of SDR reports, plain chest radiography was the mainstay in diagnosis of the hernia, followed by verification with contrast studies.[1] Bello and Sarkar correctly note that contrast-enhanced coronal multiplanar reformatted images of multidetector computed tomography aid the diagnosis of SDR, although the contention is based on a single case report.[4] A recently published trial explored the method's diagnostic value in patients with known traumatic diaphragmatic hernias and found that distinct radiologic signs of hernia were present in 33% to 58% of the patients, suggesting that obtaining sagittal and coronal images can improve the diagnosis.[5] Considering that in the SDR group 33% of the hernias contained 2 organs and 25% contained 3 organs,[1] one can imagine the importance of preoperative delineation of the anatomy.

Bello and Sarkar should be commended for reinforcing that, whenever the chest radiograph is equivocal or suspicious for SDR, computed tomography supplemented by multiplanar reformation obtained using thin-slice axial scanning and overlapping images for reformations must be performed. This can help to plan the surgical intervention and improve the outcome of this life-threatening surgical emergency.

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SIMPLIFYING ROBOTIC MITRAL VALVE REPAIR: MINIMIZING SUTURES WITH INTRA-ANNULAR RING IMPLANTATION

To the Editor:

We read with great interest the article on running annuloplasty suture technique for robotically assisted mitral valve repair by Mihaljevic and colleagues.[1] We congratulate them on their innovative approach to simplifying ring annuloplasty for robotic valve repair; they report impressive numbers and excellent results.

Dedicated surgical instruments have been developed for minimally invasive and robotic cardiac surgery. Annuloplasty rings and bands have not been adapted to these approaches, however, and, as mentioned by Mihaljevic and colleagues,[1] still require multiple suture placement and knot tying, which are somewhat difficult, tedious, and time-consuming in robotic valve repair. The multiple suture placement required for ring or band implantation has been facilitated with the use of nitinol U clips (Coalescent Inc, Sunnyvale, Calif), as shown in an animal model.[2] In a retrospective review of their clinical experience, however, Cook and associates failed to demonstrate a significant difference in the time to place a U clip versus a suture after controlling for the robotic-assisted suture tying learning curve.[3]

The technique proposed by Mihaljevic and colleagues[1] of using a running suture for annuloplasty is an elegant method of reducing the complexity of mitral valve annuloplasty. Devices optimized for minimally invasive cardiac surgery, minimizing sutures or U clip use, could offer another option to reduce the complexity and duration of ring implantation. We previously reported our initial experience in using the Bioring Kalangos (Bioring SA, Lonay, Switzerland) biodegradable annuloplasty ring for video-assisted thoracoscopic and robotic-assisted tricuspid valve repairs in 10 patients.[4] This device, available both for mitral and tricuspid annuloplasty, is inserted directly into the native tricuspid annulus, with the suture extensions at each extremity of the ring sewn in 2 to 3 bites.[5] This has the advantage that no further sutures are required, thus possibly simplifying implantation in robotic surgery.

This ring was designed for traditional valve repair; however, it appears particularly well adapted to minimally invasive valve surgery. It was easily implanted without a significant learning curve. This device, which achieved CE marking in 2005, is being evaluated by the Food and Drug Administration but is not currently approved beyond exceptional compassionate use exemptions. Furthermore, long-term follow-up is still lacking.

We congratulate Mihaljevic and colleagues[1] on their innovative and thoughtful approach to a simplifying robotic mitral repair by using proven annuloplasty devices. We humbly suggest that using devices optimized for the specifics of robotic valve repair, minimizing suture or U clip requirements, could further simplify these procedures and improve outcomes.

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Reply to the Editor:

We thank Drs Panos, Myers, and Kalangos for interest in our article on the running annuloplasty technique for robotic mitral valve repair.[1]

The main objective of minimally invasive approaches for mitral valve repair is to minimize trauma of the surgery, while providing similar quality and safety as traditional surgery through median sternotomy. The increased technical complexity of minimally invasive and robotic mitral valve repair approaches has resulted in prolonged operative times, which slowed wider adoption of these techniques. Our article described a simplified robotically assisted annuloplasty using running sutures, which resulted in significant reduction of operative time needed for mitral valve repair. Dr Myers and coworkers suggest that implantation of a biodegradable ring (Bioring SA, Lonay, Switzerland) could result in further reduction of operative time because of its ease of implantation.

We do not have any experience with this device, because it has not been approved for clinical use in the United States, and cannot comment on its performance characteristics or its ease of implantation. The small observational clinical study using this product for tricuspid valve repair in adults has reported aortic occlusion times similar to those observed in our cohort of robotic patients operated on with running annuloplasty technique.[2] We are therefore not certain that potential use of this device would cause significant decrease in operative times. Although we see a potential need for absorbable annuloplasty devices for valve repairs in the pediatric population, this need is unclear in adult patients in whom standard non-absorbable annuloplasty rings have an established history of excellent long-term outcomes.[3]

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