An unusual fistula closed by percutaneous coil embolisation

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A 25-year-old male patient was admitted for assessment of increasing shortness of breath and decreased transcutaneous oxygen saturation (91 %). He had a complex congenital heart defect, involving a dysplastic monocuspid tricuspid valve and pulmonary valve atresia. The latter was palliated shortly after birth by a Brock procedure (entailing infundibular resection and pulmonary valvotomy). An atrial septal defect was surgically closed when he was 6 years old and a homograft was inserted in the right ventricular outflow tract at the age of 15. Replacement by a second homograft at the age of 23 was necessary together with tricuspid valvoplasty because of severe insufficiency of both valves. Apart from moderate pulmonary homograft stenosis (PHS) and re-

occurrence of moderate to severe tricuspid insufficiency (TI) resulting in right heart failure, a right-left shunt was detected on transoesophageal echocardiography during intravenous agitated saline bubble-contrast injection, although the repaired atrial septum was intact. Invasive evaluation confirmed moderate to severe TI and a peak-to-peak gradient of 40 mmHg over the homograft. Right atrial pressures were above 20 mmHg. Contrast injection in the superior vena cava showed a very tortuous fistulous connection originating from the left axillary vein and draining towards the left atrium (Fig. 1, panel A and B). It was decided to close the fistula percutaneously and 4 coils (3 x IMWCE-3-PDA3 and 1 x IMWCE-3-PDA5, COOK MEDICAL, Bloomington,

Fig. 1 **a** Contrast injection in the superior vena cava (SVC) showing a fistula (arrow) originating from the left axillary vein (AV). The right atrium (RA) is grossly enlarged (LIV left innominate vein). **b** Selective contrast injection in the fistula (arrow) reveals a very tortuous route towards the left atrium (LA). **c** After percutaneous deployment of 4 coils (arrow), flow is effectively occluded

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USA) were placed in the fistula, effectively occluding the vessel (panel C). The transcutaneous oxygen saturation increased slightly. Further management regarding the TI and PHS will be discussed with one option being percutaneous placement of a pulmonary valve (Medtronic, Minneapolis, USA), possibly in combination with another

transcatheter valve prosthesis in tricuspid position to lower the right heart filling pressures.

Conflict of interest None to be declared