

Images in Congenital Cardiac Disease

Percutaneous closure of aorta–right atrial tunnel in a newborn

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Abstract A tunnel between the aorta and right atrium in a newborn was occluded with 5 × 6 Amplatzer Duct Occluder II-Additional Size. Our case is different because of enlarged right atrium and atypical location of tunnel orifice.

Keywords: Aorta; right atrium; newborn; tunnel

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Case

A pregnant woman, 24 years old, was referred to us because of having a baby with enlarged right atrium and right ventricle. At 2 weeks before her admission – that is, in the 35th gestational week – she had symptoms of flu and intravenous paracetamol was given to her. The obstetrician recognised enlarged right atrium and ventricle on fetal ultrasonography at 37 weeks of gestation. During the whole pregnancy she was followed up by the same obstetrician. In her previous controls there was no problem but in her 37th week control the doctor recognised right heart decompensation and the patient informed the doctor about paracetamol administration; therefore, he suspected ductal constriction and referred the patient to our clinic. After birth the baby was brought to the ICU because she was tachypnoeic and dyspnoeic. Respiratory acidosis was detected and she was intubated. Even with high ventilator settings, her saturation was not higher than 87%. Postnatal transthoracic echocardiography revealed enlarged right atrium and 13 mm atrial septal defect. Tricuspid regurgitation velocity was 3.7 m/second. Interestingly, large ductal flow was detected. Because of her intrauterine history we thought that pulmonary hypertension had worsened her situation. Despite anticongestive treatment she got worse and patent ductus arteriosus was occluded with 5 × 2 Amplatzer Duct Occluder II-Additional Size (St. Jude Medical,

St. Paul, Minnesota, United States of America). After patent ductus arteriosus closure, nothing had changed her state. Subsequently, transthoracic echocardiography was repeated and a tunnel between aorta and right atrium was detected (Fig 1). The patient was taken to the cath lab. Aortic root angiography revealed normal right and left main coronary arteries and branches but also a large tortuous tunnel arose from inside left sinus valsalva, separate from the origin of coronary artery, passed posterior to the aorta, and opened into the right atrium just above coronary sinus. The orifice of the tunnel was occluded with 5 × 6 Amplatzer Duct

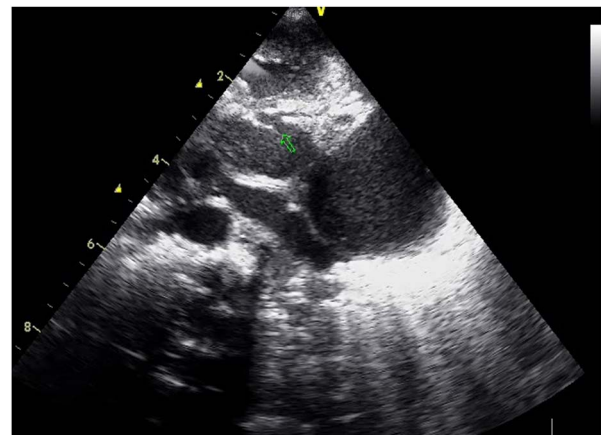


Figure 1. *Transthoracic echocardiography image of tortuous tunnel arose from inside left sinus valsalva, separate from the origin of coronary artery, passed posterior to the aorta, and opened into the right atrium just above coronary sinus. Opening part was shown with arrow*

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Occluder II-Additional Size from retrograde side (Supplementary video 1). Control aortic root angiography revealed that the device was in a stable position at the entrance of the tunnel and no residual shunt was observed inside the tunnel. After closure, she got better, was extubated, and inotropic support was terminated. Aorta–right atrial tunnel is a rare congenital lesion with an unknown aetiology. Owing to the possible complications, it should be closed after certain diagnosis. Treatment options are surgery and transcatheter closure. Sreedharan et al¹ reported the first percutaneous aorta–right atrial tunnel closure with a coil. Mahesh et al² closed aorta–right atrial tunnel of the youngest patient, a 4-day-old newborn, percutaneously. At our centre we have performed the first aorta–right atrial tunnel closure percutaneously with the Amplatzer Vascular Plug 4 device.³ Our case is different from those in the classical literature data because of the association with right atrium dilatation, patent ductus arteriosus, large atrial septal defect, and, moreover, the atypical location of the orifice.

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Conflicts of Interest

None.

Ethical Standards

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national (Turkish) guidelines on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008, and has been approved by the Erciyes University institutional committees.

Supplementary material

To view supplementary material for this article, please visit <https://doi.org/10.1017/S1047951117001780>

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