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Commentary: Radial artery tips from Melbourne: We stand on the shoulder of giants

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While we owe the reintroduction of the radial artery (RA) in coronary artery bypass surgery to Acar and colleagues,¹ most of the data on its patency and outcomes come from Australia, and in particular from Melbourne, where Buxton, Tatoulis, and Hare have been leading the field for almost 3 decades.

In this issue of the *Journal*, Tatoulis, a recognized expert in the field of multiple arterial grafting (MAG), presents a pragmatic approach to harvesting and preservation of the RA.² Due to its demonstrated superior patency rate, the RA is now used with increased frequency in international coronary practices.^{3,4} The recently published long-term results of the Radial Artery Patency and Clinical Outcomes (RAPCO) trial showed a significantly greater 10-year patency rate of the RA when compared with the free right internal thoracic artery and the saphenous vein.^{5,6} As such, the RA now seems to be the logical second choice following the gold standard left internal thoracic artery for coronary artery bypass grafting.

Our group has learned much from Tatoulis and others out of Royal Melbourne Hospital, and this expert review is no exception. We use similar screening and preservation techniques as well as operative strategies. As is highlighted, it is our routine practice to use a combination of the modified Allen test with either duplex ultrasonography or index finger plethysmography to evaluate the RA for harvesting. While the time cut-off for the modified Allen

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CENTRAL MESSAGE

As the radial artery emerges as the best second conduit in coronary artery bypass grafting, the coronary surgeon must become familiar with pre- and intraoperative considerations and techniques.

test is unclear, 10 seconds seems to be an appropriate length of time after which the RA should not be used or further testing pursued.⁷

If the RA is deemed suitable, our group favors the open harvesting technique, as we feel the endothelial integrity is better preserved using this approach.⁸ It is also important to note that most randomized evidence evaluating the RA is derived from trials using the open harvesting technique, including RAPCO. Endoscopic harvesting may be an alternative for experienced operators. Avoiding electrocautery and using the harmonic scalpel may decrease the risk of vasospasm and thermal damage to the RA conduit. We preserve the RA in buffered verapamil/nitroglycerine or papaverine in an asanguineous bath.⁹

Once prepared for anastomosis, the RA is usually used as a free graft with an aortocoronary proximal anastomosis. The composite Y configuration can increase the number of distal coronary anastomoses but carries a greater risk of flow maldistribution and failure due to competitive flow. Popularized by the author of this expert review, the “Baby Y” graft is a superb technical solution when the coronary anatomy is not suitable for a sequential anastomosis.⁹

As MAG emerges as the superior revascularization strategy, the coronary surgeon will need to become increasingly comfortable with the RA. While there are a number of pre- and intraoperative considerations, when used in the right setting the RA offers superior long-term patency and outcomes. Our hats go off to Tatoulis not only for ushering the era of MAG but also providing us with pragmatic expert

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reviews such as this to guide surgeons not familiar with RA coronary artery bypass grafting.

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