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Commentary: Do not try this at home

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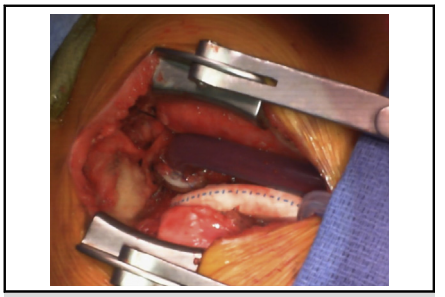

An arterial cannula to the MPA and apical cannula with a Gore-Tex extension to the aorta.

CENTRAL MESSAGE

Central ECMO may occasionally be successful in pediatric patients with pulmonary hypertension as a bridge to transplant; however, only at institutions with experience and expertise in lung transplant.

In this edition of the *Journal*, Stephens and colleagues[1] describe their remarkable experience managing a 13-year-old patient after remote arterial switch who subsequently developed severe pulmonary hypertension. Central extracorporeal membrane oxygenation (ECMO) support was used as a bridge to transplant using tunneled Berlin arterial cannulas (Berlin Heart Inc, The Woodlands, Tex) from the right pulmonary artery to the aorta. This allowed for stability and rehabilitation, and, after 18 days of support, the patient was successfully transplanted. Having experience treating these patients, with similar operations, we can attest this is no small feat. This is likely only possible by a very talented and experienced team led by a phenomenal surgeon. Success following an operation that required a 10-hour bypass run and 4 hours of cardiac crossclamp speaks to the experience and expertise of the surgical team and institution. One wonders, however, if this strategy was to be employed on a larger scale, what would be the survival?

Over time, our experience involving patients awaiting lung transplant has evolved to include, in addition to lung transplant and central ECMO (both veno-arterial and veno-venous) as described here, paracorporeal lung assist devices and Potts shunts.[2,3] As is typical when multiple therapies exist, no one option is clearly superior. While we have had some successes, we have also been met with many failures. Further, we suspect others have tried similar ECMO cannulation strategies; however, there is a paucity of published data, likely for a good reason. So, while they present a successful case, we suspect that if this were to be employed for a larger cohort, the outcomes would be questionable. Further, this strategy would be more difficult for younger children expected to wait multiple months.

For their cannulation strategy, the authors used arterial cannulas with tube graft extensions to the right pulmonary artery and the aorta. Our technique has some subtle differences. We now prefer direct cannulation of the main

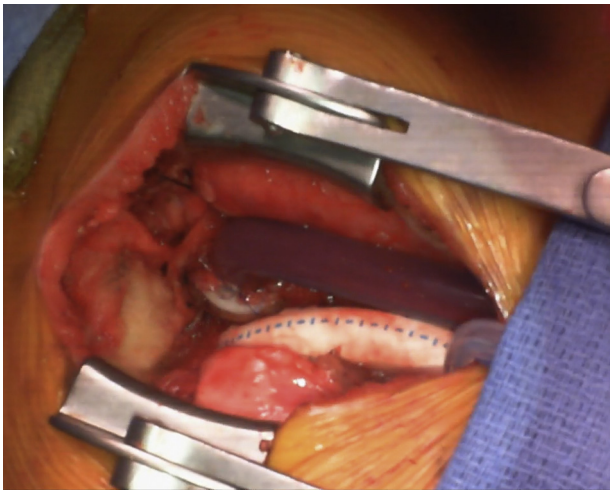

FIGURE 1. An arterial cannula to the MPA and apical cannula with a Gore-Tex extension to the aorta.

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pulmonary artery (without graft extension), as we have seen suck down of the graft. For the outflow, we use an apical cannula with a Gore-Tex (W. L. Gore & Associates, Elkton, Md) extension with the apical cannula positioned at the level of the diaphragm. This allows accommodation around changing contours after chest closure, for example, with diuresis (Figure 1). The child pictured is 6 months old (8 kg), wherein we used a size 6 Berlin arterial cannula to the main pulmonary artery and a size 6 Berlin apical cannula, with an 8-mm Gore-Tex extension to the aorta. She clinically stabilized and did well to transplant, although this proved to be as difficult an operation as the authors described (a 16-hour operation). Two others, while managing to survive through transplant, died postoperatively.

The surgical skill, innovation, and persistence of the authors continue to push the field forward. The team and the institution should be congratulated. However, it should be recognized that this result is not generalizable. This positive outcome is a reflection of the expertise and persistence of Dr McKenzie and his colleagues, as well as the experience of the institution.

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