Closure of nonrestrictive aortopulmonary window in an infant by the transcatheter approach

Transkateter yaklaşımla bir süt çocukunda nonrestritif aortopulmoner pencerenin kapatılması

Introduction

Aortopulmonary window (APW) is a relatively rare congenital disease consisting of a septal defect between the ascending aorta and the pulmonary artery, creating a left-to-right shunt (1-4). Reports on transcatheter treatment of the condition are limited to a small number of cases. We present the case of a 10-month old child who was diagnosed with APW after consulting for recurrent lower respiratory tract infection and was treated by the transcatheter approach.

Case Report

A ten months old male patient weighting 8 kg had been consulted with a history of recurrent lower respiratory tract infection since one month of age. A 2/6 systolic murmur along the left upper sternal border was heard at physical examination; cardiomegaly and an increase of pulmonary vascularity were observed with the help of telecardiology. Echocardiographic investigation showed left and right ventricle enlargement, and an 8-mm defect between the ascending aorta, and the pulmonary artery and pulmonary arterial hypertension (PAH).

During the angiographic examination, performed in the anteroposterior and right anterior oblique (RAO) projections, the contrast medium filled not only the aorta and its branches but, through the defect between the aorta and the pulmonary trunk, also filled this latter and its branches (Video 1. See corresponding video/movie images at www.anakarder.com). It was decided to occlude the defect; whose measured diameter was 8 mm, pulmonary artery pressure was 70 mm Hg and Qp/Qs ratio of 2.2.

Following entry by the left femoral access, the defect was passed in retrograde direction with a 0.035-inch hydrophilic guidewire; an arteriovenous circuit was created by catching the guidewire in the superior vena cava (SVC) with the help of a snare. A 12/10 Amplatzer duct occluder device was adjusted from the venous side into the ascending aorta, vena cava (SVC) with the help of a snare. A 12/10 Amplatzer duct occluder was chosen for our patient, too. While following occlusion by the transcatheter approach, it must be verified that the blood flow in the left coronary is not blocked. We performed a control injection of contrast medium to document that the left coronary was filling normally.

Conclusion

We would like to stress the fact that in selected cases the transcatheter approach, which necessitates no cardiopulmonary bypass, shorter hospitalization and results in a better cosmetic effect, is an effective alternative to surgery.

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Video 1. Angiographic appearance of the defect
Video 2. Defect closure by the Amplatzer duct occluder is visible

References

8. Yavunarathan S, Vaidyanathan B, Kumar RK. Transcatheter closure of the aortopulmonary window in a symptomatic infant using the Amplatzer ductal occluder. Heart 2007; 93: 1519. [CrossRef]