Letters to the Editor

The Editor welcomes submissions for possible publication in the Letters to the Editor section that consist of commentary on an article published in the Journal or other relevant issues. Authors should:

- Include no more than 500 words of text, three authors, and five references
- Type with double-spacing
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Letters commenting on an article published in the JTCVS will be considered if they are received within 6 weeks of the time the article was published. Authors of the article being commented on will be given an opportunity to offer a timely response (2 weeks) to the letter. Authors of letters will be notified that the letter has been received. Unpublished letters cannot be returned.

Caution with twisted arterial grafts

To the Editor:

Sarma and colleagues¹ recently reported a case of an inadvertent clockwise 360° twisted left internal thoracic artery (LITA) graft sequentially anastomosed to the diagonal and left descending coronary arteries (LAD). Angiography 6 months postoperatively revealed a patent graft with good distal runoff. The acceptance of twisting was based on an uneventful course during and after weaning from cardiopulmonary bypass. In addition, the LITA was long, and the spiral course of the twist was in the midportion of the graft.

In our unit we experienced the same thing: as long as twisting is in the midportion of a long arterial graft, it does not seem to affect patency. In contrast, twisting in the end portion of the arterial graft, near the distal anastomosis to the coronary vessel, is clearly hazardous, jeopardizing patency.

As experienced recently, a 70-year-old man underwent off-pump coronary artery bypass surgery with the right internal tho-

racic artery grafted to the circumflex artery and the LITA grafted to the LAD. Operative course (eg, rhythm, hemodynamics, electrocardiography, and transesophageal echocardiography) was uneventful. However, transit-time flow measurement of the LITA revealed borderline satisfactory results intermittently (Figure 1): the pulsatility index increased from 3.4 to 5.7, and the mean flow curve decreased intermittently from 34 to 12 mL/min (mean, 25 mL/min). On careful inspection of the LITA-to-LAD anastomosis, we noticed that the pedicle, which for safety reasons is fixed to the epicardium near the anastomosis, was fixed at 90° rotation. After revision of the pedicle fixation, transit-time flow measurement improved: pulsatility index decreased to 1.7, and mean flow curve increased to 77 mL/min.

Twisting of arterial grafts might occur.² Although a redo operation is generally recommended, it might not be necessary in all cases. However, it has to be ensured that the graft is long enough and the spiral

Figure 1. Before revision of the anastomosis, transit-time flow measurement of the LITA demonstrated low graft flow (mean, 25 mL/min; upper graph). After revision and refixation of the pedicle of the LITA (lower graph), the mean flow rate improved to 77 mL/min.

course of the twist is in the midportion and not near the anastomosis site.

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References

1. Sarma AK, Krishnamurthy SK, Siva VS, Karunakaran J, Sankaran NK. Twisting of pedicled left internal thoracic artery graft three hundred sixty degrees clockwise: does it change the outcome? *J Thorac Cardiovasc Surg.* 2004;128:617-8.
2. Canver CC, Dame NA. Ultrasonic assessment of internal thoracic artery graft flow in the revascularized heart. *Ann Thorac Surg.* 1994;58:135-8.

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Effect of right anterolateral thoracotomy on breast development and scoliosis

To the Editor:

We read with great interest the article "The Influence of Right Anterolateral Thoracotomy in Prepubescent Female Patients on Late Breast Development and on the Incidence of Scoliosis" by Bleiziffer and associates.¹ We agree with the authors that the right anterolateral thoracotomy should be abandoned in prepubescent female patients. In fact, we have been using a limited posterior thoracotomy incision for correction of simple congenital heart defects since 1998, and we have also published our data previously.² Earlier studies in young women have also shown that classic anterior and anterolateral thoracotomy incisions lead to unequal breast development.³

Just to update our recent data, we analyzed 35 patients who underwent right posterior thoracotomy from February to October 2004 at our institution. Thirty-one underwent operation for secundum atrial septal defect, 2 for ventricular septal defect closure, and 1 each for repair of tetralogy of Fallot (not requiring transannular patch) and partial atrioventricular canal defect. Ages ranged from 3 to 28 years (mean, 13 $\pm$ 4 years). A standard right posterior thoracotomy incision was made with the anterior limit up to the posterior axillary line.

