Journal Pre-proof

A 73-Year-Old Female With a 7-Year History of a Growing Lung Mass and Hemoptysis

Lei Qi MD PhD Paul R. Allyn III MD Gregory A. Fishbein MD

PII: S0300-2896(26)00014-1

DOI: https://doi.org/doi:10.1016/j.arbres.2026.01.002

Reference: ARBRES 3945

To appear in: *Archivos de Bronconeumologia*

Received Date: 20 November 2025

Accepted Date: 11 January 2026

Please cite this article as: Qi L, Allyn PR, Fishbein GA, A 73-Year-Old Female With a 7-Year History of a Growing Lung Mass and Hemoptysis, *Archivos de Bronconeumología* (2026), doi: https://doi.org/10.1016/j.arbres.2026.01.002

Title

A 73-Year-Old Female With a 7-Year History of a Growing Lung Mass and Hemoptysis

Authors

Lei Qi, MD, PhD
Paul R. Allyn III, MD
Gregory A. Fishbein, MD

Author Affiliations

Department of Cardiology (L. Qi),
Department of Infectious Disease (P. R. Allyn III),
Department of Pathology and Laboratory Medicine (G. A. Fishbein),
David Geffen School of Medicine at the University of California Los Angeles, Los Angeles, California, USA.

Corresponding Author

Lei Qi, MD, PhD
Department of Cardiology,
David Geffen School of Medicine at UCLA
Email: LeiQi@mednet.ucla.edu

A 73-Year-Old Woman With a 7-Year History of a Slowly Growing Lung Mass and Hemoptysis Mimicking Malignancy

A 73-year-old woman with COPD and a 40-pack-year smoking history without immunosuppression was evaluated for a slowly enlarging right upper lobe mass and recurrent hemoptysis. In 2018, a spiculated lung nodule (24×36mm) was noted on chest CT. Bronchoalveolar lavage was positive for galactomannan, and culture grew *Aspergillus fumigatus*, for which she received voriconazole. The mass persisted, and interval imaging was planned; however, the patient was lost to follow-up.

She had chronic small-volume hemoptysis for several years. In December 2024, she presented with five days of dyspnea and chest tightness. She was afebrile with normal vital signs and unremarkable lung auscultation. Her WBC count was 8,740 cells/mm^3, procalcitonin <0.10µg/L, and a normal basic metabolic panel. CT showed interval enlargement of the mass (38×37mm), and PET-CT showed intense FDG uptake, concerning for primary lung carcinoma. Endobronchial ultrasound-guided transbronchial needle aspiration and cryobiopsy were negative for malignancy, though cultures grew *Peptostreptococcus* species. A percutaneous CT-guided core needle biopsy performed was nondiagnostic.

Over the following months, the mass further enlarged (48×39mm) with worsening hemoptysis. Given progressive hemoptysis and concern for vascular involvement, she was referred for thoracic surgery evaluation and underwent right upper lobectomy with additional wedge resections. Intraoperatively, purulent fluid and dense scar tissue were noted. Empirical therapy with piperacillin–tazobactam and linezolid was initiated post-operatively.

Gross pathology revealed an abscess cavity. Cultures grew *Parvimonas micra* alone. H&E staining showed inflammation with cavitation. Gram stain identified G$^+$ cocci and filamentous G$^+$ organisms. GMS staining highlighted filamentous organisms. Targeted 16S/ITS next-generation sequencing identified >40,000 reads of *P. micra* and ~3,800 reads of *Actinomyces israelii (A. israelii)*, without evidence of fungal invasion or malignancy. Broad-spectrum antibiotics were discontinued, and targeted amoxicillin–clavulanate was prescribed. Dental evaluation revealed no major abnormalities. Follow-up CT showed stable postoperative changes.

Parvimonas micra (formerly known as *Peptostreptococcus micros* and *Micromonas micros*) is an anaerobic, G$^+$ coccus belonging to normal oral and gastrointestinal flora (1). Although classically associated with periodontal disease, *P. micra* has increasingly been recognized in systemic

infections (2–4). Pulmonary infections caused by *P. micra* are rare and often present with non-specific features that pose diagnostic challenges.

