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# Multimodality dissection in dealing with benign hilar or interlobar lymphadenopathy during video-assisted thoracoscopic surgery lobectomy

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**Background:** Anatomic lung resection by video-assisted thoracoscopic surgery (VATS) has become more and more popular for both malignant and benign pulmonary diseases. However, the existence of hilar or interlobar lymphadenopathy is sometimes technique demanding for surgeons.

**Methods:** We'd like to illustrate our strategy in troubleshooting severe hilar and interlobar lymphadenopathy via a video demo. Multimodality was used to troubleshooting those peri-arterial/peri-bronchial lymph nodes, such as electrocoagulation hook, harmonic scalpel, and sharp dissecting using scissors.

**Results:** This video shows a classic three portal VATS right upper lobectomy, which was complicated with severe hilar and interlobar lymphadenopathy. The operation went through smoothly. The postoperative course of the patient was uneventful.

**Conclusions:** When severe hilar or interlobar lymphadenopathy was encountered, multimodality should be taken into account to troubleshooting such a complicated VATS lobectomy.

**Keywords:** Video-assisted thoracoscopic surgery (VATS); lobectomy; lymphadenopathy

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## Introduction

Since introduced in early 1990s, anatomic lung resection by video-assisted thoracoscopic surgery (VATS) has become more and more popular for both malignant and benign pulmonary diseases (1). Although major advances have been achieved, it's still difficult and risky for surgeons to troubleshooting complicated hilum with severe hilar or interlobar lymphadenopathy. It's a technique demanding work to dissect the target bronchus or pulmonary artery from the surrounding lymphadenopathy during VATS lobectomy. Worrying about injury to blood vessels and massive bleeding most thoracic surgeons opt to convert thoracoscopic approach to thoracotomy. In this paper, we'd like to present a case of VATS lobectomy with severe lymphadenopathy.

## Case presentation

A 77-year-old male presented with a cystic mass in the right upper lobe for about 11 years (*Figure 1*). The lesion began to enlarge 2 months before admission while it was stable during the past 11 years. Suspected to be with lung cancer, he was advised to receive right upper lobectomy. Preoperative assessments were negative. VATS right upper lobectomy was scheduled.

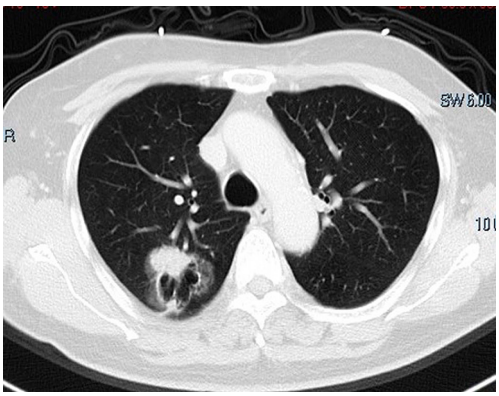

**Figure 1** Chest computer tomography shows a cystic mass located in the right upper lobe.


**Figure 2** Three portal VATS lobectomy involved with complicated hilar lymphadenopathy (2). This video shows a VATS right upper lobectomy with severe hilar and interlobar benign lymphadenopathy. VATS, video-assisted thoracoscopic surgery. Available online: http://www.asvide.com/articles/810

Detailed procedures of the lobectomy were shown in this video (*Figure 2*). Complicated hilar lymphadenopathy was identified. The peri-arterial/peri-bronchial lymph nodes fused together and they were separated from the target vessels and bronchus using multimodality, such as electrocoagulation hook, harmonic scalpel, and sharp dissecting using scissors. After the lobectomy, intraoperative frozen section pathological examination confirmed an adenocarcinoma and mediastinal lymphadenectomy was performed. The operation finally went through smoothly and the patient recovered well as expected.

## Discussion

Lymphadenopathy is a very common and sometimes tough situation to manage during VATS lobectomy. For cases with severe hilar or interlobar lymphadenopathy, it's always difficult to dissect the target bronchus or pulmonary artery. Methods for troubleshooting lymphadenopathy are varied according to different location and severity. This video just shows one kind of situation that could be handled via routine means. There should be more methods for choice, such as firing the target structures together, controlling the main pulmonary artery in advance, and so on.

## Conclusions

In conclusion, for cases with severe benign hilar or interlobar lymphadenopathy, skilled operation and multimodality are required. If the surgeon is not so confident to troubleshoot the lymphadenopathy under thoracoscopy, conversion to thoracotomy should never be deserted.

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None.

## Footnote

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

*Ethical Statement*: The study was approved by the University of Louisville IRB. Written informed consent was obtained from the patient. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

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