Cardiopulmonary bypass was instituted by using aortic and bicaval cannulation, and intracardiac repair was performed under fibrillatory or cardioplegic arrest per the surgeons' choice. All patients survived the operation and were extubated within 12 hours after surgery. The mean stay in the intensive care unit was 24 $\pm$ 6 hours. None had phrenic nerve palsy or excessive blood loss. In the postoperative period, there was no short-term limitation of movement of the upper limb. All patients except 2 were discharged on the eighth postoperative day. One had significant residual shunt and had to undergo reoperation through a median sternotomy, and another had a persistent air leak that stopped after 5 days. There was no wound infection.

We believe that right posterior thoracotomy is safe and reproducible and does not require sophisticated equipment. It gives a good scar, which is invisible from the front and is masked by typically worn apparel. It does not interfere with future development and modeling of the breast.

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References

1. Bleiziffer S, Schreiber C, Burgkart R, Regenfelder F, Kostolny M, Libera P, et al. The influence of right anterolateral thoracotomy in prepubescent female patients on late breast development and on the incidence of scoliosis. *J Thorac Cardiovasc Surg.* 2004;127:1474-80.
2. Shivaprakasha K, Murthy KS, Coelho R, Agarwal R, Rao SG, Planche C, et al. Role of limited posterior thoracotomy for open heart surgery in the current era. *Ann Thorac Surg.* 1999;68:2310-3.
3. Cherup LL, Siewers RD, Futrell JW. Breast and pectoral muscle maldevelopment after anterolateral and posterolateral thoracotomies in children. *Ann Thorac Surg.* 1986;41:492-7.

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Reply to the Editor:

We appreciate the comments of Murala and colleagues on our study "The Influence of Right Anterolateral Thoracotomy in Prepubescent Female Patients on Late Breast Development and on the Incidence of Scoliosis."¹ The correspondents describe a right

posterolateral thoracotomy for the repair of atrial septal defect, ventricular septal defect, and tetralogy of Fallot to avoid impaired breast development after an anterior incision.

However, the division or incision of the latissimus dorsi and serratus anterior muscle produces significant trauma to the chest and may cause substantial perioperative morbidity and long-term disability.^{2,3} With this in mind, we developed our own modification of a limited midaxillary thoracotomy,⁴ avoiding both damage of future breast tissue and dissection of large muscle groups. Beginning at the height of the mammary areola in the midaxillary line, a 4.5- to 6.0-cm skin incision passes posteriorly toward the tip of the scapula. The entire anterior border of the latissimus dorsi muscle is freed. The muscle can then be retracted posteriorly, exposing the serratus anterior muscle. This muscle is split in a longitudinal manner, and the thorax is opened in the bed of the fourth rib. Cardiopulmonary bypass is instituted by direct bicaval and aortic cannulation. Femoral or iliac cannulation is not used in any patient. Our described surgical approach in 40 consecutive prepubescent patients so far, with a minimum weight of 15 kg, represents a favorable surgical alternative.

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References

1. Bleiziffer S, Schreiber C, Burgkart R, et al. The influence of right anterolateral thoracotomy in prepubescent female patients on late breast development and on the incidence of scoliosis. *J Thorac Cardiovasc Surg.* 2004;127:1474-80.
2. Landreneau RJ, Pigula F, Luketich JD, et al. Acute and chronic morbidity differences between muscle-sparing and standard lateral thoracotomies. *J Thorac Cardiovasc Surg.* 1996;112:1346-50; discussion 1350-1.
3. Benedetti F, Vighetti S, Ricco C, et al. Neuropathologic assessment of nerve impairment in posterolateral and muscle-sparing thoracotomy. *J Thorac Cardiovasc Surg.* 1998;115:841-7.
4. Schreiber C, Bleiziffer S, Lange R. Midaxillary lateral thoracotomy for closure of atrial septal defects in pre-pubescent female children: reappraisal of an "old technique." *Cardiol Young.* 2003;13:567-7.

doi:10.1016/j.jtcvs.2005.01.012