The OIDE hook: A retractor for video-assisted thoracic surgery

Junichi Shimada, MD, PhD, and Masanori Shimomura, MD, PhD, Kyoto, Japan

During partial lung resection with staplers, the lung parenchyma is often compressed to the distal side of the stapler. For complete resection, an additional stapler is often required. The existing surgical instruments often fail to completely compress the lung to the proximal side of the staplers.

CLINICAL SUMMARY

We have developed a new device called the OIDE hook (*oide* is a Japanese word that means “coming on”) to provide a reliable resection of the lung parenchyma. This device is manufactured by Midorija-Sugiura (Tokyo, Japan). It is a metallic rod with 2 parallel hooks at 1 end (Figure 1, A) for keeping the lung parenchyma positioned on the sides of the stapler. The primary function of the OIDE hook is to hold the lung parenchyma to the proximal side of the stapler to prevent it from being crumpled by the stapler during lung resection before the stapler is fired (Figure 1, B). We initially used the OIDE hook for partial lung resection in 5 patients (2 for indeterminate pulmonary nodules, 3 for metastatic lung tumors). In all cases, the first firing with the device turned out to be the last firing of that staple line. We found that the OIDE hook successfully retracted the lung parenchyma by 8 to 10 mm to the proximal side of the stapler (Figure 2) and reduced the number of staplers to 2 or less. Air leakage and bleeding from the stump did not occur.

At our institution, we often perform video-assisted thoracic surgery with 1 minithoracotomy port and 2 intracostal ports. In this type of surgery, it is difficult to maintain the position and angle of a stapler using normal surgical devices. Therefore, we used the OIDE hook to pivot the anvil of the Echelon Flex stapling device (Ethicon Endo-Surgery, Cincinnati, Ohio) to angle it appropriately in the thoracic cavity without complications.

DISCUSSION

With the advances in computed tomography, small pulmonary tumors can now be identified. Thus, partial lung

A

B

FIGURE 1. A, The OIDE hook is a metallic bar with 2 horizontal hooks at 1 end. B, The OIDE hook is used to hold the lung parenchyma to the proximal side of the stapler to prevent it from being crumpled by the stapler.

resection is one of the most important and standard procedures for the management of benign lung lesions and malignant tumors.¹ This procedure is also appropriate for patients with insufficient pulmonary function.² Several endoscopic staplers are required for partial lung resection in video-assisted thoracic surgery. We propose 2 merits of the reduction in the number of stapler firings used for video-assisted thoracic surgery partial lung resection by the OIDE hook. First, prolonged air leakage from the stapled excision lines commonly occurs, and this is a frequent problem especially on the surgery of emphysematous lungs.³ In laparoscopic colorectal resection, multiple stapler firings are a risk factor for anastomotic leakage.^{4,5} This may also be the case for lung partial resection. Second, reducing the number of stapler firings increases the cost-effectiveness of the procedure, because an endoscopic stapling cartridge is expensive.

The OIDE hook can also be used to adjust the position of an Echelon Flex device. In the conventional method, staplers are often adjusted with surgical forceps or by placing the

From the Division of Chest Surgery, Department of Surgery, Kyoto Prefectural University of Medicine, Japan.

Disclosures: Authors have nothing to disclose with regard to commercial support. Received for publication June 13, 2012; revisions received Aug 25, 2012; accepted for publication Dec 11, 2012; available ahead of print Jan 10, 2013.

Address for reprints: Junichi Shimada, MD, PhD, Division of Chest Surgery, Department of Surgery, Kyoto Prefectural University of Medicine, 465 Kajii-cho, Kawaramachi-Hirokoji, Kamigyo-ku, Kyoto 602-8566 (E-mail: shimajun@beige.plala.or.jp).

J Thorac Cardiovasc Surg 2013;145:1139-40
0022-5223/\$36.00

Copyright © 2013 by The American Association for Thoracic Surgery
<http://dx.doi.org/10.1016/j.jtcvs.2012.12.040>

FIGURE 2. A, The lung parenchyma is compressed to the distal side of the stapler without the OIDE hook. B, The OIDE hook enables the compression of the lung parenchyma toward the proximal side of the stapler.

anvil of the stapler against the chest wall for support; however, this method is not optimal because adjusting the angle of the stapler is time-consuming and can damage the chest wall or lung on which the stapler is placed. Moreover, insertion of a stapler into the thoracoscopic port is difficult when the stapler is adjusted to the maximal angle. The OIDE hook, however, can be used to adjust the angle of the stapler in the intrathoracic space without any complications.

CONCLUSIONS

The use of the OIDE hook offers the advantages of reducing the number of staplers used during a procedure and adjusting the angle of a stapler without any complications.

References

1. Schuchert MJ, Kilic A, Pennathur A, Nason KS, Wilson DO, Luketich JD, et al. Oncologic outcomes after surgical resection of subcentimeter non-small cell lung cancer. *Ann Thorac Surg.* 2011;91:1681-7; discussion 167-8.
2. Griffin JP, Eastridge CE, Tolley EA, Pate JW. Wedge resection for non-small cell lung cancer in patients with pulmonary insufficiency: prospective ten-year survival. *J Thorac Oncol.* 2006;1:960-4.
3. Ponn RB. *Complications of pulmonary resection.* In: . In: Shields TW, LoCicero J, Ponn RB, Rusch VW, eds. *General thoracic surgery. 6th ed., Volume 1*, 6th ed. Philadelphia: Lippincott Williams & Wilkins; 2005. 567-8.
4. Kim JS, Cho SY, Min BS, Kim NK. Risk factors for anastomotic leakage after laparoscopic intracorporeal colorectal anastomosis with a double stapling technique. *J Am Coll Surg.* 2009;209:694-701.
5. Ito M, Sugito M, Kobayashi A, Nishizawa Y, Tsunoda Y, Saito N. Relationship between multiple numbers of stapler firings during rectal division and anastomotic leakage after laparoscopic rectal resection. *Int J Colorectal Dis.* 2008;23:703-7.