A case of late gestational idiopathic constriction of fetal ductus arteriosus

Ferrero L, Lipp von Wattenwyl B, Leoni-Foglia C, Venturelli Reyes Lozano S, Pasqualetti R, Canonica C
Department of Obstetrics and Gynecology, Ospedale Regionale Bellinzona e Valli, Bellinzona, Switzerland

Objective
Premature constriction of the fetal ductus arteriosus (DA) is an underdiagnosed condition. It is described secondary to medication with Indomethacin and other nonsteroidal anti-inflammatory drugs (NSAID) or as an idiopathic stenosis. It can lead to progressive right heart dysfunction, congestive heart failure, fetal hydrops and intrauterine death.

Methods
We present the case of a 28-year-old primigravida who was referred at 37+6 weeks of gestation (WG) because of oligohydramnios. Routine ultrasound screening at 20 WG showed normal heart morphology. The intake of Indomethacin or other NSAID was denied. On admission fetal ultrasound confirmed oligohydramnios with AFI of 3.3 cm; estimated fetal weight was 3100g (P50). The cardiotocography showed a single prolonged severe deceleration and an acoustic arrythmia. No uterine contractions. Due to the CTG findings a fetal echography was performed by the senior gynaecologist who diagnosed right heart dilatation and referred the patient to the pediatric cardiologist for detailed diagnosis. Right atrial dilatation, right ventricular hypertrophy and dilatation, severe tricuspid and pulmonary valve regurgitation and a small and tortuous S-shaped DA with maximum velocity of 244 cm/s were found. All signs were consistent of an idiopathic severe constriction of DA. The patient was transferred to a tertiary centre for further management and delivery.

Results
A cesarean section was performed at 38+0 WG. A female neonate of 3000g was born. Apgar scores were 8, 9 and 9 on 1, 5 and 10 minutes, respectively. Low-flow oxygen administration by mask was required from the 4th minute to the 30th minute of life. The arterial pH was 7.24. Postnatal echocardiography revealed mild right atrial dilatation, mild right ventricular hypertrophy and moderate tricuspid insufficiency. The neonate was discharged after 3 days in stable condition. One month follow up showed only persistency of mild tricuspid insufficiency and progressive normalization of pulmonary hypertension.

Conclusion
Intrauterine constriction of DA in the absence of triggering factors is a rare phenomenon. Diagnosis of this condition in the third-trimester is difficult. Careful examination of the ductal arch using pulsed wave Doppler flow including complete fetal ecocardiography is important to rule out structural congenital heart disease. Close monitoring is mandatory to exclude right heart failure and determine intervention time.