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
- See http://jtcs.ctsnetjournals.org/misc/ifa_shtml for detailed submission instructions.
- Submit the letter electronically via jtcvs.editorialmanager.com.

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 Unpublished letters cannot be returned.

Safe bilateral use of skeletonized internal thoracic artery in patients with diabetes

To the Editor:

We read with great interest the article by Peterson and coworkers¹ on skeletonization of bilateral internal thoracic artery (ITA) grafts and lowered risk of sternal infection in patients with diabetes. Peterson and coworkers¹ reviewed 115 patients with diabetes undergoing bilateral ITA grafting and compared the incidence of postoperative sternal infection between the skeletonized ITA group and the pedicled ITA group. The study concluded that the skeletonization of the ITA would reduce the incidences of both superficial and deep sternal infections.

The most important point of the skeletonization of the ITA is preservation of sternal blood flow, which may have favorable effect on sternal infection relative to pedicled ITA harvesting.² Other benefits of skeletonization include longer graft length, larger graft caliber, and greater graft flow. The long-term benefit of bilateral ITA grafting has been reported.³ However, sternal infection has been a great concern in determining which patients should undergo bilateral ITA grafting.

Previously, we reported a study similar to that by Peterson and coworkers, and we concluded that skeletonized ITA harvesting reduces the risk of the sternal infection without increasing the risk of graft injury or early graft occlusion.⁴ The studies were similar in design, focusing on sternal infection in high-risk patients with diabetes who were undergoing bilateral ITA grafting. The only difference between the two studies was in the technique used for skeletonization (scissors and clip versus ultrasonic scalpel).

Skeletonization of the artery is immobilization of the arterial trunk from the satellite veins and surrounding tissue. The greatest concerns during skeletonization are graft injury and vasospasm, both often related to inadequate handling of the graft or incomplete hemostasis. Skeletonization

can be done with clips and scissors, as described by Peterson and coworkers.¹ In our experience, however, skeletonization of the ITA can be performed much more easily and quickly with an ultrasonic scalpel, because transection of the vessel and coagulation occur at the same time. Unlike with electrocautery, heart injury to the ITA does not occur as long as the ultrasonic scalpel is applied at least 1 mm from the main trunk.² Furthermore, dissection of the ITA from the surrounding tissue can easily be performed with an ultrasonic scalpel without injuring the main trunk. In our use of the ultrasonic scalpel, we have not encountered any graft injuries or harvesting-related complications.⁴ Spasm of the graft may occur during skeletonization; in the skeletonized graft, however, spasm can be easily reversed with intraluminal injection of vasodilators.

Although neither our study nor that of Peterson and coworkers was randomized, both results support the hypothesis that skeletonized bilateral ITA grafting reduces the risk of sternal infection in diabetic patients. We strongly agree with the proposal that diabetes is no longer a contraindication for bilateral ITA grafting provided adequate skeletonization is performed.

Hitoshi Hirose, MD, FICS^{a,b}

Atsushi Amano, MD^a

Department of Cardiovascular Surgery^a

Juntendo University Hospital

Tokyo, Japan

Department of Thoracic and Cardiovascular Surgery^b

The Cleveland Clinic Foundation

Cleveland, OH 44106

References

1. Peterson MD, Borger MA, Rao V, Peniston CM, Feindel CM. Skeletonization of bilateral internal thoracic artery grafts lowers the risk of sternal infection in patients with diabetes. *J Thorac Cardiovasc Surg.* 2003;126:1314-9.
2. Higami T, Kozawa S, Asada T, Shida T, Ogawa K. Skeletonization and harvest of the internal thoracic artery with an ultrasonic scalpel. *Ann Thorac Surg.* 2000;70:307-8.
3. Lytle BW, Blackstone EH, Loop FD, Houghtaling PL, Arnold JH, Akhrass R, et al.

Two internal thoracic artery grafts are better than one. *J Thorac Cardiovasc Surg.* 1999; 117:855-72.

4. Hirose H, Amano A, Takanashi S, Takahashi A. Skeletonized bilateral internal mammary artery grafting for patients with diabetes. *Interactive Cardiovasc Thorac Surg.* 2003;2: 287-92.

doi:10.1016/j.jtcvs.2004.01.016

Reply to the Editor:

We thank Hirose and Amano for their comments, and we are encouraged that they report a similarly low risk of sternal wound infection in patients with diabetes who received bilateral skeletonized internal thoracic artery (ITA) grafts. Several additional studies have evaluated the safety of bilateral skeletonized ITA grafts in patients at high risk for sternal wound infection.^{1,2} All these studies have reported a low incidence of sternal wound infection in patients with diabetes. However, we do caution against generalizing these results to patients with diabetes who have multiple risk factors for sternal infection such as obesity, peripheral vascular disease, and chronic obstructive pulmonary disease.

