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LETTER TO EDITOR

A safe method for managing the pulmonary arteries during video-assisted thoracoscopic left upper lobectomy

KEYWORDS
Video-assisted thoracic surgery;
Left upper lobe;
Lobectomy

To the editor,

Video-assisted thoracoscopic surgery (VATS) lobectomy has been performed as a standard surgical procedure for the treatment of early-stage lung cancer.[1] Left upper lobe has a great deal of variation in the pulmonary artery.[2] Variations in pulmonary vessels can be important obstacles during surgery.[2] The variable arteries of apical and anterior branches are vulnerable to injury.[3] Here, we introduce a modified method to minimize the potential risks of apical and anterior branch injuries, making VATS left upper lobectomy safer.

Forty-six consecutive patients underwent two-port VATS left upper lobectomy at Hospital between July 2017 and July 2018. We retrospectively evaluated surgical procedures and perioperative clinical outcomes based on the medical records. The patients were placed in the right lateral decubitus position. A 10-mm incision was made in the 7th intercostal space for the camera. A 3-cm incision was made in the 5th intercostal space with no rib spreading. First, the left upper lobe location of the tumour was confirmed. The interlobar pulmonary arteries to the left upper lobe were exposed and transected (Fig. 1A). The interlobar lymph nodes were dissected simultaneously. The superior pulmonary vein was isolated and stapled (Fig. 1B) in front of the hilum of the lung to expose the anterior border of the left upper lobe bronchus. The lymph nodes between the upper lobe bronchus and the apical and anterior branches were dissected. The left upper lobe bronchus was divided and transected (Fig. 1C). Finally, the apical and anterior branches were visualized and stapled (Fig. 1D). A complete radical lymphadenectomy was performed in all patients. One chest tube was inserted and fixed. There were 31 adenocarcinomas, 10 squamous cell carcinomas, and 5 benign lesions. The mean operative time was 90.5 min. The mean intraoperative blood loss was 80 mL. There were no surgical mortalities, no massive haemorrhages, no vascular injuries and no conversions.

VATS lobectomy is now accepted as the standard surgical approach for early-stage lung cancer. The choice of surgical procedure depends on surgeons' experience and preferences[4]. In our hospital, the two-port approach was preferred which was first reported by Tommy D'Amico. VATS left upper lobectomy is more difficult procedure because of variations in the pulmonary artery and this procedure is the most frequently associated with bleeding. Massive haemorrhage always occurs during the division of apical and anterior branches. The apical and anterior branches can be sufficiently exposed only after cutting the left upper lobe bronchus.[5] Some patients with a history of pulmonary tuberculosis or chronic infection always suffer from severe adhesions between the pulmonary artery and surrounding tissues. With our method, if it is difficult to divide the space between the pulmonary artery and bronchus, we can cut the bronchus to expose the surface of apical and anterior branches. After branch dissection, the

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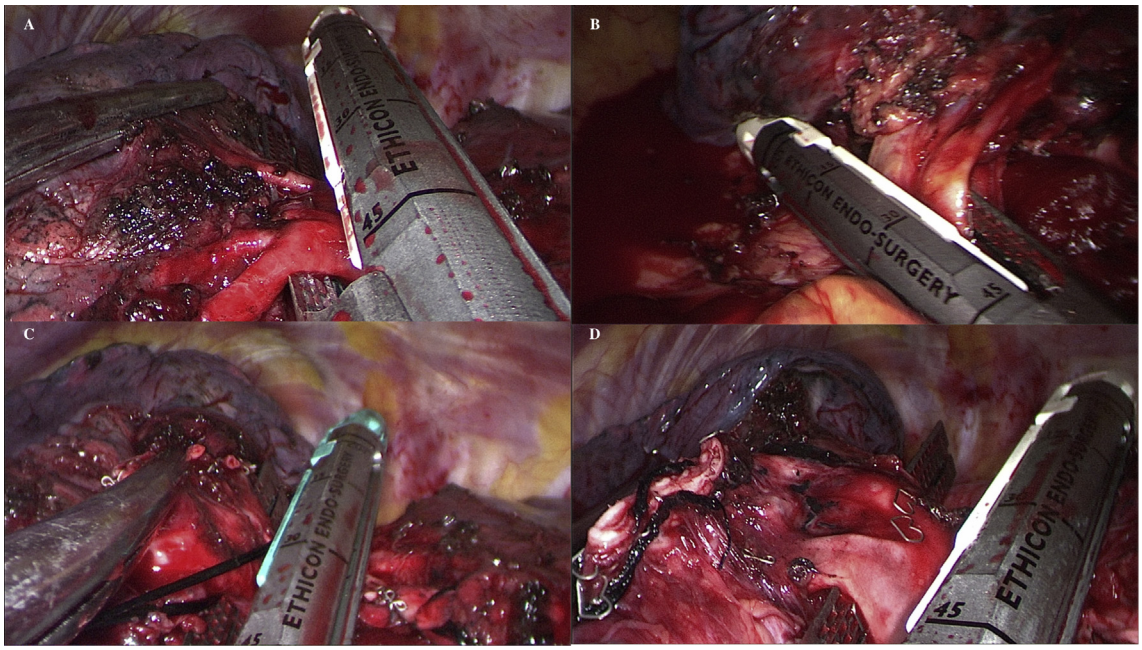

Figure 1 **A**. The interlobar pulmonary arteries to the left upper lobe were stapled. **B**. The superior pulmonary vein was stapled. **C**. The left upper lobe bronchus was transected. **D**. The apical and anterior branches were stapled.

stump of bronchus can be stapled safely. The technique we have described can reduce the incidence of vascular injuries and can improve the safety of surgery.

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