3D reconstruction is important when evaluating MAPCAs for unifocalisation

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DESCRIPTION

Pulmonary atresia with ventricular septal defect, hypoplastic pulmonary arteries and major aortopulmonary collateral arteries is a complex and heterogeneous cardiac disease. Currently, there are two different major surgical approaches: one involves major aortopulmonary collateral arteries unifocalisation, connecting them to the native pulmonary arteries circuit, connection of the right ventricle to the 'neo-pulmonary arteries' and concomitant/delayed ventricular septal defect closure. The other option is based on simple rehabilitation of the native pulmonary arteries by increasing their blood supply.¹

We present the case of a 3-year-old girl referred to our hospital for heart surgery. An echocardiogram revealed pulmonary atresia with ventricular septal defect, right aortic arch, confluent pulmonary arteries and multiple major aortopulmonary collateral arteries with significant flow. She was submitted to catheterisation, which confirmed the latter. A CT angiography demonstrated single supply to different pulmonary segments originating either from the pulmonary arteries or from major aortopulmonary collateral arteries from the descending thoracic aorta, with three-dimensional (3D) reconstruction providing excellent anatomical information with a view to surgery (figure 1A, B).

Figure 1 Major aortopulmonary collateral artery (white arrows) originating from the descending thoracic aorta, on transverse view (A) and three-dimensional reconstruction (B).

Figure 2 Catheterisation performed 6 months after surgery, revealing a good result of major aortopulmonary collateral artery unifocalisation.

She was submitted to a modified Blalock-Taussig shunt with a 4 mm Goretex graft between the brachiocephalic artery and the left pulmonary artery, and unifocalisation of major aortopulmonary collateral arteries.

A repeat catheterisation was performed some months after surgery, revealing a good surgical result (figure 2). Additionally, major aortopulmonary collateral arteries to lung areas with double supply were embolised.

Use of multiple imaging techniques, particularly 3D reconstruction, is extremely important to plan and monitor this type of intervention.

Learning points

- Importance of imaging techniques in planning congenital heart disease surgery.
- Monitoring the results of surgery with imaging techniques.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCE

- 1 Fouilloux V, Bonello B, Kammache I, et al. Management of patients with pulmonary atresia, ventricular septal defect, hypoplastic pulmonary arteries and major aorto-pulmonary collaterals: focus on the strategy of rehabilitation of the native pulmonary arteries. *Arch Cardiovasc Dis* 2012;105:666–75.

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