

Hybrid Procedure of Right Ventricle Outflow Tract Stenting in Small Infants with Pulmonary Atresia and Ventricular Septal Defect: Early and Mid-term Results from a Single Center.

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Introduction: Pulmonary Atresia, Ventricular Septal Defect (PA-VSD) with Major Aorto-pulmonary Collateral Arteries (MAPCAs) and Hypoplasia of Pulmonary Arteries is a rare and complex congenital defect which requires early interventions to relieve cyanosis and enhance the growth of native pulmonary arteries. The treatment of these patients is still controversial. Surgical techniques require cardiopulmonary bypass which can be poorly tolerated by small infants. Percutaneous techniques such as radiofrequency perforation can be very challenging. The hybrid technique consists of perventricular stenting of the Right Ventricle Outflow Tract (RVOT) through medial sternotomy, to restore native pulmonary flow.

Methods: We retrospectively reviewed the cardiovascular database of our Institute in order to analyze our experience in hybrid procedure. We detected 6 patients with PA-VSD, MAPCAs and Hypoplasia of native Pulmonary Arteries, who underwent hybrid first approach between November 2007 and December 2015. We report our early results and mid-term outcomes.

Results: Median age at the procedure was 26 days, median weight was 3150 g, median Nakata index was 52 mm²/m². All procedures were successful except for one: this patient underwent a surgical shunt. No immediate and early deaths or major complications occurred and Oxygen saturation levels increased in all the patients. Patients were followed up for a period of 12 to 103 months: 4 of them underwent a second procedure of unifocalization at the mean age of 12.5 months. One of these had a late conduit thrombosis and died 2 years later.

Conclusions: We reported data from the largest series of patients who underwent this hybrid procedure. Our experience demonstrated encouraging results to expand the use of this approach to bridge high risk patients with diminutive pulmonary arteries to final surgical repair. Hybrid RVOT perventricular stenting is a safe and feasible approach in selected patients. Mid and longer term outcomes of this cardiopathy depend mainly on native pulmonary arteries size and growth.