

A Case of Pulmonary Sequestration Treated with Surgery Assisted by Uniportal Thoracoscopy

Qingcheng Yang ¹, Lyubo Wang ¹, Qiuyang Wu ¹, Daoguang Fan ¹, Lincan Duan ^{2*}

¹Department of Thoracic Surgery, Yunnan Cancer Hospital, Peking University Cancer Hospital Yunnan Hospital, Kunming 650000, Yunnan, China.

²Department of Thoracic Surgery, Pu'er People's Hospital, Pu'er 665000, Yunnan, China.

*Corresponding Author: Lincan Duan, Department of Thoracic Surgery, Pu'er People's Hospital, Pu'er 665000, Yunnan, China.

Received date: September 24, 2025; Accepted date: December 05, 2025; Published date: January 05, 2026

Citation: Qingcheng Yang, Lyubo Wang, Qiuyang Wu, Daoguang Fan, Lincan Duan, (2026), A Case of Pulmonary Sequestration Treated with Surgery Assisted by Uniportal Thoracoscopy, *J, Clinical Case Reports and Studies*, 7(1); DOI:10.31579/2690-8808/279

Copyright: ©, 2026, Lincan Duan. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

Pulmonary sequestration is a rare congenital pulmonary malformation caused by abnormal development of part of the lung tissue, supplied by an anomalous systemic arterial branch. Due to its rarity in clinical practice, the supplying vessels are unique in imaging and the symptoms are non-specific. Moreover, there is a lack of experience in diagnosis and treatment. This article presents a case of a patient with pulmonary sequestration admitted to the Department of Thoracic Surgery II of Yunnan Cancer Hospital in May 2025. The purpose of this report is to provide a concise overview of the diagnostic and treatment process, aiming to serve as a valuable reference for the precise diagnosis and treatment of pulmonary sequestration in the future.

Key Words: pulmonary sequestration; surgical treatment; experience

Introduction

Pulmonary sequestration is a rare congenital pulmonary malformation, the result of the abnormal development of part of the lung tissue during embryonic development. It is supplied by an anomalous systemic arterial branch. The incidence rate of the condition is estimated to range from 0.15% to 6.4% [1, 2]. As pulmonary sequestration is seldom encountered in clinical practice, the supplying vessels are unique in terms of imaging, and the symptoms are non-specific. Moreover, there is a paucity of experience in both diagnosis and treatment. The present article reports a case of a patient with pulmonary sequestration who was admitted to the Department of Thoracic Surgery II of Yunnan Cancer Hospital in May 2025. The rarity of the disease is accompanied by a paucity of clinical understanding and diagnostic and treatment experience. The objective of this report is to provide a concise overview of the diagnostic and treatment process, thereby serving as a valuable reference for the precise diagnosis and treatment of pulmonary sequestration in the future.

Case data

A 47-year-old female patient presented at the hospital with a history of "a mass in the right lower lobe of the lung, discovered during a physical examination two years prior". The patient exhibited no symptoms. Following admission, a chest CT scan was performed (see Figures 1 A and B), which revealed a sheet-like tissue focus in the left lower lobe of the lung, measuring approximately 3.9 x 1.0 cm. In comparison with the preceding examination, the range of the focus had increased. A large-caliber vascular shadow originating from the descending aorta was visible within the focus (see

Figure 1 B). Increased transparency of the surrounding lung tissue and local adhesion to the pleura were observed in the focus area. Subsequent examinations and tests revealed no further abnormalities. Preliminary Consideration: The presence of pulmonary sequestration is a distinct possibility. In light of the augmented dimensions of the lesion in comparison to the preceding examination, the possibility of infection and encapsulated pyocele, in conjunction with the risk of recurrent infections, a partial resection of the left lower lobe was undertaken via uniportal thoracoscopy subsequent to thorough evaluation. Intraoperatively, the lesion was found in the posterior basal segment of the left lower lobe of the lung. The surface of the pleura exhibited slight wrinkling, and there was partial adhesion of the pleura to the chest wall. Following meticulous dissection, a short and thick nutrient vessel originating from the descending aorta was observed entering the location of the lesion in the posterior basal segment (see Figure 2A). The vessel was characterised by its short and thick nature, which necessitated a meticulous dissection towards the distal lung during the operation. The vessel was then excised with a linear stapler (see Figure 2B). In conclusion, the lesion-affected lung tissue was meticulously resected, ensuring a sufficient margin was maintained, and subsequently removed from the patient's body. Upon incision of the resected tissue, a small amount of purulent fluid was observed to be extruding (see Figure 2C). Postoperative pathology: The HE morphology indicated the presence of pulmonary sequestration. The patient demonstrated a satisfactory postoperative recovery and was discharged from hospital three days after surgery. A subsequent evaluation conducted one month after the surgical procedure revealed no substantial or atypical observations.

