

Left lower lobectomy and systematic lymph node dissection by complete video-assisted thoracic surgery

Jian-Lin Shi¹, Li-Hong Jiang^{1,2}, Ding-Biao Li¹, Shou-Jun Deng¹, Yan-Fei Wang¹, Zhen-Hua Li¹

¹Department of Thoracic Surgery, Yan'an Affiliated Hospital of Kunming Medical University, Kunming 650051, China; ²Department of Cardiothoracic Surgery, the First People's Hospital of Yunnan Province, Kunming 650032, China

Correspondence to: Ding-Biao Li. Department of Thoracic Surgery, Yan'an Affiliated Hospital of Kunming Medical University, 245 East Renmin Road, Kunming 650051, China. Email: lidb88@163.com.

Abstract: A 50-year-old female was administered with left lower lobe lesion for 10 days. A preoperative chest computed tomography (CT) revealed a mass in the left basilar segment of the lung, about 2.1 cm × 1.7 cm in size. Therefore, video-assisted thoracic surgery (VATS) left lower lobectomy was performed. The operation takes 60 minutes. During the operation, the estimated blood loss was 15 mL. The patient was discharged on postoperative day (POD) 6 with no complications. And the pathological results confirmed the diagnosis of adenocarcinoma with no lymph nodes metastasis.

Keywords: Lobectomy; lung cancer; mediastinal lymph node dissection; video-assisted thoracic surgery (VATS)

Submitted Sep 10, 2015. Accepted for publication Nov 13, 2015.

doi: 10.3978/j.issn.2072-1439.2015.12.48

View this article at: <http://dx.doi.org/10.3978/j.issn.2072-1439.2015.12.48>

Introduction

Lobectomy by hilar dissection, first reported by Blades in 1940 for the surgical treatment of bronchiectasis (1), is still now widely performed for the lung disease.

With advancement in endoscopic video systems and endoscopic surgical staples, the notion of video-assisted thoracic surgery (VATS) has emerged. VATS lobectomy, as firstly reported by Lewis and associates in 1992 (2), has been developing rapidly during the last two decades. With less postoperative pain, less postoperative morbidity, and shorter hospital stay than lobectomy via open thoracotomy, VATS lobectomy is now a routine procedure in several institutions, especially for early-stage non-small cell lung cancer. Several studies showed that its oncology outcomes are similar to those seen after open lobectomy (3,4).

Case presentation

A 50-year-old female was administered with left lower lobe lesion for 10 days. She had no smoking habits. A preoperative chest computed tomography (CT) revealed

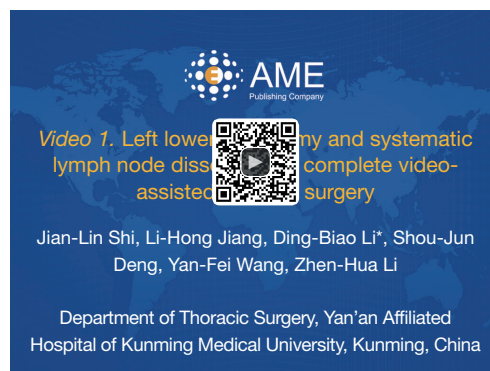


Figure 1 Left lower lobectomy and systematic lymph node dissection by complete video-assisted thoracic surgery (5).

Available online: <http://www.asvide.com/articles/742>

a mass in the left basilar segment of the lung, about 2.1 cm × 1.7 cm in size, and bronchoscopy showed no definite changes. Preoperative pathological examination of the lung lesion showed no definite tumor cells. Left lower lobectomy was performed. The operation (*Figure 1*) takes

60 minutes. During the operation, the estimated blood loss was 15 mL. On postoperative day (POD) 1, the amount of fluid drainage was 370 mL, and chest X-ray showed left lung inflation satisfactory. The chest tube was removed on POD 3. The patient was discharged on POD 6 with no complications. And the pathological results confirmed the diagnosis of adenocarcinoma with no lymph nodes metastasis.

