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Video-Assisted Thoracic Surgery (VATS) Right Lower Lobectomy After Neoadjuvant Treat

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Abstract

Lung cancer is the most common cause of cancer-related death in men and the second-most common in women. While surgical resection offers the best chance of curing those with early-stage lung cancer, the traditional open-chest approach (called a thoracotomy) typically requires five to seven days of recovery in the hospital with an extended recovery period at home. Over the past two decades, video-assisted thoracic surgery (VATS) has revolutionized the way thoracic surgeons diagnose and treat lung diseases. This video-assisted thoracic surgery (VATS) technique reduces a patient's in-hospital stay to about three to four days, and the patient experiences a more rapid, less painful recovery after VATS lobectomy surgery as compared with the traditional thoracotomy approach.

We report a VATS right lower lobectomy case in a 65-years-old patient with post neoadjuvant therapy for adenocarcinoma. Based on the results of the pre-surgical tests, which included: a complete physical exam, CT scan, PET scan, bronchoscopy, blood test, electrocardiogram, and spirometry, the patient was proposed for two-portal thoracoscopic surgery. The patient was placed in a left lateral decubitus position; a double incision was performed at the anterior level of the 5th intercostal space (4 cm incision), and, a second one, at the level of the 8th intercostal space (2 cm incision). A right lower lobectomy with a two-portal technique was successfully performed. The postoperative course went without complications, and the patient was discharged home on the 4th postoperative day. The two-portal video-assisted thoracoscopic surgery (VATS) approach is an excellent option for lung cancer management, offering a quick recovery and low morbidity.

Keywords: Video-assisted thoracic surgery (VATS), right lower lobectomy, lung cancer

Introduction

Lung cancer is the most common cause of cancer-related death in men and the second-most common in women. Lung adenocarcinoma is the most frequent type of non-small cell lung carcinoma (NSCLC), followed by lung squamous cell carcinoma and large cell carcinoma. Adenocarcinoma of the lung usually evolves from the mucosal glands and represents about 40% of all lung cancers. Lung adenocarcinoma usually occurs in the lung periphery, and, in many cases, can be found

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in scars or areas of chronic inflammation.[1] The main risk factor for any lung cancer, including adenocarcinoma, is smoking tobacco. Other risk factors include a family history of lung cancer or occupational exposure to other agents such as silica, asbestos, radon, heavy metals, and diesel fumes. Genetic mutations in the p53 gene are the most frequent cause of tumorigenesis in NSCLC in 52% of the cases.[2] Surgery is the main treatment for patients with stage I to stage IIIA adenocarcinoma of the lung. Adjuvant chemotherapy is standard protocol since these patients have a high risk of relapse.

Video-assisted thoracic surgery (VATS) has become an essential innovation in the field of thoracic surgery over the last decade. This video-assisted thoracic surgery (VATS) technique reduces a patient's in-hospital stay to about three or four days, and the patient experiences a more rapid, less painful recovery after VATS lobectomy surgery, compared to the traditional thoracotomy approach. For VATS pulmonary resection, the presence of adhesions, tissue fragility, delayed healing, fibrosis, and tissue edema are the main difficulties encountered after neoadjuvant treatment.[3-5] We report a case of two-portal VATS right lower lobectomy in a 65-years-old patient with post neoadjuvant therapy for adenocarcinoma.

Case Presentation

A 65-years-old man had been suffering from a persistent cough for three months. He received a diagnosis of lung adenocarcinoma by bronchoscopy. Computed tomography showed a mass in the right lower lobe with mediastinal lymph node enlargement. After four cycles of neoadjuvant chemotherapy, he came to our department for reevaluating his treatment. Three weeks after induction therapy, he underwent new diagnostic bronchoscopy, a CT scan to confirm the lesion's size and position, and a positron emission tomography PET scan to exclude distant metastasis. Results indicated that it could be surgically resected. Therefore, a two-port VATS lower lobectomy was proposed for the patient.

Surgical Technique

Under general anesthesia and double-lumen intubation, the patient was placed in a left lateral decubitus position. The patient's vital signs were observed and recorded throughout the operation. A 4 cm incision was made in the 5th intercostal space to accommodate the thoracoscopic instruments. The second port was created in the eighth intercostal space to allow for better manipulation of the endoscope, instruments, and the insertion of a chest tube at the end of the procedure.

The surgery started from the pulmonary ligament, which was taken from the pericardium and esophagus, continued with the mobilization of vena pulmonalis dextra inferior, which was cut by using a vascular endoscopic stapler. The mobilization and dissection of aa. lobares inferior, after the dissection of all branches of pulmonary arteries to the lower lobe, the mobilization of the right lower bronchus was easily done through the 5th intercostal incision. The oblique fissure was cut open by using endoscopic staplers. After the dissection of the bronchus lobaris inferior dexter, the right lower lung specimen was taken out by using the endoscopic specimen bag.

