Reviewer’s report

Title: Two-stage correction of type IV total anomalous pulmonary venous connection

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Reviewer: JD St Louis

Reviewer’s report:

The authors present a retrospective, descriptive review of a small series of patients with type IV (mixed) total anomalous pulmonary venous connection. Seven patients underwent a staged repair of defect, incorporating the major pulmonary venous return initially, to be followed by completion of all remaining veins at a later date. It is interesting that all corrections on veins that were delayed, originated from the left upper lobe. The median time interval between the initial repair and the staged repair was 2.9 years. There were no immediate operative or postoperative complications. On follow-up, all there were no indications of obstruction to any of the pulmonary venous return. The authors present a well-written and organized paper with minimal grammatical and spelling errors. Although this is a small series, it confirms a practice of delaying complete repair in order to mitigate the problematic complication of pulmonary venous obstruction, seen in up to 25% of patients that undergo repair for TAPVC during the neonatal period. The work should be published and I provide the following comments for the authors review and consideration.

1) Sentence one of Introduction: should be revised to "is a cyanotic defect in which all pulmonary…"

2) Sentence two of introduction delete rate

3) The authors excluded all functional single ventricular anatomy for their review. This is a difficult population to deal with, especially the Heterotaxy population, in which the incidence of mixed type TAPVC is high. Where there patients in the authors series that had this type of anatomy. If so, these authors should consider including these patients in this descriptive analysis.

4) When describing the anatomy of this subtype, the authors should utilize the classification system created by Chowdhury et al (1) and confirmed in a large series by St.louis et al (2). These classification system breaks Type IV TAPVC in three types depending on the pattern of drainage. The respective outcomes have been published. This would allow for the audience to better correlate the authors outcomes to the published standards.

5) When describing the follow-up following the second stage, the authors should present the median follow-up period. It is clear that post-operative pulmonary venous obstruction most frequently within the first 24 months of repair. Some idea of the follow-up period would be helpful.
6) I would comment in greater depth on the decision of determining the timing on the second stage. The authors waited on average of three years. What is the thought process for this period. Please explain. Perhaps providing recommendation, this would contribute to the practice.

1) Chowdhury et al  A suggested new surgical classification for mixed totally anomalous pulmonary venous connection… Cardiol Young 2007: 17 343-353

2) St.Louis et al: Type IV TAPVC Outcomes following surgical correction

World Journal for Pediatric and Congenital Heart surgery 2017 (in press) Note; this article will be published in the March 2017. If the authors would like the paper, I would be willing to provide

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