Wise surgeons learn from others' experiences

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Disclosures: Author has nothing to disclose with regard to commercial support.

Received for publication Nov 14, 2017; accepted for publication Nov 16, 2017; available ahead of print Dec 9, 2017.

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J Thorac Cardiovasc Surg 2018;155:e115

0022-5223/\$36.00

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<https://doi.org/10.1016/j.jtcvs.2017.11.047>

With the development and availability of thin-slice computed tomography, many thoracic surgeons now encounter a situation in which a small nodule is incidentally detected in patients without symptoms. Video-assisted thoracoscopic surgery (VATS) is performed for such nodules. In Japan, approximately 70% of lung cancer surgeries are performed by VATS, and the number of VATS procedures that use only a monitor for visualization, often called “complete VATS,” is increasing.¹ Robotic segmentectomy and single-port segmentectomy are also in widespread use. In fact, VATS sublobar resection, including segmentectomy, is also a treatment option for small nodules, as in the case report in this issue of the *Journal* by Li and colleagues.²

In general, VATS segmentectomy is not as easy as VATS lobectomy. The most important technical process in anatomic segmentectomy is the division of the intersegmental plane. The visualization of an intersegmental plane is therefore a key process in VATS segmentectomy. Several methods are used to identify an intersegmental plane in VATS segmentectomy, and an inflation technique is performed in many institutions. In their case report, Li and colleagues² report an episode of intraoperative cardiac arrest caused by air embolism during VATS segmentectomy. This is a rare but potentially fatal complication. At least 2 similar cases have been reported and were cited in the case report as important references. In all 3 cases, including that of Li and colleagues,² a needle was used to inject air into the targeted segmental bronchus. These 3 patients survived and recovered, although 1 patient had hemiplegia develop. More patients may have experienced this complication, however, because procedure-related deaths tend not to be reported in the literature. Although this complication has previously been reported, the case report of Li and colleagues² includes a video file that will provide further warning to thoracic surgeons. More importantly, Li and colleagues² encountered a potentially fatal intraoperative

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Central Message

Visualization of an intersegmental plane is essential in VATS segmentectomy. The method chosen should be familiar to the surgeon, because problems can arise despite meticulous technique.

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complication, but their prompt and appropriate treatment saved the patient without sequelae.

To minimize the occurrence of such fatal complications, Kamiyoshihara and associates³ described several techniques that can be used during VATS segmentectomy, which Li and colleagues² also discussed in their report. Others might recommend methods that include 3-dimensional computed tomography, such as video-assisted lung mapping with a transbronchial dye injection.¹

In summary, Li and colleagues² encountered a potentially fatal complication, but they are to be congratulated on their prompt and appropriate treatment. No matter how careful we are, problems can occur. Although this is just a case report, wise thoracic surgeons should learn from this potentially lethal complication. It is hoped that the report of this rare complication will provide further warning to thoracic surgeons performing VATS segmentectomy.

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