


CLINICAL VIGNETTE

Right ventricle-dependent coronary circulation demonstrated with 64-slice computed tomography

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A 12-year-old female patient, who had emergency left modified Blalock–Taussig shunt operation during neonate and a total cavo-pulmonary shunt operation performed at the age of 5 years following a diagnosis of pulmonary atresia with intact ventricular septum (PAIVS), was under regular follow-up. At her last visit, she was admitted with exercised-induced anginal symptoms. Multi-slice computed tomography (MSCT) was performed for shunt and coronary circulation evaluation. The MSCT of the patient revealed right ventricle-dependent coronary circulation (RVDCC) associated with right coronary artery draining to right ventricle with large fistulas and enlarged right ventricle (Panels A–D).

PAIVS is a rare congenital disease with a reported incidence of four to seven per 100 000 live births. Coronary artery abnormalities are common in PAIVS and have serious effects on surgical management and outcome. It has been shown that the poor prognosis in neonates with PAIVS is generally related to either the presence of a small right ventricle and/or RVDCC. Identification of a ventriculo-coronary connection is one of the weakest areas of echocardiography and often represents a diagnostic dilemma. MSCT imaging seems to be an effective and alternative diagnostic modality in detection of coronary artery fistulas because of its excellent performance in determining coronary anatomy.

Panels A–C. Curved multi-planar reconstructed multi-slice computed tomography images demonstrating right ventricle-dependent coronary circulation with large fistula of right coronary to right ventricle.

Panels D and E. Curved multi-planar reconstructed multi-slice computed tomography images demonstrating right coronary ventricular branch fistulas to right ventricle.

Panel F. Post-processed three-dimensional volume rendered images demonstrating large right coronary artery with direct communication to right ventricle.

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