

Journal Pre-proof

Acute fibrinous and organizing pneumonia associated with
Mycobacterium tuberculosis

David Luengo Gómez Dámaris Romeral-Navarro Ester Fátima
Sánchez Álvarez



PII: S0300-2896(24)00286-2

DOI: <https://doi.org/doi:10.1016/j.arbres.2024.07.021>

Reference: ARBRES 3637

To appear in: *Archivos de Bronconeumología*

Received Date: 31 May 2024

Accepted Date: 23 July 2024

Please cite this article as: Gómez DL, Romeral-Navarro D, Álvarez EFS, Acute fibrinous and organizing pneumonia associated with *Mycobacterium tuberculosis*, *Archivos de Bronconeumología* (2024), doi: <https://doi.org/10.1016/j.arbres.2024.07.021>

This is a PDF file of an article that has undergone enhancements after acceptance, such as the addition of a cover page and metadata, and formatting for readability, but it is not yet the definitive version of record. This version will undergo additional copyediting, typesetting and review before it is published in its final form, but we are providing this version to give early visibility of the article. Please note that, during the production process, errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

© 2024 SEPAR. Published by Elsevier España, S.L.U. All rights are reserved, including those for text and data mining, AI training, and similar technologies.

Clinical Image

Acute fibrinous and organizing pneumonia associated with *Mycobacterium tuberculosis*

David Luengo Gómez^{1,2}, Dámaris Romeral-Navarro³, Ester Fátima Sánchez Álvarez³

1. Radiology Department. Hospital Universitario Virgen de las Nieves. Granada, Spain.

2. Instituto de Investigación Biosanitaria ibs.GRANADA, Granada, Spain.

3. Pneumology Department. Hospital Universitario Virgen de las Nieves. Granada, Spain.

Corresponding author

Dámaris Romeral-Navarro

Pneumology Department. Hospital Universitario Virgen de las Nieves.

Av. de las Fuerzas Armadas, 2, 18014 Granada, Spain.

E-mail: damaris.romeral@gmail.com

A 75-year-old woman presented with dyspnea and acute respiratory failure (oxygen saturation 89%). A computed tomography (CT) scan was performed (Fig. 1A-C), and the differential diagnosis included tuberculosis reactivation and atypical pneumonia. The patient was initiated on empiric treatment with meropenem and systemic corticosteroids. The interferon-gamma release assay for *Mycobacterium tuberculosis* was positive, and the acid-fast bacilli (AFB) smear microscopy was negative. Despite the addition of linezolid and weight-adjusted antituberculosis therapy, the patient's condition continued to deteriorate, necessitating the postponement of a planned bronchoscopy with bronchoalveolar lavage. The patient ultimately

succumbed 15 days after admission. A postmortem CT-guided biopsy revealed acute fibrinous and organizing pneumonia (AFOP) (Fig. 1D-F). The microbiological results demonstrated a positive polymerase chain reaction (PCR) for the *Mycobacterium tuberculosis* complex.

AFOP is a rare interstitial pneumonia characterized by the presence of fibrin "balls" within alveolar spaces, with a mortality rate of 50%. In contrast to diffuse alveolar damage, AFOP is characterized by the absence of hyaline membranes and a more irregular and less extensive distribution of fibrin. The clinical presentation is non-specific, typically acute or subacute, and the known causes include drugs, hypersensitivity pneumonitis, collagen disease, infections, and idiopathic cases^{1,2}. *Mycobacterium tuberculosis* is a rare cause of this condition^{2,3}. This case shares key aspects with that of *Zhao X et al.*³, including rapid deterioration with progression of pulmonary lesions and the need for biopsy for definitive diagnosis. It emphasizes the importance of postmortem examinations, including histopathologic and microbiologic analyses, in clarifying ambiguous clinical conditions.

Funding of the research

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflicts of interest of every author

The authors declare not to have any conflicts of interest that may be considered to influence directly or indirectly the content of the manuscript.

Artificial intelligence involvement

The authors declare that no artificial intelligence was used in the preparation of this manuscript.

References

1. Beasley MB, Franks TJ, Galvin JR, Gochuico B, Travis WD. Acute fibrinous and organizing pneumonia: a histological pattern of lung injury and possible variant of diffuse alveolar damage. *Arch Pathol Lab Med.* 2002;126(9):1064-1070. doi:10.5858/2002-126-1064-AFAOP
2. Feng AN, Cai HR, Zhou Q, Zhang YF, Meng FQ. Diagnostic problems related to acute fibrinous and organizing pneumonia: misdiagnosis in 2 cases of lung consolidation and occupying lesions. *Int J Clin Exp Pathol.* 2014;7(7):4493.
3. Zhao X, Cheng Y, Xiong Y, Wang G. Pulmonary tuberculosis associated acute fibrinous and organizing pneumonia: A case report and literature review. *Clin Respir J.* 2023;17(6):499. doi:10.1111/CRJ.13626

Figure legend (*color*)

Chest computed tomography at admission (A) and a few days later (B) with coronal reconstruction with maximum intensity projection (C), demonstrating volume loss of the right upper lobe and atelectasis, patchy centrilobular nodules of irregular morphology and peribronchovascular distribution (more evident in C). Detail of "fibrin ball" occupying alveolar space (hematoxylin and eosin, x10) (D). CD68+ staining in epithelioid histiocytes (E). Masson's trichrome staining shows fibrin clusters (F).