Discussion

Pulmonary sequestration is defined as the abnormal development of lung tissue that lacks normal communication with the bronchial tree and exhibits impaired lung function. The arterial blood supply is derived primarily from the thoracic and abdominal aorta, along with their respective branches, irrespective of the presence or absence of the pulmonary artery[1, 3]. In view of the impaired respiratory function, there is an increased susceptibility to recurrent infections and malignancies. Surgical intervention constitutes the primary therapeutic modality[4]. In patients with pulmonary sequestration, the surgical focus is on locating and managing the anomalous vessels. The considerable variation in these vessels, with many being calcified, combined with adhesions around the lesion due to infection that obscure the surgical field, means that careless intraoperative manipulation may cause damage to the anomalous artery and result in massive bleeding[4]. In this case, the presence of adhesions and unclear local areas was observed, along with short and thick nutrient vessels. These factors have been shown to increase the risk of dissecting and cutting the vessels. The fundamental principles and cautionary measures associated with this surgical procedure are encapsulated in the term "cautious operation and judgment" in the context of dissecting adhesion and surrounding tissues to identify anomalous feeding vessels. Furthermore, it is imperative to meticulously dissect the distal part of the anomalous vessels to ensure a safe space for cutting the vessels. Pulmonary sequestration is an uncommon occurrence in clinical practice, with nonspecific symptoms and limited diagnostic and treatment experience. Furthermore, the specific location of the anomalous blood supply results in a high surgical risk. Consequently, in the context of pulmonary sequestration, preoperative evaluation of the lesion and vessel location, meticulous surgical intervention, and judicious intraoperative decision-making are of paramount importance. The purpose of reporting this case is to provide some experience and reference for future cases of pulmonary sequestration.

Declaration of competing interest

The authors declare no competing interests.

Funding

This work was supported by National Natural Science Foundation of China (Grant numbers 82160508).

Author Contributions

Qingcheng Yang: Responsible for collecting the case, organizing and analyzing clinical information and data, drafting and revising the initial

manuscript, and communicating with the patient to obtain informed consent. Lyubo Wang: Offered suggestions for revising various parts of the article. Qiuyang Wu and Daoguang Fan: Involved in the interpretation and analysis of pathological examination results. Lincan Duan: Oversaw the progress of the entire research project and was responsible for the final review of the article.

Ethics Statement

For this case, all relevant data collection and formal publication have been conducted with the patient's knowledge and consent, and we have strictly adhered to the ethical standards of medical research and the principles of patient privacy protection.

Data Availability Statement

The data included in this case report are primarily derived from the patient's medical records and the hospital's clinical materials. In order to protect the patient's privacy and comply with relevant data protection regulations, we are unable to provide the original medical record data. However, we pledge that all data and information presented in the report are accurate and true. For further inquiries, please contact the corresponding author directly.

Patient consent for publication

For this case, all relevant data collection and formal publication have been conducted with the patient's knowledge and consent

Acknowledgments

None.

Reference

1. Ren S, L Yang, Y Xiao,et.al. (2023). Pulmonary sequestration in adult patients: a single-center retrospective study [J]. *Respir Res*, 24(1): 13,
2. Rai A, S S, V Rhakho, et.al. (2024). Extralobar Pulmonary Sequestration: A Rare Entity [J]. *Cureus*, 16(7): e64977
3. Erden E S, H Bayarogullari, H Bilgic,et.al. (2012). Bilateral pulmonary sequestration in the elderly adult [J]. *Multidiscip Respir Med*, 7(1): 36.
4. Zheng W, M Zhang, W Wu,et.al. (2022). Three-dimensional CT angiography facilitates uniportal thoracoscopic anatomic lung resection for pulmonary sequestration: a retrospective cohort study [J]. *J Cardiothorac Surg*, 17(1): 218.



This work is licensed under Creative Commons Attribution 4.0 License

To Submit Your Article Click Here: [Submit Manuscript](#)

DOI: [10.31579/2690-8808/279](https://doi.org/10.31579/2690-8808/279)

Ready to submit your research? Choose Auctores and benefit from:

- fast, convenient online submission
- rigorous peer review by experienced research in your field
- rapid publication on acceptance
- authors retain copyrights
- unique DOI for all articles
- immediate, unrestricted online access

At Auctores, research is always in progress.

Learn more <https://auctoresonline.org/journals/journal-of-clinical-case-reports-and-studies>