Cardiol Young 2009; 19: 517–518

ISSN 1047-9511
doi:10.1017/S104795110999076X
First published online 7 August 2009

Images in Congenital Cardiac Disease

Radiofrequency perforation of the pulmonary valve in an adult with tetralogy of Fallot and pulmonary atresia

Arif Anis Khan,[1] Michael J. Mullen,[1] Alan G. Magee[2]

[1]*Adult Congenital Heart Disease Unit, Department of Cardiology,* [2]*Department of Paediatric Cardiology, Royal Brompton Hospital, London, United Kingdom*

Keywords: Pulmonary atresia; ablation; collateral

We report our experience with a 23 year old man having tetralogy of Fallot with pulmonary atresia, who underwent radiofrequency perforation[1] of his atretic pulmonary valve. His aorta arose exclusively from the morphologically right ventricle, with the smaller left ventricle, having moderately impaired function, emptying through a large interventricular communication. During his first week of life, he had undergone banding of a large right-sided systemic-to-pulmonary collateral artery arising from the descending aorta, and subsequently underwent construction of a left-sided modified Blalock Taussig shunt at the age of 6 years. He presented to us with wasting of the skeletal muscles, increasing cyanosis, and reduced exercise capacity. Cardiac magnetic resonance showed stenosis at the distal end of the Blalock Taussig shunt, so catheterization was considered, with a view to dilating the stenotic area so as to enhance the flow of blood to the lungs. It did not prove possible, however, to cannulate the shunt. An angiogram (Fig. 1) taken after an injection through the collateral arteries showed a pulmonary trunk of good size, separated by an imperforate pulmonary valve from the cavity of the right ventricle. In the light of these findings, we perforated the valve as a palliative procedure, using a Nykanen radiofrequency perforation catheter (Baylis Medical Company Inc, Montreal, Canada) along with a coaxial injectable catheter. Perforation was achieved after 2 applications of 5 watts for 2 seconds, maintaining gentle pressure on the radiofrequency perforation catheter. We then dilated the valve using a balloon of 8 millimetres diameter. The pulmonary angiogram (Fig. 2) following the intervention showed forward flow through the pulmonary valve to the lungs, with moderate pulmonary regurgitation. The resting saturations had improved to 85% when measured in room air at the end of the procedure.

At follow-up 3 months after the procedure, the patient showed significant improvement in his

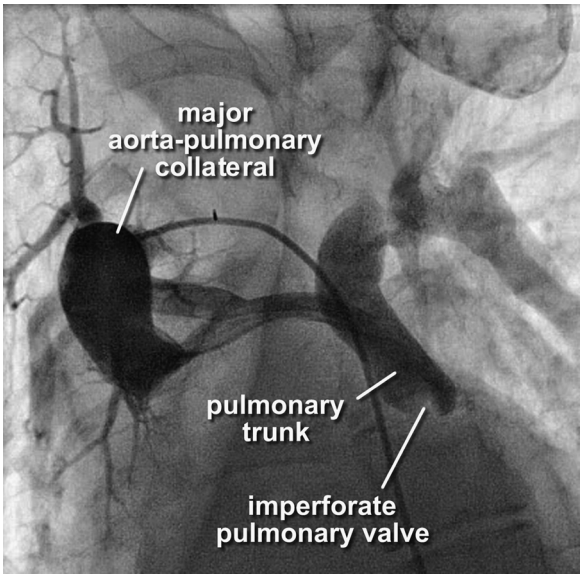

Figure 1.

Correspondence to: Arif Anis Khan, MD, FCPS, Adult Congenital Heart Disease Unit, Royal Brompton Hospital, London SW3 6NP, United Kingdom. Tel: +44 020 7351 8600; Fax: +44 020 7351 8639; E-mail: anis_arif@hotmail.com

Accepted for publication 3 February 2009

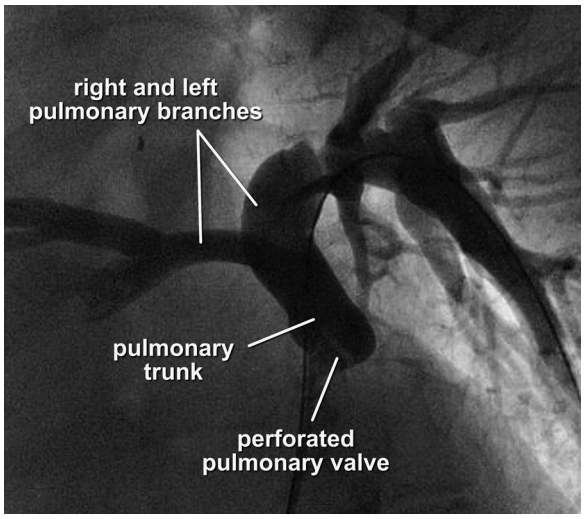

Figure 2.

exercise capacity. Considering the effect of pulmonary regurgitation over the long term on right ventricular function, we plan to re-evaluate the patient in 6 to 12 months time with a view to proceeding to more definite repair, either surgically or by percutaneously implanting a pulmonary valve.

Disclosure: "None"

Reference

1. Walsh MA, Lee KJ, Chaturvedi R, Van Arsdell GS, Benson LN. Radiofrequency perforation of the right ventricular outflow tract as a palliative strategy for pulmonary atresia with ventricular septal defect. Catheter Cardiovasc Interv 2007; 69: 1015–1020.

https://doi.org/10.1017/S104795110999076X Published online by Cambridge University Press