

## Video-assisted thoracic surgery right sleeve lobectomy

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### Operative technique

The progress of this video-assisted thoracic surgery (VATS) right sleeve lobectomy included 7 steps, which are selection of incision, exploration, mediastinal lymph node dissection, sleeve lobectomy, bronchial reforming, checking and haemostasis (Video 1). After general anesthesia and bilateral tracheal intubation, the patient was fixed as left recumbent position and anterior tilt 15 degree.

The camera pole was selected at right 7<sup>th</sup> intercostal space along axillary line with 1.5 cm length, the main manipulation pole at right 4<sup>th</sup> intercostal space along anterior axillary line with 2.5 cm length and the second pole at right 8<sup>th</sup> intercostal space along infrascapular line with 2.5 cm length. Mediastinal lymph node dissection: firstly, the inferior pulmonary ligament was cut to dissect lymph node of sub-eminence. After marking of excision border with electric coagulation crook, dissection progressed along the space behind pericardium to left main bronchus. Dissociation was done along main bronchus and esophagus via ultrasound knife. The lymph node of sub-eminence was em-block dissected. Secondly, superior mediastinal lymph node dissection Pleura was unfolded below azygos vein arch, dissection progressed along the space which was between superior border of right pulmonary artery and right border of ascending aorta. After marking of excision border with electric coagulation crook, dissection progressed along the space behind superior vena cava and the right border of ascending aorta, to inferior border of right subclavian artery. The lymph node of 2<sup>nd</sup> and 4<sup>th</sup> group was em-block dissected. During this progression, vagus nerve was protected.

The upper lobe was dragged backward, and dissociation was done via ultrasound knife and aspirater. Superior pulmonary

vein, the first branch pulmonary artery, horizontal fissure and oblique fissure were cut one by one. The main right bronchus and middle bronchus were dissociated. The main right bronchus and middle bronchus were cut open via sticker. The main right bronchus and middle bronchus were sheared. The artery of bronchus was handled precisely. The upper lobe was dragged out of the thoracic cavity. The quick pathology examination was done which showed the negative incision border. The anastomosis was done between main right bronchus and middle bronchus via 3-0 prolene suture line consecutively.

### Comments

In recent years, the incidence of lung cancer increased significantly, which has become the world's most common cancer and cancer cause of death. According to the sites, lung cancer is divided into two types: central and peripheral lung cancer. For the treatment of central lung cancer, bronchi alangioplasty can achieve the purpose of complete resection of the tumor and the lymph nodes, and lower operative mortality pneumonectomy (1). Patients can obtain long-term survival and their quality of life can be improved. The procedure can significantly improve quality of life in patients with bronchial carcinoma, therefore lobe sleeve resection treatment has now been used as the standard surgical lung cancer treatment (2). The traditional surgical treatment is the large incision posterolateral thoracotomy surgery, with long incisions, serious trauma, obvious postoperative pain, slow recovery. In recent years, with the continuous improvement and development of thoracoscopic technique, VATS lobectomy has been recognized as the majority of thoracic surgeries. However, due to the characteristics of thoracoscopic surgical procedures, complete VATS lobectomy and lymph node dissection is still not well spread. Since the entire central lung thoracoscopic surgery made a higher demand on thoracic surgeons. At present, the majority of thoracic surgeons in and abroad still treat central lung cancer, especially those needing bronchial sleeve forming as taboos in thoracoscopic surgery.

We have completed 13 cases of sleeve lobectomy via thoracoscope successfully in our institute. All patients did not suffer severe complication. We think that sleeve lobectomy via

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**Video 1.** Video-assisted thoracic surgery right sleeve lobectomy.

thoracoscope is feasible. Firstly, we have fixed the 7 steps of this kind of surgery. Secondly, dissection of mediastinal lymph node preferentially has many benefits. It could ensure the field of view

under VATS during dissection of mediastinal lymph node, which avoided the injury to peripheral normal tissue. It also ensures the field of view under VATS during the anastomosis of bronchus. Furthermore, it could avoid the thoracic contamination due to the short time of bronchus opening. In a word, as the accumulation of experience, this kind of surgery will be accepted by more and more surgeons.

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