

## Background

Pleural tuberculosis stands as the second most prevalent extrapulmonary manifestation of tuberculosis, surpassed only by lymphadenitis. Within the context of pleural tuberculosis, a subset of patients may encounter complex pleural effusions that pose challenges for conventional thoracostomy drainage procedures. In such scenarios, the application of intrapleural fibrinolytic therapy emerges as a viable therapeutic intervention. In this report, we present a case illustrating the successful management of a complicated pleural effusion through the utilization of intrapleural fibrinolytic therapy.

## Case Summary

A 29-year-old male with a left pleural effusion was transferred to our hospital after initial treatment for a suspected lower respiratory infection. Despite antibiotics, he experienced persistent fever, cough, pleuritic chest pain, and weight loss. Diagnostic tests revealed pleural effusion, lung consolidation, and elevated inflammatory markers. Efforts to drain the effusion through an intracostal tube were insufficient, and the patient deteriorated, requiring inotropic support. A CT scan showed a complicated pleural effusion, lymphadenopathy, and miliary nodules. Given the patient's poor surgical candidacy, chemical decortication with rtPA was performed which leads to a remarkable improvement. Subsequent testing confirmed mycobacterium tuberculosis infection, and the patient was initiated on antituberculous treatment, leading to further improvement in his condition.

## Conclusion

This complex case emphasizes the need to consider tuberculosis as a potential cause of persistent pleural effusions, even in atypical cases. The use of rtPA for chemical decortication, when surgery wasn't possible, led to significant clinical improvement. This highlights the importance of a multidisciplinary approach, molecular testing, and innovative treatments in managing such challenging tuberculosis-related pleural effusions.

## Introduction

Tuberculosis remains a significant global public health challenge, particularly impacting developing nations. It is estimated that roughly one-fourth of the world's population, approximately two billion individuals, are infected with *Mycobacterium tuberculosis* and are vulnerable to contracting the disease. In 2020, approximately 9.9 million people worldwide were reported to have become ill with tuberculosis as new incident cases. This figure included 5.6 million men, 3.3 million women, and 1.1 million children. (1) Pulmonary tuberculosis makes up over 80% of all tuberculosis cases, while the remaining 20% consist of extrapulmonary cases, such as pleural TB, TB lymphadenitis, genitourinary TB, cutaneous TB, abdominal TB, ocular TB, and breast TB, among others. (2) Among extrapulmonary tuberculosis (TB) cases, tuberculous pleural effusion (TPE) ranks as the second most prevalent form, following lymphatic involvement. Furthermore, it is the primary cause of pleural effusion in regions where TB is widespread. (3) TPEs often have a high protein content leading to fibrin strands and septations (4) making it difficult to drain via thoracosentesis and tube thoracostomy.

In patients with complicated effusions, timely drainage is recommended alongside appropriate antibiotic treatment. Chest tube or catheter thoracostomy drainage is the initial option. When antibiotics and tube thoracostomy drainage do not lead to improvement, as evidenced by factors such as persistent or worsening effusion, ongoing fever, or sustained leukocytosis, it may suggest that both antibiotic coverage and drainage procedures are insufficient. In such instances, alternative approaches can be considered in medical interventions such as video-assisted thoracic surgery (VATS) or intrapleural instillation of fibrinolytic, typically using tPA along with DNase.

We present a case of a patient with a complicated tuberculous effusion who was successfully treated with intrapleural fibrinolytic therapy after tube drainage had initially failed.