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Haemolysis after Amplatzer device closure of ventricular septal defect

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Abstract

Over the last few years, a vast variety of devices have been developed to close various septal defects through the transcatheter route. Haemolysis has been documented after Amplatzer device closure of patent ductus arteriosus, atrial septal defect, and ventricular septal defect. We report one patient with self-limiting haemolysis after implantation of an Amplatzer perimembranous VSD device.

Introduction

Congenital heart disease encompasses a variety of lesions that may include communication/s between the left and the right side of the heart. Such communications may cause volume overload in the short and medium term, possibly resulting in heart failure, or irreversible complications in the long term such as Eisenmenger's syndrome. Previously, such defects (typically atrial (ASD) and ventricular septal defects (VSD) and patent ductus arteriosus (PDA)) were closed surgically. Over the last decade, a vast variety of devices have been developed to close such defects through the transcatheter route.

We report one patient who had self-limiting haemolysis after implantation of an Amplatzer perimembranous VSD device.

Patient

Our patient was born via normal vaginal delivery at 38 weeks gestation after an uneventful pregnancy. At the routine 6 week visit, she was noted to be failing to thrive and a 3/6 systolic murmur was noted. Echocardiogram done showed a large perimembranous VSD. Diuretics were commenced and she thrived. At 4 years of age, she was admitted to the paediatric surgical ward with fever, abdominal pain and vomiting. Surgical exploration of the abdomen under antibiotic cover was normal, as was an echocardiogram at this time. Fever persisted and a repeat echocardiogram showed tricuspid valve endocarditis with a large vegetation that eventually eroded part of the valve resulting in significant regurgitation. The endocarditis was treated with antibiotics and transcatheter closure of the VSD was done successfully using a 14mm Amplatzer perimembranous VSD device at 5 years of age. She was

discharged on Aspirin for 6 months. One week after discharge, she was readmitted due to jaundice and dark coloured urine. Haemoglobin was 9.5g/dL, liver function tests were deranged (bilirubin 80umol/l; direct bilirubin 12umol/l; gamma GT 80 U/l; ALT 58 U/l; Alkaline phosphatase 707 U/l, with urobilinogen in the urine. Viral studies, including CMV, EBV, Hepatitis A and B, were all negative. She was discharged home as after two weeks as her jaundice cleared and her liver function tests improved. One transfusion was needed.

Discussion

Device closure of septal defects may result in various complications. These include endocarditis, device embolisation, cardiac rupture and arrhythmias.

Haemolysis has been documented after Amplatzer device closure of PDA,¹ ASD,² and VSD.³ The one reported case after VSD closure resulted in transient renal failure.³ Hemolysis has also been associated with the use of Amplatzer devices to close paravalvar mitral valve leaks after mitral valve replacement.⁴

Conservative treatment is usually sufficient but reintervention of some form may occasionally be necessary, such as intradevice coil deployment in order to completely eliminate any degree of residual left to right shunting.⁵

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