STERNAL CLOSURE TECHNIQUE FOR BILATERAL TRANSVERSE THORACOSTERNOTOMY AFTER BILATERAL SEQUENTIAL LUNG TRANSPLANTATION

To the Editor:

We read with interest the sternal closure technique advocated by Koster et al¹ after a clamshell incision for double-lung transplantation. Different closure techniques have been advocated, including the use of sternal plates and screws.²

Although the approach affords excellent exposure, there are a few caveats to be kept in mind to avoid the pitfalls and complications related to sternal override and dehiscence that have been highlighted by Koster et al.¹

We have used the clamshell incision in our institution successfully and wish to highlight a few of the salient features that we practice. First, by using an oscillating saw, a beveled transverse sternotomy is performed at an angle of 45°. This protects and prevents sternal over-ride and also stabilizes the sternum after closure. Second, the emphasis during closure is to obtain a good thoracotomy approximation. This is the key to avoiding tension on the sternal fragments. We use multiple nonabsorbable pericostal sutures for the thoracotomy closure, which provides strength to the closure. Third, we use a modification of the reinforced sternal wiring technique for sternal

FIGURE 1. Chest radiograph showing the sternal approximation technique.

approximation³ wherein 2 parallel number 6 stainless steel sternal wires are placed in the space immediately above and below the transverse sternotomy, then 2 sternal wires are placed around the horizontal parallel wires. In addition, we also use a single figure-of-8 wire so that both fragments align properly. Fourth, the pericostal sutures placed for the thoracotomy closure are tied first and the sternal wires are approximated, leading to a stable and secure sternal closure. Finally, to avoid bunching up of sutures above the sternum, we use a few interrupted nylon sutures over the area of the sternal approximation. The chest radiograph (Figure 1) depicts our technique of sternal approximation.

We concur with the authors that meticulous attention to the closure technique is the key to avoiding complications related to sternal dehiscence. We commend the authors for highlighting this aspect regarding the clamshell approach.

Our purpose in emphasizing the closure technique is to allay fears over adopting this technique for bilateral lung transplantation.

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EFFECT OF PREOPERATIVE RENAL FUNCTION ON LONG- TERM SURVIVAL AFTER CARDIAC SURGERY

To the Editor:

Congratulations to Dhanani and colleagues¹ for their valuable study.

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://jtcvs.ctsnetjournals.org/misc/fora.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 of 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.

We have some concerns about the methodology of their study. The authors retrospectively reviewed their 2002 to 2005 experience in cardiac surgery and investigated the effect of preoperative renal function on intermediate-term survival. The study is retrospective, and patients' data were collected retrospectively. Could the authors obtain the data of all the patients undergoing either type of surgery and include them in the study? If they could not do so, wouldn't this be a bias in patient selection? We are wondering about the method of how the authors replaced the missing variables at the time of data collection. Although sometimes unavoidable, the missing information reduces the analytic possibilities and quality of analysis. How was the follow-up of patients performed? Were patients followed until the date of last report or was the anniversary method or common closing date method used? The percentage of patients with complete follow-up should be stated in the methodology.

The article also is missing data on the "censoring" of the participants when information on time to outcome event is not available because of loss to follow-up or nonoccurrence of outcome event before the end of the trial.

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WHICH PATIENTS WILL BENEFIT MORE FROM OFF-PUMP CORONARY ARTERY BYPASS GRAFTING?

To the Editor:

Off-pump coronary artery bypass grafting (CABG) has been performed in a systematic way since the 1980s. However the benefits observed over the years were not as great as we imagined in the beginning. The initial benefits could be lost in the medium or long term with angina recurrence and the need for repeat revascularization.¹ There are no doubts about the need for specific training for surgeons and for the whole team when performing off-pump surgery. The biggest question right now is: Which patients will benefit more from off-pump CABG?

Polomsky and colleagues² showed, in a recent study, not 1 but 3 interesting and important aspects that aim to reduce the doubts concerning off-pump CABG. Using the Society of Thoracic Surgeons database that contains more than 800,000 patients, they achieved results sufficiently powered to demonstrate significant benefits that other studies—although prospective randomized and multicenter—failed to achieve. These include improved outcomes of off-pump CABG not only in high-volume sites but also among all participating sites (this is probably due to the greater investment by all centers to prepare staff members to perform surgery without cardiopulmonary bypass), reduced morbidity and operative mortality among patients operated on without cardiopulmonary bypass (several authors have been able to demonstrate lower morbidity, but few have demonstrated benefits in mortality), and—most important—the group of patients who experience greater benefit from off-pump CABG. Using the predictive risk of mortality score, they showed that the greatest apparent benefit of reducing morbidity and mortality in off-pump

CABG was in the group with higher predictive risk of mortality score.

In a more modest study published last year,³ our group found similar results. With just more than 1500 patients and using 2 risk scores (one simple [European System for Cardiac Operative Risk Evaluation score] and another that is more complex [2000 Bernstein-Parsonnet score]), we showed lower mortality among patients operated on without cardiopulmonary bypass. We demonstrated that after a certain cutoff (European System for Cardiac Operative Risk Evaluation score >4.5 or 2000 Bernstein-Parsonnet score >17.75) off-pump CABG significantly reduces the chances of operative mortality. However this was not observed among patients with lower surgical risk. Puskas and colleagues⁴ made this same observation.⁴

Classic studies have shown that CABG has its greatest benefit when performed complete and using at least 2 arterial grafts.⁵ For our patients at low surgical risk we keep these 2 goals in mind regardless of whether or not we use cardiopulmonary bypass. With the work by Puskas and colleagues,⁴ our own experience, and now with the data from Polomsky and colleagues,² it is important to reconsider the best approach for patients with higher surgical risk for CABG. Clearly a base is being built with strong scientific evidence that this is the group that experiences the most benefit from off-pump CABG. This evidence allows not using CPB to be the main surgical approach, and complete revascularization and greater use of arterial grafts in patients with high surgical risk as the second plan. The goal is clear: Reduced operative mortality.

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