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Commentary: The radial won't bite, if you treat it right

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With growing evidence of the importance of multiple arterial grafting, the selection of a second arterial graft is critical. The right internal thoracic artery and the radial artery are the 2 primary options. The radial artery is associated with improved patency compared with a vein graft in multiple randomized controlled trials.¹ Radial artery harvesting was first described by Carpentier and colleagues in 1971.² Early enthusiasm for the radial artery conduit waned owing to challenges with graft spasm. Two decades later, the incorporation of antispasmodic agents and a minimally traumatic harvesting technique improved outcomes and renewed interest in the radial artery as a viable conduit. Experience with the use of radial artery has continued to grow, and its use exceeds right internal thoracic artery use across the globe.³ Our center performs multiarterial bypass grafting in 40% of appropriate patients undergoing isolated coronary artery bypass grafting (CABG) with the radial artery as the preferred second conduit. The reasons are similar to those mentioned by Tatoulis,⁴ including ease of procurement, simultaneous procurement with left internal thoracic artery, versatility in constructing sequential anastomoses or Y or T grafts, and ease of anastomosis to the ascending aorta.

Tatoulis,⁴ a leader in the field of multiarterial grafting, presents an invited technical expert review focused on optimal radial artery harvesting technique. He expertly distills the key elements of anatomy and radial artery dissection and provides practical tips to help improve graft patency. There are other reports of managing radial artery harvest; however, this provides a comprehensive picture of the harvesting technique as well as the pros and cons of various antispasmodic strategies.

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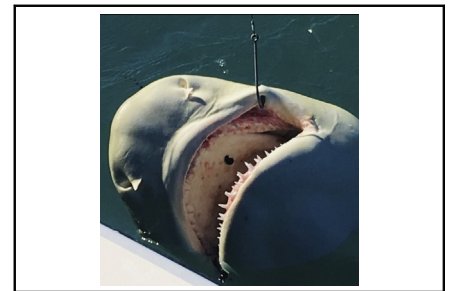
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Proper radial artery handling prevents suboptimal results, ie, shark bites.

CENTRAL MESSAGE

Careful preoperative assessment and attention to surgical technique intra-operatively can alleviate the challenge of radial artery grafting.

Radial artery assessment is critical to the overall graft outcome and should be performed by the surgeon and not delegated to a trainee or physician assistant. Understanding and diligent use of the modified Allen test and finger plethysmography can help eliminate risk of hand ischemia. We have used 10 second cut-off as outlined by Tatoulis and have had no cases of hand ischemia. In addition, aiming saline/carbon dioxide-blowing devices at the radial artery should be discouraged because of the risk of wall dissection. Lastly, trainees must learn to handle the radial artery by the adventitia, to be extremely particular about a no-touch technique, and to aim the needle perpendicular to the wall of the vessel when constructing the anastomosis to ensure full-thickness bites (particularly if the intima furls up).

In an era of Society of Thoracic Surgeons report cards, there is tremendous pressure on surgeons, especially young surgeons, to have a near-perfect operative record for isolated CABG. Early arterial graft occlusion is a technical failure until proven otherwise. In fact, any factor that increases the risk of operative mortality or morbidity becomes a risk versus benefit evaluation in the surgeon's mind. These factors present barriers to the rapid widespread adoption of the radial artery as a CABG conduit. The points highlighted by Tatoulis provide a well-trodden path to the successful incorporation of the radial artery to every surgeon's armamentarium.

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