Removal of aberrant azygos lobe containing positron emission tomography positive nodule with the use of video-assisted thoracic surgery

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**ABSTRACT**

**INTRODUCTION:** The Azygos lobe is a well-known but rare variant of the lung. This case reports the use of video-assisted thoracic surgery to diagnose and treat presumptive lung cancer of the azygos lobe.

**PRESENTATION OF CASE:** A 67-year-old female with known severe Chronic Obstructive Pulmonary Disease presented with increasing shortness of breath. Chest x-ray revealed a lung nodule in the right lung field. PET/CT imaging delineated a 1.6 cm × 1.2 cm speculated lesion in an aberrant azygos lobe. After appropriate preoperative testing and evaluation, the patient was taken to the operating room where the azygos lobe was removed using video-assisted thoracic surgery.

**DISCUSSION:** The Azygos lobe is a well-known anatomical variant but such a lobe is rarely found to contain a malignant lesion. Azygos lobe removal alone may not be the best therapeutic option given the risk of locally recurrent disease, but in a select group of patients such as those with impaired lung function as this article describes, it may be the best available option in order to preserve postoperative pulmonary function.

**CONCLUSION:** This case illustrates that gentle caudal traction on the azygos lobe will allow circumferential exposure to the lobe and identification of the bronchovascular pedicle thereby eliminating the need for thoracotomy and or extensive azygos vein dissection/division.

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1. **Introduction**

The azygos lobe has been reported with an incidence of 0.5–1% and the first radiological description was by Wessler and Jaches in 1923. The azygos lobe is a superomedial portion of the right upper lobe entrapped medially by an aberrant azygos vein. There are few reported cases in the literature of lung cancer arising in an azygos lobe.

2. **Methods**

A 67-year-old female with known severe chronic obstructive pulmonary disease presented with increasing shortness of breath. Chest X-ray revealed a lung nodule in the right lung field. PET/CT imaging delineated a 1.6 cm × 1.2 cm speculated lesion in an aberrant azygos lobe (see Fig. 1). Pulmonary function tests were consistent with severe obstructive disease. Conventional biopsy was deemed too high risk by interventional radiology due to medial nature of the lesion. The patient was taken to the operating room for video-assisted thoracic surgery to remove the azygos lobe in toto. The patient was placed in the left lateral decubitus position. Hips were slightly flexed to allow optimal operative intrathoracic instrumentation. External pressure points were padded. After the patient was prepped and draped, a 10 mm incision was made in the 5th intercostal space in the anterior axillary line. Two more similar incisions were made in the 7th intercostal space in the mid-axillary line and in the 4th space in the posterior axillary line respectively. The right upper lobe was grasped and retracted laterally thus exposing the mediastinum and the azygos vein and the azygos lobe. The azygos vein was seen to course over the azygos lobe (see Fig. 2). Careful dissection was used and the vein was gently dissected off of the visceral pleura of the azygos lobe. Without significant mobilization of the azygos vein, the azygos lobe was grasped with a VATS sponge forcep (Ralph Lewis, Basking Ridge, NJ). The azygos lobe was retracted in a caudal manner until the entire lobe was delivered from beneath the azygos vein. With entire azygos lobe circumferentially exposed and in view and the hilum to the azygos lobe visible, a 60 mm thick tissue Ethicon (Ethicon Inc.) staple was used to divide the bronchovascular pedicle using the technique described by Lewis. Frozen section of the specimen revealed a poorly differentiated adenocarcinoma with negative tumor margins. Lymph...
node dissection was done in the Level 4 lymph node compartment and was negative for metastatic disease. Final TNM staging was pT1a, N0, M0; stage 1A. Her postoperative course was uneventful and she was discharged home on the third postoperative day.

3. Discussion

The azygos lobe is a well-known anatomical variant but such a lobe is rarely found to contain a malignant lesion. Azygos lobe removal alone may not be the best therapeutic option given the risk of locally recurrent disease, but in a select group of patients such as those with impaired lung function as this article describes, it may be the best available option in order to preserve postoperative pulmonary function. There have been few reported cases in the literature which describe surgical removal of the azygos lobe for cancerous lesion.\(^3\)\(^4\) This case illustrates that gentle caudal traction on the azygos lobe will allow circumferential exposure to the lobe and identification of the bronchovascular pedicle thereby eliminating the need for thoracotomy and or extensive azygos vein dissection/division.

Conflict of interest

None.

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