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NEED FOR CONVERSION OF VIDEO-ASSISTED THORACOSCOPIC SURGERY IS NOT AN INSURMOUNTABLE BARRIER

To the Editor:

Video-assisted thoracoscopic surgery (VATS) is recommended as a surgical therapy for non-small cell lung cancer (NSCLC) that carries the advantages of minimal invasiveness and equivalent long-term efficacy to thoracotomy.¹ It is difficult to learn the technology of VATS lobectomy, however, which limits its application in the world. The proportions of lobectomies performed by VATS are low both in China and in America, where VATS has been more developed. In their article in the *Journal*, Puri and colleagues² have demonstrated that various causes, such as vascular issues, lymph nodes, anatomic considerations, and technical factors, may lead to conversions from VATS to thoracotomy.² Possible need for conversion, however, should not be an insurmountable barrier. With the efforts of experts in the world, there are many effective methods to solve those complicated lobectomies, which used to cause conversions.

According to Puri and colleagues' analysis,² 25% of conversions were related to vascular causes, 64% related to anatomic considerations (such as pleural adhesions or large tumor), and 9% related to lymph nodes.² With the accumulation of experience and maturation of skills, however, there are now well-established methods to handle these kinds of situations, most of which do not cause conversions nowadays. For most thoracic surgeons, partial pleural adhesions should have never been a hurdle impeding smooth VATS lobectomy. For cases with complete pleural adhesions, we can proceed with the procedure smoothly by constructing pleural tunnels between incisions with a finger. For cases with large tumors, it may be a little difficult to manipulate the lobe, and the space left for operating may be narrow. The method of "single-direction lobectomy" allows dissection of the lobe along the pulmonary hilum progressively while never flipping the lobe back and forth.³ This method makes resection of larger tumors more comfortable. With regard to situations with infiltration or adhesions of the tumor or lymph nodes, forced dissection should be avoided if possible to keep the vessels and bronchi from injury; thereafter, conversions can be avoided. Some experts have reported techniques of prophylactic clamping of the pulmonary artery. In case of potentially high risk of injury

to adjacent structures as a result of discrete anatomy found during exploration, the pulmonary arterial trunk would be dissected and clamped, then dissection could be performed at leisure without any worry about catastrophic bleeding. Even if the vessels were injured, there would be no need to convert to thoracotomy. As a benefit of this technique, most complicated hila can be managed thoracoscopically. Vascular injuries are no longer an unexpected disaster. For cases with unexpected vascular injuries and massive hemorrhage, we developed the method of thoracoscopic "suction-compressing angiorrhaphy technique."⁴ With this technique, we have successfully managed 88.24% of vascular injuries (15/17) thoracoscopically.⁴ The conversion rate for the 1040 cases of VATS lobectomy performed in our institution between 2006 and 2012 was only 1.73% (18/1040) as a result of comprehensive use of the various effective methods mentioned here.⁵

Conversion is a problem that never hides when performing VATS lobectomy. As reported by Puri and colleagues² and other experts, conversions from VATS to thoracotomy has never attenuated either perioperative nor long-term outcomes of patients. Conversion thus should never be a psychologic or technical hurdle for the surgeon attempting VATS lobectomy. Converting or not also depends on the capability of each surgeon, however, and on the surgeon's attitude toward tough situations. All thoracoscopic surgeons should go through a rigorous and systematic training program before they can truly benefit patients with this technique.

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