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Images in Congenital Heart Disease

An unusual appearance of the right ventricle following replacement of the pulmonary valve

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A THIRTEEN YEAR-OLD GIRL HAD UNDERGONE palliation of tetralogy of Fallot with pulmonary atresia, hypoplastic central pulmonary arteries and major aorto-pulmonary collaterals by construction of a central shunt in infancy, followed by complete repair incorporating placement of a homograft conduit between the right ventricle and pulmonary arteries. At that operation, the conduit was approximated to the outflow tract with an autologous pericardial patch, the right and left pulmonary arteries augmented with a similar patch, and the ventricular septal defect closed. Subsequent revision because of regurgitation across the homograft was uncomplicated. The degenerated homograft and aneurysmal patch were excised, hypertrophied muscle bundles divided, and a new homograft was placed in the orthotopic position. The patient made an uneventful recovery.

Before discharge, however, routine trans-thoracic echocardiography revealed a mass measuring 23 by 24 millimetres (arrow) at the antero-inferior aspect of the right ventricular free wall (Fig. 1). Because of fears that the mass represented thrombus, we anticoagulated the patient. Magnetic resonance imaging (Fig. 2) demonstrated, in addition, a second smaller mass at the septal surface of the right ventricular outflow tract (arrows), and confirmed homogeneity with the ventricular myocardium. Three-dimensional echocardiography (Fig. 3) clarified the relationship between these masses (arrows) and other ventricular structures (TV – tricuspid valve; RV – right ventricle; RVOT – right ventricular outflow tract). It was concluded that the "masses" were a large muscle bundle, possibly the septo-marginal trabeculation, which had been divided at surgery. Anti-coagulation was stopped, and the patient discharged. This case

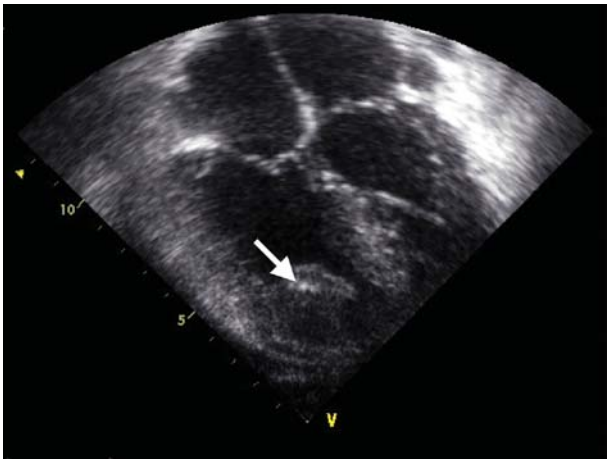

Figure 1.

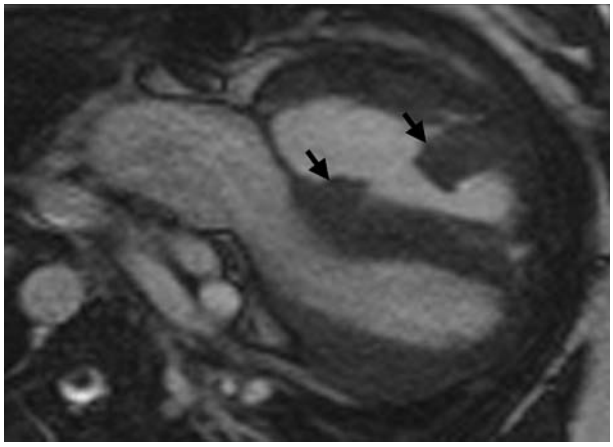

Figure 2.

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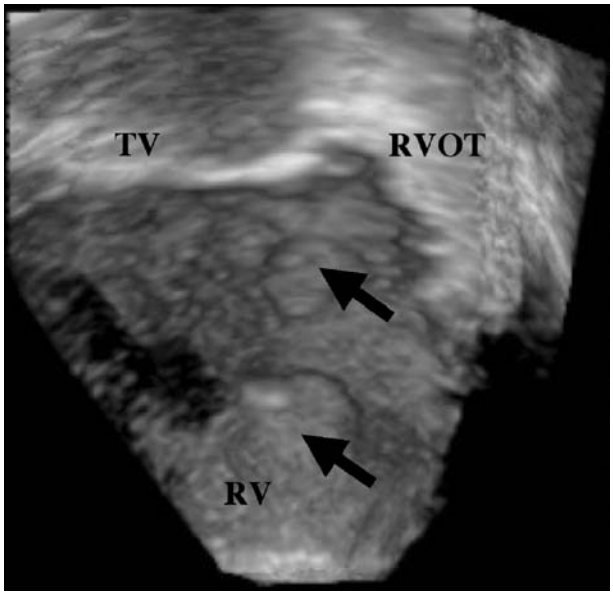

Figure 3.

illustrates the complementary nature of echocardiography and magnetic resonance imaging, particularly in elucidating unusual findings in patients with complex or reoperated congenital cardiac malformations. Furthermore, whilst cross-sectional echocardiography provides a useful and practical tool for screening, 3-dimensional imaging techniques have a vital role when there is diagnostic uncertainty.

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