Our systematic review (PubMed, Embase, Web of Science) identified 44 reported cases of pulmonary *P. micra* infection (Supplementary figure). None demonstrated a similarly prolonged indolent course. Most cases occurred in men, frequently involved the upper lobes, and were associated with aspiration, polymicrobial infection, and poor oral hygiene.

Although *A. israelii* was detected in this case, multiple features support *P. micra* as the primary pathogen in this case, including monomicrobial culture growth and a substantially higher sequencing read burden. The absence of sulfur granules, granulomatous inflammation, along with the low-level sequencing detection, suggests that *A. israelii* most likely represented a secondary co-pathogen or colonizer.

We conclude that this case demonstrates that chronic pulmonary infection caused by *P. micra* can closely mimic lung cancer over many years, expands the clinical spectrum of pulmonary *P. micra* infection, and highlights the diagnostic value of integrating pathology with NGS to avoid misdiagnosis and delays in management.

Author Contributions

Lei Qi, MD, PhD: case conception, data collection, literature review, manuscript drafting.
Gregory A. Fishbein, MD: pathology interpretation, case supervision, manuscript review.
Paul R. Allyn III, MD: clinical history review and manuscript revision.

Ethics Statement

Written informed consent for publication was obtained from the patient.

Funding

No funding was received for this work.

Conflict of Interest
The authors report no conflicts of interest.

Use of Artificial Intelligence
AI tools were used only for language refinement and grammar checking; no AI-generated content was used in writing of the scientific content.

Acknowledgments
We thank our colleagues in the Departments of Pathology and Infectious Diseases for their contributions to patient care and their valuable input on this manuscript, including Dr. Shangxin Yang, Dr. Alexandra Kaufman, Dr. Luke Helminiak, and Dr. Mackenzie Collins.

Reference

1. Zhijun L, Wenhai Y, Peibin Z, Qingming L. Pediatric pulmonary infection caused by oral obligate anaerobes: Case Series. Front Pediatr 2023;11.
2. Aranowicz A, Van Den Brandt SL, Slankamenac K, Keller DI. Destructive osteomyelitis involving Parvimonas micra and Campylobacter rectus. BMJ Case Rep 2022;15.
3. Zhang Y, Song P, Zhang R, Yao Y, Shen L, Ma Q, et al. Clinical characteristics of chronic lung abscess associated with parvimonas micra diagnosed using metagenomic next-generation sequencing. Infect Drug Resist 2021;14:1191–8.
4. Isaac-Coss G, Chow A, Kumar V, Ciobanu C, Reddy M, Nawaz M. Beyond the Liver: A Unique Case of Pyogenic Liver Abscess Caused by P. Micros Penetrating Into the Chest Wall. American Journal of Gastroenterology 2024;119:S2801–2.

