Thoracoscopic Bronchoplasty Using Continuous Sutures in Complete Monitor View

Keiji Ohata, MD, Jitian Zhang, MD, Shinya Ito, MD, Takashi Yoshimura, MD, Yoshito Matsubara, MD, and Yasuji Terada, MD
Department of Thoracic Surgery, Respiratory Disease Center, Kyoto Katsura Hospital, Kyoto, Japan

Thoracoscopic sleeve lobectomy in a complete monitor view is rarely reported. In thoracoscopic bronchoplasty, the insertion of a needle to the optimal point at the appropriate angle is difficult because of the restricted movement, and the limitation of monitor visualization complicates the creation of extraluminal ligations for anastomosis of the deep part of the bronchus. We report a case of sleeve resection of the right upper lobe with continuous sutures in a complete monitor view. Anastomosis with continuous sutures, which requires only three knots, is thought to be useful for bronchoplasty in thoracoscopic surgical procedures.


Sleeve lobectomy is often undertaken to treat pulmonary neoplasms, but thoracoscopic bronchoplasty in the complete monitor view is rarely reported. The monitor visualization restricts the field of view, and extraluminal ligations for anastomosis of the deep part of the bronchus are difficult. We report a case of right upper sleeve lobectomy with continuous sutures in a thoracoscopic surgical procedure for a metastatic lung tumor.

Technique

A 67-year-old man who had undergone left nephrectomy for renal cell carcinoma was referred to our hospital for dyspnea and hemoptysis. Computed tomography of the chest showed a tumor (diameter, 2.5 cm) in the right upper lobe bronchus protruding into the right main bronchus (Fig 1). With a diagnosis of metastatic renal cell carcinoma by transbronchial biopsy, he underwent sleeve resection of the right upper lobe by a thoracoscopic surgical procedure. With the patient in the left lateral decubitus position, a 4-cm incision for the working port in the fourth intercostal space on the anterior axillary line, a 1.5-cm port in the seventh intercostal space on the middle axillary line for thoracoscopy, and an additional port in the seventh intercostal space on the scapular line for the assistant were made.

After the right upper lobe and part of the right main bronchus were resected, the right main bronchus and truncus intermedius were anastomosed with continuous sutures with two threads of 3-0 Vicryl (Ethicon). After two knots were made on the mediastinal side of the cartilaginous portion and membranous portion (Fig 2A), a continuous suture of the cartilaginous portion was made to the lateral end (Fig 2B). Subsequently, continuous sutures of the membranous portion were finished, and ligation of the two threads at the lateral end was completed (Fig 2C). The postoperative course was uneventful, and bronchoscopy 2 months after the operation showed good bronchial patency (Fig 3).

Comment

Sleeve lobectomy is an alternative to bilobectomy and pneumonectomy, and it preserves pulmonary function in single or double lobes. There are a few reports of video-assisted sleeve lobectomy under direct vision through a minithoracotomy [1, 2], but thoracoscopic sleeve lobectomy under monitor view is rarely reported.

Thoracoscopic bronchoplasty has some challenges. First, the extraluminal anastomotic ligations behind the bronchus cannot provide a good monitor view if...
interrupted sutures are adopted. In continuous sutures, as in our method, all three ligations were made in a good monitor view at the beginning and ending of the anastomosis. Second, insertion of needles to the optimal point with an appropriate angle is difficult because of the restricted movements of the needle-holder. With continuous sutures, control of the needle-holder is easier, and the anastomosis is completed rapidly. Importantly, the assistant controls the bronchus and pulmonary artery to facilitate sutures. Furthermore, bronchial halters should be removed during anastomosis to ensure that they do not become tangled and block the monitor view.

The use of this procedure and continuous sutures enabled thoracoscopic sleeve lobectomy to be carried out without difficulty.

References
