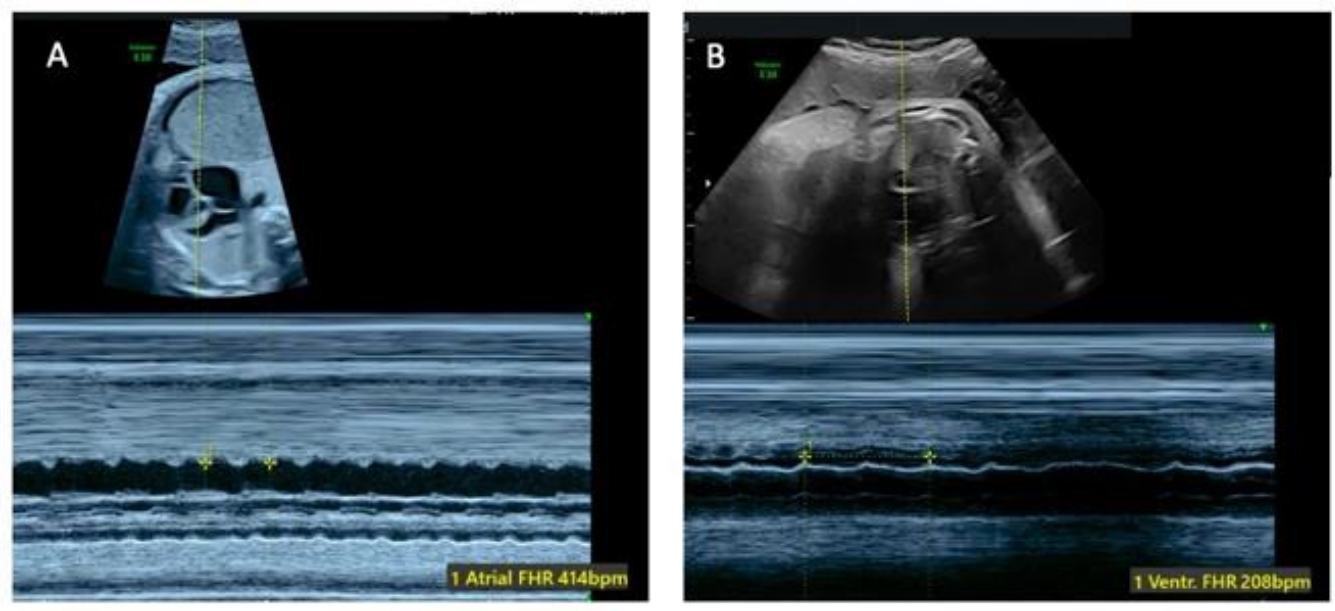

Figure 1: The fetal echocardiogram in M-mode shows discordant atrial (Panel A) and ventricular heart rates (Panel B).

The mother was admitted to the ICU and placed on sotalol. We noted the termination of fetal tachyarrhythmia after treatment. No maternal risk factors were identified. The infant, after birth, remained stable with a heart rate of 130-145 beats per minute and had a normal sinus rhythm on an electrocardiogram (ECG). An echocardiogram showed moderate to large patent ductus arteriosus with bidirectional shunting, torturous aortic arch with normal left and right ventricular function. A cardiac computed tomography angiography confirmed a right-sided aortic arch with Kommerell diverticulum and aberrant left subclavian artery (Figure 2, panels A and B).

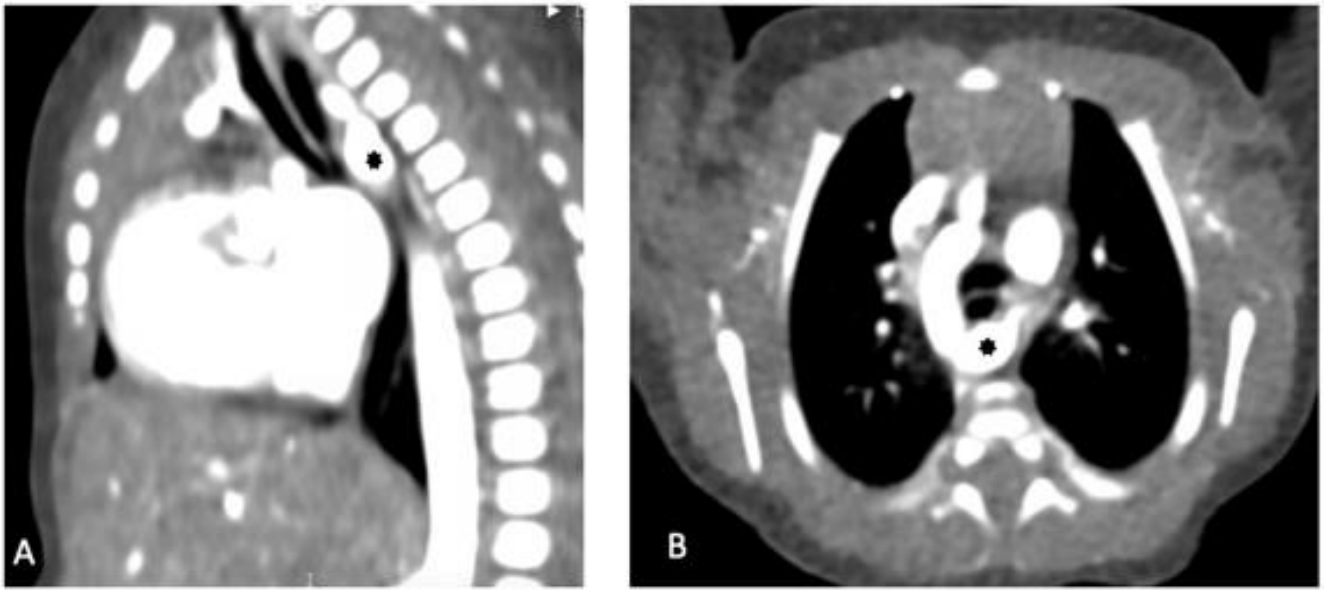

Figure 2: Panel A: Cardiac computed tomography angiography (Sagittal view), showing aberrant left subclavian artery with prominent common Kommerell diverticulum (black asterisk) compressing the esophagus posteriorly.
Panel B: Cardiac computed tomography angiography (Axial view), showing right-sided aortic arch with aberrant left subclavian artery with prominent common Kommerell diverticulum (black asterisk) compressing the esophagus posteriorly.

The infant was observed for 72 hours with no reoccurrence of any arrhythmias. The infant remained asymptomatic, had a normal modified barium swallow, and was discharged home with close follow-up.

Based on Edwards's classification, the case presented has a Type II right-sided aortic arch.2 Kommerell diverticulum (KD) with right-sided aortic arch (Type II) is usually seen in 0.05–0.1% of the population. 3 Fetal atrial

flutter (AF) association noted with the Type II right-sided aortic arch is most likely coincidental. The exact mechanism of how the right-sided aortic arch cause fetal arrhythmia is unknown, but an abnormality in the conductive pathway or electrophysiology is plausible. 4 The association between AF and KD noted in the case needs further investigation.

Author contribution: Dr. Manzar conceptualized and wrote the draft.

Funding and financial support: None

Conflict of interest: None

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DOI:10.31579/2578-8965/176