Letter to the Editor

Robotic-assisted McKeown esophagectomy: a safe and reliable method

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Response to: Klapper JA, Hartwig MG. Robotic esophagectomy: a better way or just another way? J Thorac Dis 2017;9:2328-31.

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Authors reply to "Robotic esophagectomy: a better way or just another way?".

Thank you to the reviewer for the constructive comments on our manuscript of a case report of robotic-assisted three-field esophagectomy (1). The comments briefly reviewed the current state of minimal invasive esophagectomy (MIE) and asked the pragmatic question "Is robotic esophagectomy a better way or just another way?".

Esophageal cancer ranks fifth in morbidity and fourth in mortality among all of the cancers in China. Patients often suffer great trauma and low quality of life after complex yet effective esophagectomies, and surgeons do their best to reduce the trauma of surgery, although early studies suggested that MIE did not provide advantages over open surgery with regards to postoperative recovery and complications (2), recent studies have demonstrated the benefits of MIE. In 2013, Dolan *et al.* (3) published a comparative study of 146 cases of open esophagectomy and MIE, and they showed that the MIE group had less blood loss, a higher amount of lymph node harvested, and shorter hospital stays than the open esophagectomy group, with no difference in the 5-year survival between the groups. In 2016, Guo *et al.* (4) performed a meta-analysis of 1,549 cases and found that MIE led to fewer postoperative complications and a similar survival rate when compared to open surgery. Furthermore, for patients with middle and lower esophageal cancers, a totally minimally invasive Ivor-Lewis esophagectomy can lead to less trauma, reduced postoperative pain, and fewer lung complications than open surgery (5). The benefits of MIE were also confirmed in a randomized controlled trial, which found that the short-term oncologic results of MIE were comparable with standard open surgery (6). Although it has been clearly shown that MIE associates with faster recovery and less morbidity, the long-term outcomes and oncologic results remain in dispute.

In addition, the reviewer mentioned that fewer esophagectomies were performed in the U.S. because of the level of surgical volume. In China, because esophageal cancer is a common disease, Chinese surgeons will have the opportunities to develop the skills that are required to perform robotic-assisted esophagectomies. As in the U.S., there has been an increase in robotic thoracic surgeries in China. Since 2015, we have performed over 70 robotic-assisted esophagectomies, and preliminary results showed that the short-term outcomes, including 1-year overall survival and disease-free survival, were similar for robotic and open surgeries. In addition, our department performed a clinical trial entitled "Robot-assisted Ivor-Lewis esophagectomy: short-term outcomes of a single-arm phase II trial" to verify the outcomes of the robotic esophagectomies. Recently, we have attempted manual intrathoracic anastomosis for several cases, and flexible robot arms allowed for the most difficult step of MIE to be performed smoothly.

However, currently there is a lack of definitive evidence to support the superiority of robotic esophagectomy with regards to morbidity and mortality (7), and the cost associated with robotic esophagectomy is high. While it appears that robotic esophagectomy is a safe and reliable

method nowadays, we believe that with the development of instruments and with the development of training programs to learn the technique, the advantages of robotic surgery will be amplified in the future, and the robotic esophagectomy will be a better option.

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

References

1. Klapper JA, Hartwig MG. Robotic esophagectomy: a better way or just another way? J Thorac Dis 2017;9:2328-31.
2. Verhage RJ, Hazebroek EJ, Boone J, et al. Minimally invasive surgery compared to open procedures in esophagectomy for cancer: a systematic review of the literature. Minerva Chir 2009;64:135-46.
3. Dolan JP, Kaur T, Diggs BS, et al. Impact of comorbidity on outcomes and overall survival after open and minimally invasive esophagectomy for locally advanced esophageal cancer. Surg Endosc 2013;27:4094-103.
4. Guo W, Ma X, Yang S, et al. Combined thoracoscopic-laparoscopic esophagectomy versus open esophagectomy: a meta-analysis of outcomes. Surg Endosc 2016;30:3873-81.
5. Guo W, Ma L, Zhang Y, et al. Totally minimally invasive Ivor-Lewis esophagectomy with single-utility incision video-assisted thoracoscopic surgery for treatment of mid-lower esophageal cancer. Dis Esophagus 2016;29:139-45.
6. Biere SS, van Berge Henegouwen MI, Maas KW, et al. Minimally invasive versus open oesophagectomy for patients with oesophageal cancer: a multicentre, open-label, randomised controlled trial. Lancet 2012;379:1887-92.
7. Yerokun BA, Sun Z, Yang CJ, et al. Minimally Invasive Versus Open Esophagectomy for Esophageal Cancer: A Population-Based Analysis. Ann Thorac Surg 2016;102:416-23.

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