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## Commentary: Coronary revascularization: How should we do it?

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In their report, Torregrossa and colleagues<sup>1</sup> have demonstrated a technique for performing robotically sutured coronary anastomosis on a beating heart using the da Vinci Si system (Intuitive Surgical, Sunnyvale, Calif). The authors have presented an intraoperative film depicting a mature and robust method for performing a sutured anastomosis on a beating heart. The unparalleled visualization afforded by the da Vinci system and the precision and dexterity of the endoscopic wristed articulation are on full display in their demonstration of a robotically performed left internal mammary artery–left anterior descending artery anastomosis. The technical advantages of this platform are expertly presented and will be sure to capture the imagination of coronary surgeons unfamiliar with robotic cardiac surgery.

During the past 2 decades, robotics have entered the mainstream of interventional coronary care, with applications ranging from robotic-assisted percutaneous coronary intervention<sup>2</sup> to robotic coronary artery bypass. In the surgical realm, totally endoscopic coronary artery bypass has produced results that are in line with traditional techniques<sup>3</sup> over nearly 20 years of observation. Despite the encouraging reported outcomes, adoption of endoscopic coronary surgery within the US cardiac surgical community has been low.<sup>4</sup> This can be attributable to the steep learning curve,<sup>5</sup> increased hospital costs,<sup>6</sup> and lack of high-quality evidence of its safety and efficacy compared with traditional techniques.

The barriers to entry for robotic cardiac surgery remain formidable, as do the technical limitations associated with the technique. However, it is likely that a small and highly

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### CENTRAL MESSAGE

University of Chicago surgeons demonstrate an elegant and robust method for robotic-assisted coronary anastomosis.

selected subset of patients will derive significant benefit from minimally invasive coronary revascularization. Furthermore, given the steep growth in the number of successful applications of robotics in cardiac and thoracic surgery, it is conceivable that robotic surgery could soon supplant open and thoracoscopic techniques as the standard of care. As the debate over the appropriate use of robotics in coronary surgery continues, the authors have provided a compelling argument for an expanded role of totally endoscopic revascularization in the modern surgeon's repertoire.<sup>1</sup>

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