Operative techniques

- (I) Operative incision: three incisions were performed, the initial camera port (2.0-cm-long incision) was made in the 7th intercostal space in the middle axillary line, the utility incision (3-cm-long incision) was placed at the level of 4th intercostal space in anterior axillary line. Another 2 cm-long additional incisions were performed in the 7th intercostal space in the posterior axillary line. No rib spreader was used.
- (II) Operative key points and procedure:
 - (i) After division of the inferior pulmonary ligament, the lymph nodes from stations 8 were dissociated by electrocautery hook. The dissection continued by division of the mediastinal pleura around the pulmonary hilum. The lymph nodes around lower bronchus (station 11 and 10) were dissected;
 - (ii) The inferior pulmonary vein was stapled with a vascular (white cartridge, 45-mm-long) endostapler (Endo GIA, Covidien, USA). The ring forceps was applied to pull the left lower lung forwards to expose the posterior mediastinum. We used electrocautery hook and ultrasonic scalpel to dissect the posterior hilum pleura and lymph nodes around lower bronchus. The lower bronchus was stapled with a (green cartridge, 45-mm-long) endostapler (Endo GIA, Covidien);
 - (iii) The basal and dorsal segmental artery was mobilized after the dissection of artery sheath. Then we used a vascular (white cartridge, 45-mm-long) endostapler (Endo GIA, Covidien) to staple them;
 - (iv) The oblique fissure was stapled with two (blue cartridge, 60-mm-long) endostaplers (Endo GIA, Covidien). And the specimen was removed of the thoracic cavity;

- (v) Dissection of mediastinal lymph nodes. We dissected along the posterior aspect of subcarinal lymph nodes (station 7), and the small vessels between esophagus and lymph nodes were cauterized to reduce bleeding. The lymph nodes of station 7 and 9 were completely removed. Ultrasonic scalpel was used to dissect the station 4 lymph nodes, with special care to expose and to preserve the left recurrent laryngeal nerve;
- (vi) The bronchus anastomosis was tested with lavage with distilled water, and the lung was inflated to rule out the air leak.

Comments

Lobectomy for peripheral lung cancer cases is the standard surgical treatment among individuals with early stage. With improved technology and increased experiences, complete VATS lobectomy has been applied in major medical centers recently.

During our clinical experiences, lobectomy by VATS is a safe and effective surgical treatment. But the acceptance of VATS has imposed the need for many thoracic surgeons to acquire new sets of skills in order to perform these operations safely and expediently.

Acknowledgements

None.

Footnote

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

References

1. Blades B. Conservation of lung tissue by partial lobectomy. *Ann Surg* 1943;118:353-65.
2. Lewis RJ, Caccavale RJ, Sisler GE, et al. One hundred consecutive patients undergoing video-assisted thoracic operations. *Ann Thorac Surg* 1992;54:421-6.
3. Roviato G, Varoli F, Vergani C, et al. Long-term survival after videothoroscopic lobectomy for stage I lung cancer. *Chest* 2004;126:725-32.

4. McKenna RJ Jr, Houck W, Fuller CB. Video-assisted thoracic surgery lobectomy: experience with 1,100 cases. *Ann Thorac Surg* 2006;81:421-5; discussion 425-6.
5. Shi JL, Jiang LH, Li DB, et al. Left lower lobectomy and systematic lymph node dissection by complete video-assisted thoracic surgery. *Asvide* 2015;2:164. Available online: <http://www.asvide.com/articles/742>

Cite this article as: Shi JL, Jiang LH, Li DB, Deng SJ, Wang YF, Li ZH. Left lower lobectomy and systematic lymph node dissection by complete video-assisted thoracic surgery. *J Thorac Dis* 2015;7(12):2376-2378. doi: 10.3978/j.issn.2072-1439.2015.12.48