Thinking outside the duct

Sanjeet Patel, MD, PhD,^a and Anthony W. Kim, MD^b

From the Divisions of ^aCardiothoracic Surgery, and ^bThoracic Surgery, Department of Surgery, Keck School of Medicine, University of Southern California, Los Angeles, Calif.

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Address for reprints: Anthony W. Kim, MD, Division of Thoracic Surgery, Department of Surgery, Keck School of Medicine, University of Southern California, 1510 San Pablo St, Suite 514, Los Angeles, CA 90033 (E-mail: anthony.kim@med.usc.edu).

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Sanjeet Patel, MD, PhD (left), and Anthony W. Kim, MD (right)

Central Message

Laparoscopic ligation of the cisterna chyli in patients who have undergone thoracic duct ligation can be an effective alternative approach to controlling refractory chylothorax.

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Chylothorax can be an extremely challenging complication with which to deal after thoracic surgery. As many are aware, if chylothorax is allowed to progress without recognition and intervention, it can lead to malnutrition, dehydration, and immunosuppression. Although clinically significant leaks are possible after both lung and esophageal resections, they are more often found after the latter, because of the proximity of the operative field along the duct. Some traditional protocols call for an attempt at conservative management initially, before moving to a more aggressive intervention. More recently, interventional radiology-guided embolization of the thoracic duct has earned attention. The success rate of this intervention has been reported to be approximately 70% in experienced hands.¹ For the remaining 30% of cases, in which duct embolization fails because of the inability to cannulate the duct, the insensitivity of the lymphoscintigraphy finding the leak, or the sometimes inexplicable failure of an apparently successful intervention, surgical therapy remains the best option.

First described by Bartolet in 1633, chylothorax had no definitive surgical treatment until Lampson² reported a transpleural duct ligation in 1948. Until then, the mortality from chylothorax was estimated to be between 50% to 100%.³ Other early treatments included repeated aspirations of chylous pleural effusions with attempts to reconstitute the patient with chyle either orally, rectally, or intravenously,^{4,5} all of which were unsuccessful. Initial enthusiasm for early surgical intervention stirred by Lampson's report² was curbed by the realization that a significant proportion of patients would not need operative intervention and therefore were unnecessarily exposed to the significant risks of reoperative morbidity and mortality.^{6,7} During the next 30 years, the predominant academic discussion for the treatment of chylothorax involved identification of the optimal timing of surgical intervention, and controversies regarding the duration of conservative management and the ideal surgical technique for exposure and duct ligation were highlighted.⁵ Proponents of early intervention cited the advantages of prevention of malnutrition, decreased risk of mortality, and

faster recovery, whereas proponents of a period of conservative management argued that, given enough time, most patients would have resolution of chylothorax without an intervention.^{6,7} During the period before maturation of minimally invasive thoracic surgery, open duct ligation was thought to be better than thoracoscopic clipping.⁸ Although the passage of time and the accumulation of experience have mitigated many of these contentious areas, the fact remains that a not insignificant proportion of patients will require additional interventions despite a duct ligation. This subset will continue to be a vexing cohort for whom innovative approaches are welcomed.

In this issue of the *Journal*, Diaz-Gutierrez and colleagues⁹ describe a minimally invasive, laparoscopic transabdominal approach for ligating the cisterna chyli that they used in 3 patients who had persistent chylothoraces after traditional interventions. They approached the cisterna chyli by exposing the lateral aorta at the celiac trunk, dissecting the inferior vena cava away from the right crus and bringing up the cisterna chyli from behind. Of the 3 patients in the series, 2 could be successfully treated with this technique. Despite the few patients described within the article, Diaz-Gutierrez and colleagues⁹ are to be commended for their innovative approach to this daunting problem. The passage of more time and the accumulation of additional experience will provide further evidence supporting their methods. In addition, simply raising the awareness of this approach may actually stimulate the minds of other thoracic surgeons to consider its role in their current algorithms, which currently often involve a reoperative thoracic approach. If the procedure described by Diaz-Gutierrez and

colleagues⁹ is validated across other institutions, when to incorporate an abdominal approach and by what means are expected to become topics of further debate. In the meantime, Diaz-Gutierrez and colleagues⁹ are to be lauded for expanding the armamentarium of thoracic surgeons who have the unenviable task of treating patients with recalcitrant chylothoraces. Consistent with the ingenuity of thoracic surgeons worldwide, Diaz-Gutierrez and colleagues⁹ have demonstrated the importance of approaching a perplexing issue by thinking outside the duct!

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