A newborn baby, born prematurely at 34 weeks' gestation, had a neonatal diagnosis of aortopulmonary window after respiratory distress at 6 days of life, with a systolic heart murmur. He underwent two-dimensional echocardiography, which depicted an 8 mm defect between the aorta and the pulmonary artery with a massive left-to-right shunt (Fig. 1). Dual-source 64-channel multidetector computed tomography (Definition, Siemens, Forchheim, Germany), with a dose product length of 58 mGy × cm, collimation of 64 × 0.6 mm (dual-source protocol), kV = 80, mAS = 250 and injection of 1.5 mL/kg of iodine contrast (300 mg iodine/mL), was performed to depict associated lesions. A type A IAA was found, where interruption occurs beyond the left subclavian artery, with a large ductus arteriosus irrigating the descending aorta (Fig. 2). Pulmonary artery pressure was assessed isosystemically by the low velocity through the window. Successful cardiac surgical repair was performed and consisted of aortic arch repair and direct patch repair of the aortopulmonary window.

Aortopulmonary window is a very rare (0.3%) congenital heart defect resulting from failure of conotruncal ridges to fuse. This connection leads to a large left-to-right shunt with pulmonary hypertension and fatal congestive heart failure if not operated upon. IAA is a rare genetic disorder that is also associated infrequently with aortopulmonary window. Type A occurs more frequently than type B (interruption beyond left common carotid artery) or type C (interruption between innominate and left common carotid arteries).
Aortopulmonary window and interrupted aortic arch in a neonate assessed by 64-slice computed tomography

Figure 1. Parasternal short axis plane of the vessels. (A) The window is large between the AO and the PA. (B) Colour Doppler assessed a left-to-right shunt (arrow). AO: aorta; PA: pulmonary artery.

Figure 2. Multidetector computed tomography. (A) Anterior view; the arrow depicts the aortopulmonary window. (B) Posterior view; the interrupted aortic arch (arrow) is type A occurring after the three supra-aortic arteries. (C) Lateral view; the large systemic DA is heading from the PA to the descending Ao. A: anterior; Ao: aorta; DA: ductus arteriosus; I: inferior; L: left; P: posterior; PA: pulmonary artery; S: superior; R: right.

Survival in infants with IAA depends on ductal patency for lower torso perfusion, so prostaglandin-E infusion is always used during medical stabilization, followed by immediate surgical repair. Anomaly of the left coronary artery from the pulmonary artery may occur, as with coronary artery anomalies involving the origin, course and structure, all of which can be detected by computed tomography.