Dominoes: When a novel surgical approach creates new challenges

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Initial surgical outcomes for the arterial switch operation (ASO), as reported by Jatene and colleagues,¹ have an operative mortality of 20.7%. Contemporary mortality data, as found in the Society of Thoracic Surgeons Congenital Heart Surgery Database, are 3.4%.² Coronary anomalies, in particular those with an intramural course, continue to create technical challenges. These anomalies have been associated with a more than 6-fold increase in mortality compared with normal coronary arrangement.³

Technical strategies to navigate intramural coronary arteries have included harvesting both ostia en bloc. Although this allows for safer harvesting, removal of some portion of the facing commissure often is required. The aortocoronary flap technique has proven to be a reliable approach to produce a tension-free coronary transfer.

In the *Journal*, Kumar and colleagues⁴ from Le Bonheur Children's Hospital shared an operative strategy of using a right ventricle to pulmonary artery conduit for neopulmonary reconstruction. They suggest this technique to manage the known coronary compressive sequela seen in patients undergoing aortocoronary flap transfer.⁵ More specifically, they describe implantation of an aortic homograft in the pulmonary position to alleviate flap compression likely caused by patch reconstruction of the neopulmonary root after coronary harvest.

More than one half of the centers reporting to the Society of Thoracic Surgeons Congenital Heart Surgery Database perform fewer than 5 ASO procedures per year and of that nearly one half of the surgeons reporting performed individually less than 2 ASO procedures per year.² This reality creates significant value in having a clear and well-understood set of technical options in cases of intramural coronary arteries. The described technique allows the surgeon to us an option, which is very commonly performed in other surgical environments, for neopulmonary reconstruction.

Domino effect—a novel technique may produce additional surgical challenges.

Central Message

Compressive concerns for the aortocoronary flap technique when transferring intramural coronary arteries in an arterial switch may be alleviated by the placement of a conduit for neopulmonary reconstruction.

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The authors used this technique as a bailout strategy. Clearly, a pulmonary homograft may be preferable. In addition, the suggested approach will relegate the patient to further interventions on the right ventricle outflow tract. Performing an ASO using the standard approach of coronary transfer and neo pulmonary reconstruction as a single-stage intervention is clearly ideal. The value of this manuscript is thus its introduction of a technical approach to alleviate challenges created by using a novel technical option for transfer of an intramural coronary artery.

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