

Right ventricular hemodynamics are favored when the Rastelli or arterial switch procedure in double discordance is combined to a hemi-Mustard and bidirectional Glenn

Kuipers I.M. (1), Sojak V. (4), Rijlaarsdam M.E.B.(3), Hruda J.(2), Blom N.A.(1,3), Hazekamp M.(4) Emma Children's Hospital, Amsterdam Medical Center (AMC), University of Amsterdam, Amsterdam (1), VU University Medical Centre, Amsterdam (2), Department of Pediatric Cardiology (3), Department of CardioThoracic Surgery (4), Leiden University Medical Center Leiden, The Netherlands

Introduction

Anatomic repair of double discordance has become a useful surgical strategy with potential advantages over conventional surgical repair. In the presence of dextrocardia and situs solitus a complex Senning or Mustard operation is technically more demanding. In such patients we prefer to baffle the vena cava inferior to the right ventricle (hemi- Mustard) combined with a bidirectional Glenn. Other indications to perform a hemi-Mustard/ Glenn instead of a complete atrial switch are RV hypoplasia and when a Rastelli procedure is performed. (where the LV-Ao tunnel and the RV-PA conduit negatively alter RV volume and function)

Methods

Between 2004 till 2009 hemi-Mustard /Glenn with Rastelli (n=6) or arterial switch (n=1) procedure were performed in 7 patients. Median age was 2.9 years (range 1.4-9.1 years). Atrial situs solitus was present in 6 patients and situs inversus in one. All but one with situs solitus had dextro- or mesocardia and the one with situs inversus had levocardia. Previous procedures were PA banding (n=1), Glenn shunt (n=1), systemic to pulmonary shunt (n=4). Two patients had 2 systemic to pulmonary arterial shunts.

Results:

One patient died postoperatively of Aspergillus sepsis. There was no late mortality. Two patients received a permanent pacemaker, one of them required ablation for atrial flutter. This patient had a RV to PA reoperation 6 years later. The latter is in New York Heart Association (NYHA) class II, the other 5 patients are in NYHA

class I. At midterm follow up of mean 4.5 years there are no residual defects.

Conclusions

Hemi Mustard/Glenn is technically easier than full atrial switch when the ventricular mass is on top of the atria (situs solitus with dextrocardia or situs inversus with levocardia). Furthermore we strongly believe that addition of a Glenn shunt favors right ventricular hemodynamics especially when a Rastelli procedure is performed. Midterm follow up results are good.