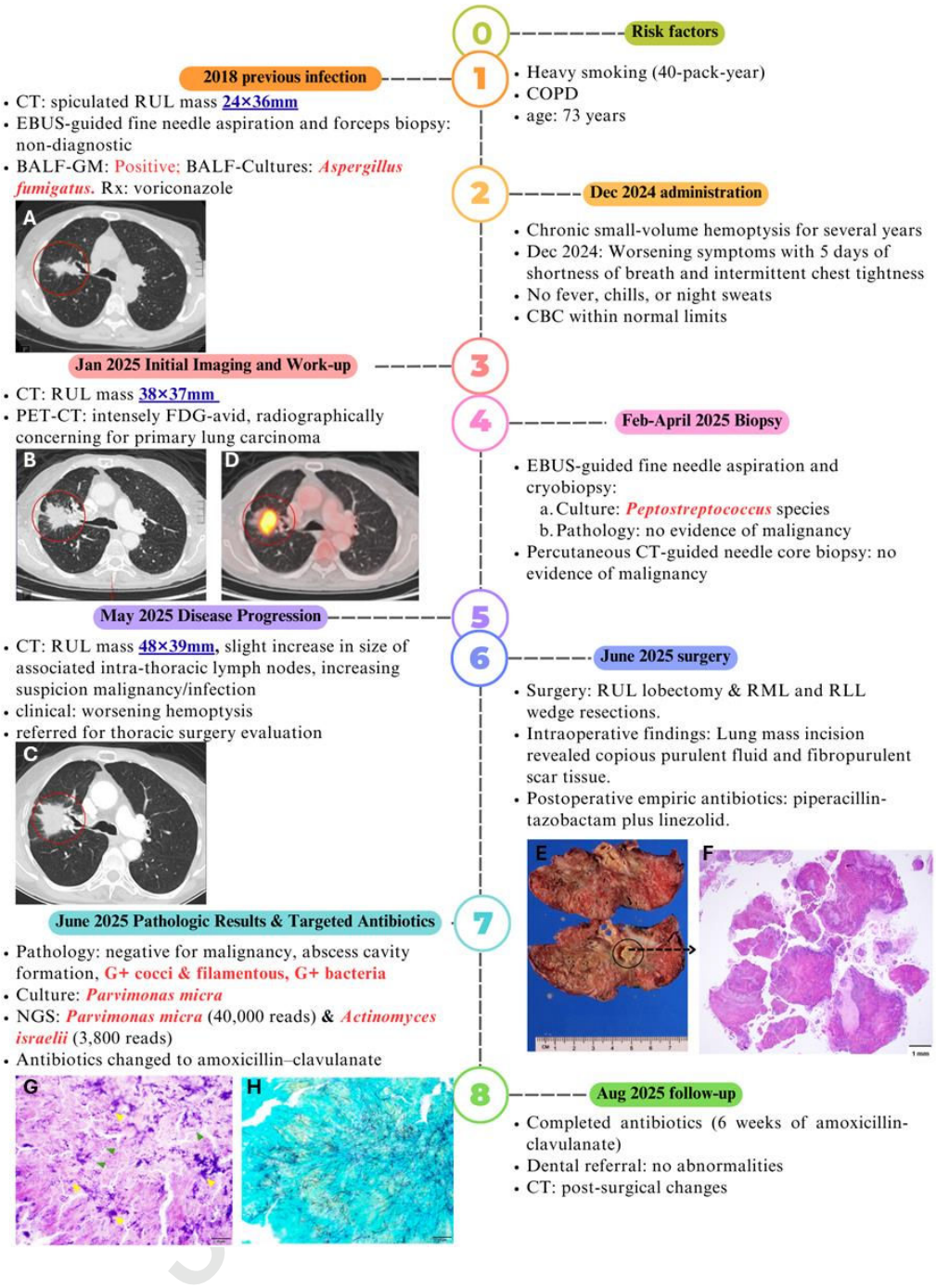

Figure 1. Timeline of the patient's medical history.

Serial chest CT scans demonstrating progressive growth of the right upper lobe mass.

(A) CT June 2018: a spiculated nodule measuring 24×36 mm.

(B) CT January 2025: the nodule enlarged to 38×37 mm.

(C) CT May 2025: further enlarged to 48×39 mm.

(D) PET-CT demonstrating intense FDG uptake mimicking carcinoma. A spiculated solid mass in the central right upper lobe measuring 3.8 cm demonstrated intense FDG uptake, radiographically concerning for primary lung carcinoma. The lesion extended centrally along the right upper lobe bronchovascular bundle and crossed the right oblique fissure into the superior segment of the right lower lobe. A prominent right interlobar lymph node showed mild FDG uptake, suggestive of possible nodal involvement. No evidence of distant metastatic disease was identified.

(E) Gross pathology specimen of the right upper lobe

(F) H & E stain showing the abscess contents (scale bar = 1mm).

(G) Gram stain showing G^+ cocci (yellow arrows) and filamentous G^+ bacteria (green arrows) (scale bar = 20μm).

(H) GMS stain showing black filamentous organisms within a green-counterstained tissue background (scale bar = 20 μm).