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Commentary: Leading from the back

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In this issue of *JTCVS Techniques*, Bourdillon and colleagues¹ present a unique case of robotic mitral valve repair in a patient with cardiac dextroversion. The case is notable because of the unusual anatomy, the method of repair, and use of the robotic approach.

The patient was a young woman with situs solitus and dextrocardia with moderate mitral regurgitation and systolic anterior motion causing severe left ventricular outflow tract (LVOT) obstruction. The authors clearly describe the embryology and pathoanatomy of this entity. Their analysis of this patient's valve revealed an elongated posterior leaflet and acute aorto-mitral angle, 2 factors that predispose to systolic anterior motion and LVOT obstruction. A minimally invasive, robotically assisted approach was chosen, but the rotation and displacement of the heart necessitated replacement of the standard right thoracic incisions by a left-sided approach. The authors expertly navigated a pectus deformity, anterior displacement of the phrenic nerve, and a left superior vena cava draining into a large coronary sinus, in addition to the inverted orientation of the mitral valve. Their method of repair was dictated by the complex anatomy and included posterior annuloplasty with a semirigid partial ring and closure of a cleft between P1 and P2. The ring implantation technique, previously described² and employed routinely at the authors' institution, imbricated excessive posterior leaflet tissue, reducing its height and displacing



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CENTRAL MESSAGE

A minimally invasive, robotic technique can be applied to repair complex mitral pathology with excellent results.

the coaptation plane from the LVOT. They achieved an excellent result, eliminating both the mitral regurgitation and LVOT obstruction.

Robotic mitral valve repair is safe, effective, durable, and cost-neutral compared with sternotomy.³ Excellent outcomes with low complication rates, fewer transfusions, shorter ventilation times, decreased intensive care unit and hospital stays, diminished postoperative pain, faster return to normal activity levels, and greater patient satisfaction have been reported.³⁻⁷ Although early robotic mitral surgeons carefully selected low-risk patients with simple pathology (mostly isolated posterior leaflet prolapse), experienced centers now apply robotic technology to a broad spectrum of patients with mitral disease, including older, greater-risk patients and those with more complex mitral pathology.⁵⁻⁸ Bileaflet disease, annular calcification, endocarditis, reoperations, combined procedures, and valve replacements all can be approached robotically. This report illustrates that in the hands of a well-trained team led by an accomplished mitral surgeon, robotic repair is a versatile technique that is adaptable to nearly any mitral valve pathology. The common leadership adage, popularized by Nelson Mandela, of "leading from the back while letting others believe they are in the front" has unique application here. Not only do front, back, and side take on a whole new meaning in this case, it illustrates that with good training, experience, and leadership of a robotic team, anything is possible.

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