that the increase in SCA risk for AAOCA patients, although real, is relatively small, particularly for an anomalous right coronary artery.⁵ Thus, surgical intervention must be less hazardous than natural history, while also durably effective. This report offers us another step in that direction.

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Commentary: Transection and reimplantation: Putting all your eggs in one basket?

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In the current issue of the *Journal*, Bonilla-Ramirez and colleagues¹ present the retrospective single-center results of 16 patients who underwent transection and reimplantation (TAR) within their Coronary Artery Anomalies Program between 2012 and 2019. TAR was their chosen surgical repair strategy for patients with an intramural anomalous aortic origin of the coronary artery(ies) (AAOCA) who could not undergo isolated unroofing due to presence of a coronary pathway below a commissure and with potential compression by the intercoronary pillar, proximity of the orifice to the commissural pillar, or when unroofing alone would not achieve relocation to the appropriate sinus. This primarily descriptive paper attempts to provide the reader with an understanding of the utility of TAR, in

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CENTRAL MESSAGE

While transection and reimplantation seem acceptable, it would be a shame to put all our eggs in one basket when we do not have the evidence to suggest any of the available options are superior.

comparison with isolated unroofing, which was used in 45 patients at their institution.

One of the primary strengths of the Coronary Artery Anomalies Program at Texas Children's is that they attempt to evaluate patients in a standardized fashion both pre- and postoperatively. This allows the authors to present standardized data related to outcomes following AAOCA repair, as patients have the same metrics available for evaluation. Important limitations of this manuscript, however, include the very small sample size of 16 patients, which included 6 patients crossing over from an unroofing strategy to a TAR strategy intraoperatively, and the limited follow-up

period of 4 years (interquartile range, 2-6). It will be interesting to evaluate the longer-term outcomes of a larger group of patients who have undergone this strategy. Of note, 1 of 16 (6%) patients who underwent TAR required subsequent coronary artery bypass grafting for ischemia with symptoms following the initial repair. For comparison, 13 of 395 (3%) patients undergoing various strategies from 45 centers required reoperation for coronary-related reasons in the recent multi-institutional Congenital Heart Surgeons' Society publication looking at outcomes of AAOCA repair.²

TAR is not a new technique and is performed by transecting the coronary artery at its exit point from the aorta and reimplanting it without a button. Work describing this method occurs as early as 1991, when it was described by Di Lello and colleagues³ and used in a non-intramural setting, and then by Goda and colleagues⁴ for intramural AAOCA in 2011. More contemporary publications have similarly described the use of TAR for intramural AAOCA in larger series, one of which (Law and colleagues⁵) also reports findings in a group of 16 patients with a similar conclusion, that it is an acceptable technique.⁶

Selection of the appropriate repair strategy requires both care and experience, with multiple options available in any given setting, and often dictated by surgeon knowledge and proficiency. While the situations in which TAR may be used are accurately presented, it should be noted that there are multiple alternatives that can also be used in these settings. For an intramural AAOCA that runs below the level of a commissure, one can also employ unroofing with commissural takedown (although the risk of aortic insufficiency is unclear), neo-ostial creation, or an aorto-coronary window. The latter technique can also be used

where unroofing does not relocate the ostium to the appropriate sinus. Similar to TAR, however, the long-term outcomes of these techniques are also unclear and, most importantly, we do not know which technique is superior.

I congratulate the authors for continuing to present their experience of patients with AAOCA, so that other surgeons can benefit from their understanding. However, my concern is that surgeons with limited experience managing AAOCA may underestimate the technical complexity of TAR and select it when a less-complex alternative with a similar level of evidence may be chosen. Although TAR appears to be an acceptable option, it would be a shame to put all of our eggs in one basket, when we still do not have the required evidence afforded by large long-term studies for any of the available options.

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