

Cardiac surgery after percutaneous pulmonary arterial interventions

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Aim and objective:

We conducted this study to review different circumstances, encountered during surgical repair on patients who had previous pulmonary catheter interventions and to evaluate early outcomes after surgery of a stented pulmonary arterial tree.

Methods and results:

We have presented a series of 17 patients over the last six years, between 2017 and 2024. Those patients had previous catheter interventions in the form of stent implantations at different sites. Five patients in the left pulmonary artery (LPA), three had stented right pulmonary artery (RPA), and two patients had right ventricle outflow tract (RVOT). Six patients had ductus arteriosus stenting and one patient had bilateral LPA and RPA stenting.

The surgical procedures performed in the 17 patients were as follows: Cavo pulmonary connection in two patients, completion of Fontan in one patient, total correction of Tetralogy of Fallot in nine patients, MBT shunt in three patients, one patient had Rastelli-type repair for VSD + pulmonary atresia and one patient had RV- PA conduit replacement and bilateral pulmonary arterial replacement.

Ten Patients of this series had been discussed in a multidisciplinary heart team while the others had intervention in a different institution.

Dealing with the stents interpretively based on individual case-by-case scenarios either: external ligation of the stent, partial removal, or complete removal.

Three of our series had single ventricular pathways, while the rest had biventricular pathways, two cases required deep hypothermic arrest due to an emergent situation in the distal arch of the aorta at the site of ductus Insertion while the others were

operated on moderate hypothermia with short periods of low flow. In this series, we had one operative mortality in a patient who had previous PDA attending for initial management of severe form tetralogy of Fallot and pulmonary hypoplasia,

the patient had a total correction and reconstruction of the left pulmonary artery. The patient died one day post-operative from massive bleeding in the ICU.

Conclusion:

As the field of intervention expands greatly in adult cardiology, the same has occurred in congenital cardiac interventions. This should expand the horizon of cardiac surgeons. As surgeons gain experience in the management of patients with previous congenital intervention, interventionists may be encouraged to do highly advanced complexity.

Keywords:

Percutaneous Interventions, MBT Shunt, Pediatric Cardiology, Percutaneous Interventions, Stented Pulmonary Arteries, Hypothermic Arrest.