Hirose and Amano suggest that harvesting of skeletonized ITAs with an ultrasonic scalpel reduces the risk of graft injury and lowers the time required for dissection. Higami and colleagues³ described skeletonization of ITAs with an ultrasonic scalpel; they reported harvesting times of 20 to 25 minutes, similar to pedicled harvesting. Provided the ITA side branches are sectioned at a distance of 1 mm from the main ITA trunk, the use of an ultrasonic scalpel appears safe.⁴ We do not currently use an ultrasonic scalpel at our institution and therefore cannot comment more specifically on this technique. However, we definitely believe that meticulous dissection of ITA grafts, regardless of the technique used, results in a low risk of graft injury.

Mark D. Peterson, MD
Michael A. Borger, MD, PhD
Division of Cardiac Surgery
Toronto General Hospital
Department of Surgery
University of Toronto
Toronto, Ontario, Canada

References

1. Pevny D, Mohr R, Lev-Run O, Locer C, Paz Y, Kramer A, et al. Influence of bilateral

skeletonized harvesting on occurrence of deep sternal wound infection in 1,000 consecutive patients undergoing bilateral internal thoracic artery grafting. *Ann Surg.* 2003;237: 277-80.

2. Matsa M, Paz Y, Gurevitch J, Shapira I, Kramer A, Pevny D, et al. Bilateral skeletonized internal thoracic artery grafts in patients with diabetes mellitus. *J Thorac Cardiovasc Surg.* 2001;121:668-74.
3. Higami T, Kozawa S, Asada T, Shida T, Ogawa K. Skeletonization and harvest of the internal thoracic artery with an ultrasonic scalpel. *Ann Thorac Surg.* 2000;70:307-8.
4. Higami T, Maruo A, Yamashita T, Shida T, Ogawa K. Histologic and physiologic evaluation of skeletonized internal thoracic artery harvesting with an ultrasonic scalpel. *J Thorac Cardiovasc Surg.* 2000;120:1142-7.

doi:10.1016/j.jtcvs.2004.01.017

Saphenectomy wound complications: The real story

To the Editor:

Olsen and colleagues,¹ in a recent retrospective analysis, have suggested that the Society of Thoracic Surgeons database is a useful tool for tracking saphenous vein harvest site infections and determining predictors for this complication. They report a 4.5% wound complication rate after traditional open saphenectomy in 1980 patients undergoing coronary artery bypass grafting from 1996 through 1999. Although their article may accurately report wound complications identified while the patient is in the hospital, it is unlikely they capture the vast majority of leg wound complications, because most occur after discharge. They cite poor outpatient follow-up as a potential limitation of their study; however, their article fails to cite published, prospectively collected data on this topic. Two prospective studies, by Allen and coworkers² and Utley and associates,³ have evaluated longitudinal saphenectomy wound complications after coronary artery bypass grafting with the same wound complication definition and independent assessment, including outpatient follow-up. They reported complication rates of 19% and 24%, respectively, which are much higher than observed in this retrospective series.

Contrary to the discussion by Olsen and colleagues,¹ endoscopic vein harvest as a means of reducing leg wound complications has been validated by more than one prospective, randomized trial, and it has consistently been shown to be superior re-

garding wound complications relative to an open harvest technique. In the first prospective, randomized comparison of endoscopic versus longitudinal saphenectomy, endoscopic vein harvest was associated with a significant reduction in leg wound complications (4% vs 19%, respectively).² Unfortunately, that 1998 article was missed during the literature search for the article of Olsen and colleagues.¹ Furthermore, traditional saphenectomy has been identified as an independent predictor for leg wound complications, and the use of endoscopic vein harvest modifies the impacts of diabetes, peripheral vascular disease, female gender, and obesity as risk factors for development of leg wound complications.⁴ Olsen and colleagues are to be applauded for continuing to bring the problem of saphenectomy wound complications to the attention of cardiac surgeons. They do a disservice, however, by publishing a 4.5% complication rate that underestimates the true scope of this problem. Databases such as that of the Society of Thoracic Surgeons do an excellent job of tracking events while patients are hospitalized; however, their ability to track events that occur and are managed on an outpatient basis is less reliable.

Keith B. Allen, MD
10590 N Meridian St, Suite 105
Indianapolis, IN 46290

References

1. Olsen MA, Sundt TM, Lawton JS, Damiano RJ, Hopkins-Broyles D, Lock-Buckley P, et al. Risk factors for leg harvest surgical site infections after coronary artery bypass graft surgery. *J Thorac Cardiovasc Surg.* 2003; 126:992-9.
2. Allen KB, Griffith GL, Heimansohn DA, Robison RJ, Matheny RG, Schier JJ, et al. Endoscopic versus traditional saphenous vein harvesting: a prospective, randomized trial. *Ann Thorac Surg.* 1998;66:26-32.
3. Utley JR, Thomason ME, Wallace DJ, Mutch DW, Staton L, Brown V, et al. Preoperative correlates of impaired wound healing after saphenous vein excision. *J Thorac Cardiovasc Surg.* 1989;98:147-9.
4. Allen KB, Heimansohn DA, Robison RJ, Schier JJ, Griffith GL, Fitzgerald EB, et al. Risk factors for leg wound complications following endoscopic versus traditional saphenous vein harvesting. *Heart Surg Forum.* 2000;3:325-30.

doi:10.1016/j.jtcvs.2003.12.038