The postoperative course went without complication. The chest tube was removed on postoperative day 4, and the patient was discharged on the same day. One month after the operation, computed tomography showed a satisfactory and full expansion of the remaining lung.

Discussion

Minimally invasive thoracic surgical procedures have shown no compromising of oncologic results. They offer reduced pain, shorter length of stay in hospital, and improved quality of life, if compared with open procedures.[6-8] Nonetheless, it is more challenging for surgeons to use VATS in patients with advanced carcinoma especially after neoadjuvant treatment.

In patients with NSCLC after neoadjuvant chemotherapy, a minimally invasive technique appears to be superior in terms of perioperative outcomes. It allows patients to recover faster physically., The oncological efficacy as well is comparable to that of open surgery. Several studies have found that VATS and open surgery following chemotherapy for early-stage NSCLC have equivalent long-term oncological outcomes. They show no statistically significant differences between the two groups.[9-13] VATS lobectomy, therefore, represents a valid therapeutic option in patients with locally advanced neoplastic disease after neoadjuvant chemotherapy.

Conflict of Interest Disclosure Statement

The authors have no conflicts of interest to disclose.

REFERENCES

1. Li C, Lu H. Adenosquamous carcinoma of the lung. *Onco Targets Ther*. 2018;11:4829-4835.

2. Gariani J, Martin SP, Hachulla AL, et al. Noninvasive pulmonary nodule characterization using transcutaneous bioconductance: Preliminary results of an observational study. *Medicine* (Baltimore) 2018;97(34):e11924.

3. Fujita S, Katakami N, Takahashi Y, et al. Postoperative complications after induction chemoradiotherapy in patients with non-small-cell lung cancer. *Eur J Cardiothorac Surg*. 2006; 29:896–901

4. Hennon M, Sahai RK, Yendamuri S, Tan W, Demmy TL, Nwogu C . Safety of thoracoscopic lobectomy in locally advanced lung cancer. *Ann Surg Oncol*. 2011;18(13):3732–3736

5. Huang J, Xu X, Chen H, et al. Feasibility of complete video-assisted thoracoscopic surgery following neoadjuvant therapy for locally advanced non-small cell lung cancer. *J Thorac Dis*. 2013*;*5:S267–S273

6. Lee P, Nasar A, Port J. Long-term survival after lobectomy for non-small cell lung cancer by video-assisted thoracic surgery versus thoracotomy. *Ann Thorac Surg*. 2013; 96: 951-960

7. Chen F, Zhang D, Wang Y. Video-assisted thoracoscopic surgery lobectomy versus open lobectomy in patients with clinical stage non-small cell lung cancer: a meta-analysis. *Eur J Surg Oncol*. 2013; 39: 957-963

8. Berry M, D'Amico T, Onaitis M. Thoracoscopic approach to lobectomy for lung cancer does not compromise oncologic efficacy. *Ann Thorac Surg*. 2014; 98: 197-202

9. Suh JW, Park SY, Lee CY, et al. Feasibility and surgical outcomes of video-assisted thoracoscopic pulmonary resection in patients with advanced-stage lung cancer after neoadjuvant chemoradiotherapy. *Thorac Cancer*. 2019;10:1241–1247

10. Petersen RP, Pham D, Toloza EM, et al. Thoracoscopic lobectomy: a safe and effective strategy for patients receiving induction therapy for non-small cell lung cancer. *Ann Thorac Surg*. 2006;82:214–219

11. Lee PC, Nasar A, Port JL, et al. Long-term survival after lobectomy for non-small cell lung cancer by video-assisted thoracic surgery versus thoracotomy. *Ann Thorac Surg*. *2013*;96:951–961

12. Berry MF, D'Amico TA, Onaitis MW, Kelsey CR.Thoracoscopic approach to lobectomy for lung cancer does not compromise oncologic efficacy. *Ann Thorac Surg*. *2014;*98(1):197–202

13. Swanson SJ, Herndon JE 2nd, D'Amico TA, et al. Video-assisted thoracic surgery lobectomy: report of CALGB 39802—a prospective, multi-institution feasibility study. *J Clin Oncol*. *2007*;25:4993–4997

molipoma *Ann ThorSurg* (86)2, Aug 2008, 661-663.

4. Rajashekara H. V. Reddy and Nafees J. Qureshi Unusual Mediastinal Tumour of Thymic Origin Indian J Surg Oncol. 2013 Sep; 4(3): 320–321.

5. Mourad OMA, Andrade FM, Abrahao P, Monnerat A, Judice LF. Asymptomatic giant mediastinal mass: a rare case of thymolipoma. *J Bras Pneumol*. 2009;35:1049–1052. doi: 10.1590/S1806-37132009001000012.

6. Alar T, Ozcelik C, Kilinc N. Giant mediastinal mass: thymolipoma—case report. *South Med J*. 2011;104:353–354.
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