Repair of type III common arterial trunk with modified Barbero-Marcial technique

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Right ventricular outflow tract (RVOT) reconstruction is a controversial issue in common arterial trunk repair. Usually, this procedure is accomplished by interposition of a conduit, valve or nonvalved, between the right ventricle and the pulmonary arteries. Conduit degeneration is fast in patients aged <12 months, especially in those implanted in heterotopic position during the neonatal period, as in truncus arteriosus repair.¹

In 1990, Barbero-Marcial and colleagues² described a technique for RVOT reconstruction in Collet-Edwards³ type II common arterial trunk without the interposition of a conduit. This technique involves a direct anastomosis between the pulmonary trunk and the infundibular ventriculotomy.

In this article, we describe a modification of the Barbero-Marcial technique to treat type III truncus arteriosus, which comprises the interposition of the left atrial appendage between the right ventricle and the pulmonary trunk. We present intraoperative pictures of a patient with a prenatal

Type III truncus repair with modified Barbero-Marcial technique.

Central Message

This paper reports an unconventional application of the modified Barbero-Marcial technique for type III truncus repair.

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diagnosis of type III common arterial trunk who underwent complete repair with a modified Barbero-Marcial technique at 3 weeks of age (Figures 1 and 2).

Early postoperative recovery was complicated by left ventricle dysfunction that required ECMO, probably because of inadequate myocardial protection caused by left main trunk distortion after pulmonary artery clamping. On postoperative day 6, the patient was weaned from ECMO support. Subsequently, he developed mainly diastolic right ventricle

FIGURE 1. A, Collet-Edwards type III common arterial trunk showing ligation of a small arterial duct and left pulmonary artery isolation (*red vessel loop*). B, Closure of the ventricular septal defect with a heterologous pericardial patch, and reconstruction of the posterior surface of the new right ventricular outflow tract with an anastomosis between the left atrial appendage and the posterior rim of the ventriculotomy proximally, and the posterior rim of the pulmonary trunk distally.

FIGURE 2. A, complete reconstruction of the right ventricular outflow tract with a heterologous pericardial patch. B, Final state after complete reconstruction.

dysfunction. After complete recovery with medical therapy he was discharged in good general condition.

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EDITORIAL COMMENTARY

Reconstruction without extracardiac conduit revisited

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Patients with common arterial trunk (CAT) who have undergone neonatal biventricular repair are inevitably burdened with multiple catheter and surgical reinterventions on their right ventricle-to-pulmonary artery (PA) conduit and branch PAs.¹ The lack of growth potential in a small right ventricle-PA conduit implanted in the neonatal period mandates early exchange surgery, and

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Central Message

This is a report of right ventricular outflow tract reconstruction with the left atrial appendage in common arterial trunk repair.

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