

See Article page 1268.



## Commentary: Maybe there is just 1 way to skin a cat!

Aaron Eckhauser, MD, MS

Ma and colleagues<sup>1</sup> present their continued study of patients with tetralogy of Fallot with major aortopulmonary collaterals, comparing the cumulative incidence of complete repair and death in patients undergoing their initial surgery at Stanford (376 patients) versus those referred after various prereferral surgeries (PRS) (200 patients). The PRS procedures included and were categorized into systemic-to-pulmonary artery shunts, right ventricle-pulmonary artery (RVPA) conduits with an open or fenestrated ventricular septal defect, and RVPAs with a closed ventricular septal defect. They report that the cumulative incidence of complete repair and death were similar regardless of the PRS status or whether the initial surgery was done at Stanford. However, in the PRS cohort, the incidence of complete repair with 6-month survival was significantly higher in patients receiving an RVPA versus shunt only before complete repair.

I continue to appreciate the efforts of the Stanford group to shepherd the approach to caring for these patients. To me, the implications of this work are that despite prior surgeries, varying levels of complexity, and residual lesions, the majority of these patients—even those previously deemed inoperable—can achieve equivocal results to those initially treated at Stanford. It's not about what prior palliative strategy is more effective, it's about process, and their nuanced, programmatic process works!

I had the privilege to spend time visiting Stanford, and I've experienced the positive effects of implementing their process into my own practice. However, I've found it challenging with each new, complicated patient to



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### CENTRAL MESSAGE

Using a comprehensive and programmatic approach, heterogeneous populations of patients with TOF/MAPCAs can achieve similarly excellent results despite the initial surgical strategy employed.

incorporate their finely nuanced decision-making process into my practice, which leads to my main criticism of this work; namely, how generalizable are these results across the community? Although they describe general principles for achieving a successful complete repair, their decades of experience, intuition, and gestalt about which vessels are salvageable, what degree of cross-sectional segmental lung anatomy is adequate, which patients need a flow study, and who should be shunted is very difficult to replicate without trial and error and considering my own steep learning curve. It feels akin to reinventing the wheel with partial blueprints of the wheel in front of me.

My second criticism concerns the difficulties evaluating such a heterogeneous cohort of patients. While I found their classification of PRS patients categorically sensible, I wonder how the inherent sampling and selection biases of such a heterogeneous group influences the validity of some of their secondary outcomes. For this cohort, knowing whether residual lesions were intentional, the specifics regarding surgical decision making, and ensuring complete follow-up, it is challenging to appropriately classify these patients for meaningful analysis.

Despite these limitations, this excellent article shows that by implementing a structured and algorithmic programmatic approach to patients with tetralogy of Fallot with major aortopulmonary collaterals, equally excellent results can be achieved across the spectrum of patients.

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I applaud the authors, not only for their fantastic results in a staggering number of patients, but their willingness to care for such a challenging cohort of patients and to share new knowledge.

### Reference

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