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Images in Congenital Heart Disease

Unusual flow of blood to the pulmonary arteries through a large coronary arterial fistula in the setting of complex congenital cardiac disease

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A 30 YEAR-OLD WOMAN, DURING THE COURSE OF her fourth pregnancy, was referred to our institution for delivery at 39 weeks gestation because routine obstetrical sonography had detected a cardiac malformation. The essence of the diagnosis was double outlet right ventricle with a small left ventricle, a large perimembranous interventricular communication, and sub-pulmonary obstruction. Beside the anomalies diagnosed prenatally, post-natal echocardiography showed dual supply of blood to the pulmonary arteries. Normal anterograde flow between the right ventricle and the pulmonary trunk was restricted by sub-pulmonary obstruction (Fig. 1a). In addition, there was also a large coronary fistula, arising from the origin of the right coronary artery, and connecting to the right pulmonary artery. Echocardiography (Figs 1b and c), computerised tomography (Figs 2a and b), and angiography (Figs 2c and d) all showed this unrestricted channel, confirming also the presence of a well-developed pulmonary arterial tree. An arterial saturation of 90% indicated sufficient flow of blood to the lungs, and the child was discharged in a good condition on the 10th day of life, without undergoing any neonatal surgery. The left ventricle grew during the period of follow-up, permitting the left ventricle to be connected to the aorta through a tunnel created within the right ventricle, the surgeon also relieving the subpulmonary obstruction, and ligating the coronary arterial fistula.

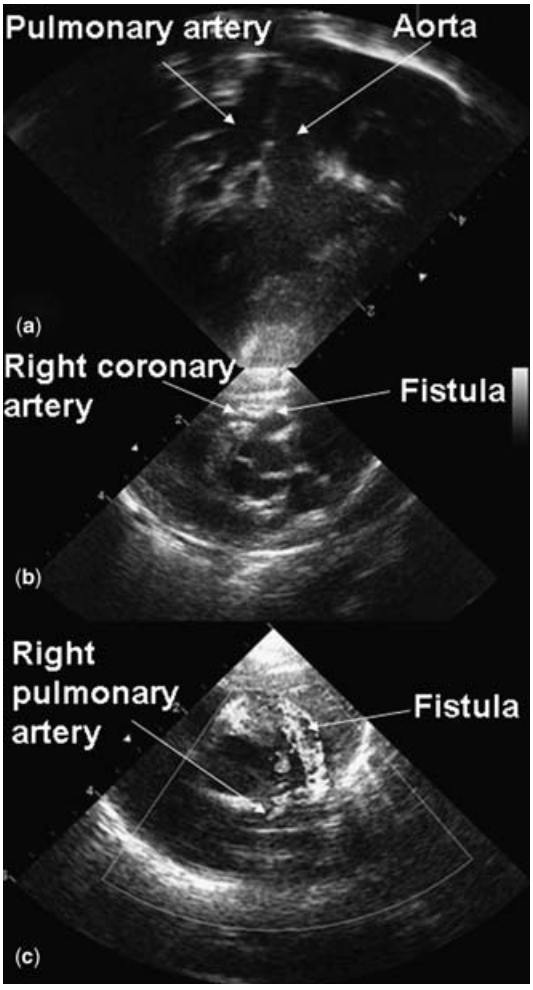

Figure 1.
*Echocardiographic views showing sub-pulmonary obstruction with normal connection between the right ventricle and the main pulmonary artery (**a**), a fistula arising from the right coronary artery (**b**), and connecting with the right pulmonary artery (**c**).*

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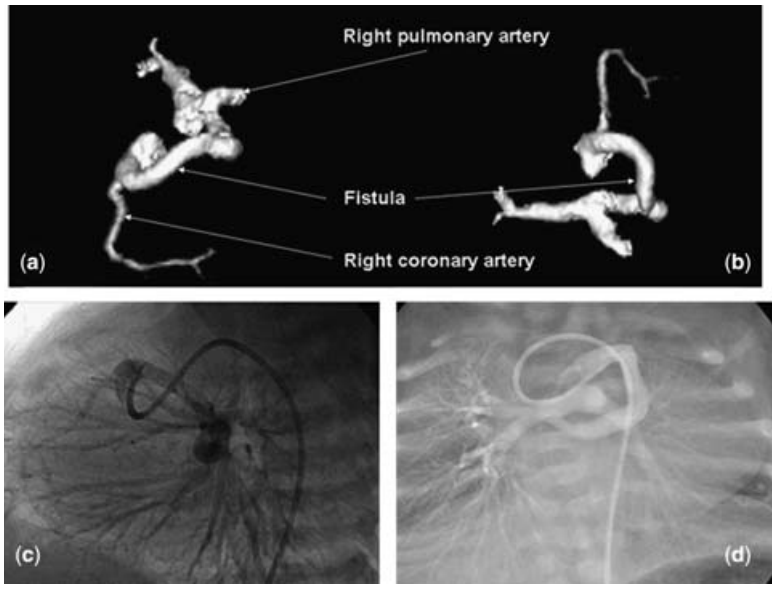

Figure 2.
*CT scan from 3D-reconstruction (**a**, **b**) and angiographic (**c**, **d**) views showing a large fistula originating from the initial part of the coronary artery and connecting to the right pulmonary artery without any restriction. Note the good size of the pulmonary tree. (**a**) and (**c**): lateral views. (**b**) and (**d**): front views.*

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