

An unexpected case of broncholithiasis secondary to pulmonary nocardiosis

Louis Chhor¹ | Reditta Soraya Tumali¹ | Caroline Östberg¹ |
Andrew Macdonald¹ | Christine Wade²

¹Department of Respiratory Medicine, Barwon Health, Geelong, Victoria, Australia

²Department of Infectious Diseases, Barwon Health, Geelong, Victoria, Australia

Correspondence

Louis Chhor, Department of Respiratory Medicine, Barwon Health, University Hospital, Bellerine Street, Geelong, VIC 3220 Australia.
Email: louischhor@gmail.com

Associate Editor: Jennifer Ann Wi

Key message

Persistent productive cough despite appropriate treatment warrants consideration of flexible bronchoscopy to obtain bronchial specimens for culture. Endobronchial examination of airways may reveal signs of infection in the form of purulent secretions, sputum plugs or in this case, an unexpected finding of a calcified broncholithiasis secondary to *Nocardia* infection.

KEYWORDS

broncholithiasis, endobronchial nocardiosis, infection, pulmonary nocardiosis

CLINICAL IMAGE

A 67-year-old female presented with persistent chronic productive cough of mucopurulent sputum and previous

episodes of haemoptysis, with transient improvements with multiple courses of antibiotics in the hospital and in the community. This was on the background of an ex-smoking history of 30 pack years, bronchiectasis with previous left

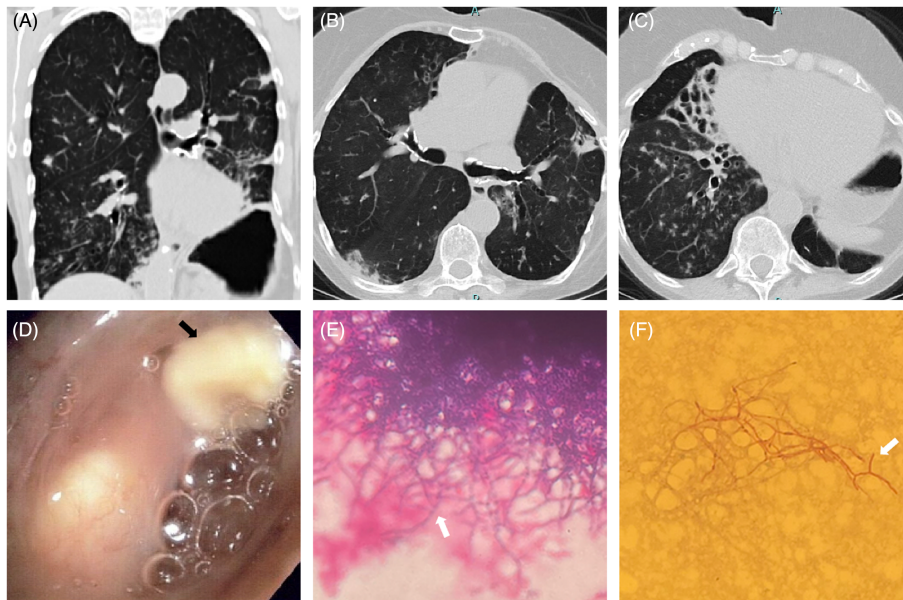


FIGURE 1 High-resolution computed tomography chest demonstrating bronchiectasis, tree-in-bud changes in the right lower lobe and patchy ground glass changes and focal consolidation in the left upper lobe in coronal (A) and axial (B, C) views. Bronchoscopic view of calcified bronchiolith (see black arrow) adjacent to the lingula stump (D). Gram stain of bronchoalveolar lavage demonstrating hyphae (see white arrow) (E). Modified Ziehl-Nielsen stain demonstrating filamentous organisms consistent with *Nocardia* species (see white arrow) (F).

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2024 The Authors. *Respirology Case Reports* published by John Wiley & Sons Australia, Ltd on behalf of The Asian Pacific Society of Respiriology.

lingulectomy and lower lobe lobectomy as a child. Computer tomography of the chest revealed interval resolution of previous consolidation in the left upper lobe but the development of infective changes in the right lower lobe. A bronchoscopy was performed which revealed a non-mobile white calcified broncholithiasis that was embedded in the airway adjacent to the stump of the lingula. Endobronchial forceps biopsy of the broncholithiasis was performed and the histology revealed vast numbers of filamentous organisms. *Nocardia* species were cultured from washings of the left lung. Prompt treatment with trimethoprim-sulfamethoxazole was commenced.

Nocardia is generally regarded as an opportunistic infection, affecting immunocompromised patients such as those with HIV or transplant recipients but case reports have been described in immunocompetent patients.¹ Underlying lung disease such as chronic obstructive pulmonary disease is also a risk factor.² Endobronchial nocardiosis is a rare manifestation of pulmonary nocardiosis. Diagnosis can therefore be challenging and clinicians should have a high clinical index of suspicion of pulmonary nocardiosis in patients with persistent symptoms and radiological changes in keeping with lower respiratory tract infection, as mortality rates are high (Figure 1).³

AUTHOR CONTRIBUTIONS

All authors were involved in the preparation of the manuscript.

CONFLICT OF INTEREST STATEMENT

None declared.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

ETHICS STATEMENT

The authors declare that appropriate written informed consent was obtained for the publication of this manuscript and accompanying images.

ORCID

Louis Chhor  <https://orcid.org/0000-0002-5912-8194>

Andrew Macdonald  <https://orcid.org/0000-0001-5155-5119>

REFERENCES

1. Abdel-Rahman N, Izhakian S, Wasser WG, Fruchter O, Kramer MR. Endobronchial enigma: a clinically rare presentation of *Nocardia beijingensis* in an immunocompetent patient. *Case Rep Pulmonol*. 2015;2015:970548.
2. Martinez Tomas R, Menendez Villanueva R, Reyes Calzada S, Santos Durantez M, Valles Tarazona JM, Modesto Alapont M, et al. Pulmonary nocardiosis: risk factors and outcomes. *Respirology*. 2007;12(3):394–400.
3. Chen J, Zhou H, Xu P, Zhang P, Ma S, Zhou J. Clinical and radiographic characteristics of pulmonary nocardiosis: clues to earlier diagnosis. *PloS One*. 2014;9(3):e90724.

How to cite this article: Chhor L, Tumali RS, Östberg C, Macdonald A, Wade C. An unexpected case of broncholithiasis secondary to pulmonary nocardiosis. *Respirology Case Reports*. 2024;12(1): e01275. <https://doi.org/10.1002/rcr2.1275>