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Images in Congenital Cardiac Disease

Anomalous origin of the pulmonary arteries from the left coronary artery in tetralogy of Fallot with pulmonary atresia

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THE ORIGIN OF PULMONARY ARTERIAL SUPPLY IS known to be highly variable in the setting of tetralogy of Fallot with pulmonary atresia, with rare cases described in which the pulmonary arteries are supplied either directly, or by fistulous communications, from the coronary arteries. We have now encountered, and illustrate, 2 such cases.

Our first patient was a boy of 10 months with multifocal pulmonary circulation supplied through a communication from the left coronary artery along with additional systemic-to-pulmonary collateral arteries. A selective injection in the left coronary artery showed that the grossly dilated vessel, shortly after its origin, and having supplied the anterior interventricular (LAD) and circumflex arteries (LCx), continued to supply the left and right pulmonary arteries (Fig. 1a, Video 1). An aortic injection in revealed the presence of 2 collateral arteries arising from the descending thoracic aorta and extending into the lungs. No interconnection was seen with intrapericardial pulmonary arteries (Fig. 1b).

Our second patient, a boy aged 7 months, had confluent intrapericardial pulmonary arteries fed in rare unifocal fashion through a left-sided solitary connection from the left coronary artery. An injection in the aortic root, shown in anteroposterior projection, revealed massive dilation of the left coronary artery, with the communication to the pulmonary arteries supplying all the bronchopulmonary segments (Fig. 2a, Video 2). The lateral aortogram showed the proximal main stem of the left coronary artery (LM) also gave rise to the right coronary

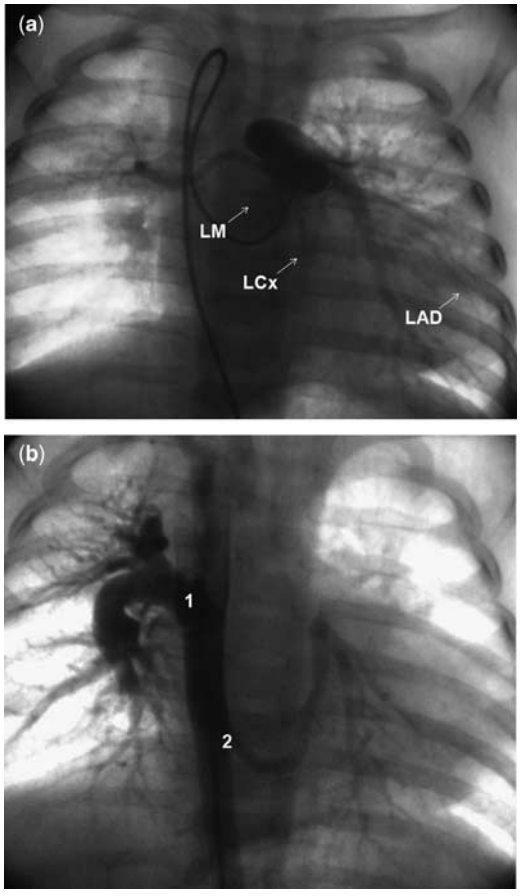

Figure 1.

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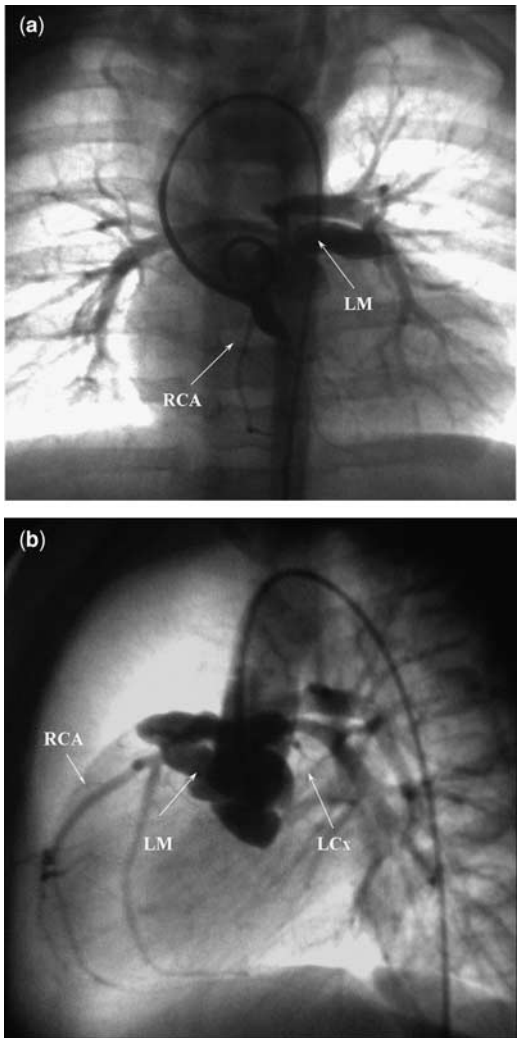

Figure 2.

artery (RCA), firstly, continuing to fill the confluent intrapericardial pulmonary arteries, and then becoming the left circumflex artery. An anterior descending coronary artery was not convincingly identified (Fig. 2b, Video 3). The descending thoracic aortogram did not reveal any other major aortopulmonary collateral arteries.

Fistulous communication between the coronary and pulmonary arteries have been reported in up to one-tenth of patients with tetralogy of Fallot and pulmonary atresia, but origin of the pulmonary arteries from the coronary arteries is very rare, particularly when feeding the pulmonary circulation in unifocal fashion.[1]

Reference

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