

# The Hidden Aftermath: A Case of Late-stage Bronchial Stenosis Post-tuberculosis

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## ABSTRACT

Tuberculosis (TB) is a major health problem globally. Post-tuberculous pulmonary complications can manifest years after the initial infection, often presenting as unexpected and severe respiratory symptoms. This case report illustrates a unique presentation of late-onset post-tuberculous bronchial stenosis in a 36-year-old female who experienced acute chest pain and subsequent lung collapse. Despite a 15-year asymptomatic period following TB treatment, the patient developed significant airway obstruction due to fibrotic changes in the bronchial wall. This case underscores the importance of considering late-onset complications in patients with a history of TB, even in the absence of recent symptoms. In present case, the history and clinical profile led to a prompt diagnosis with appropriate management to alleviate the patient's symptoms.

**Keywords:** Bronchoscopy, Collapse, Effusion, Inflammation, Lung

## CASE REPORT

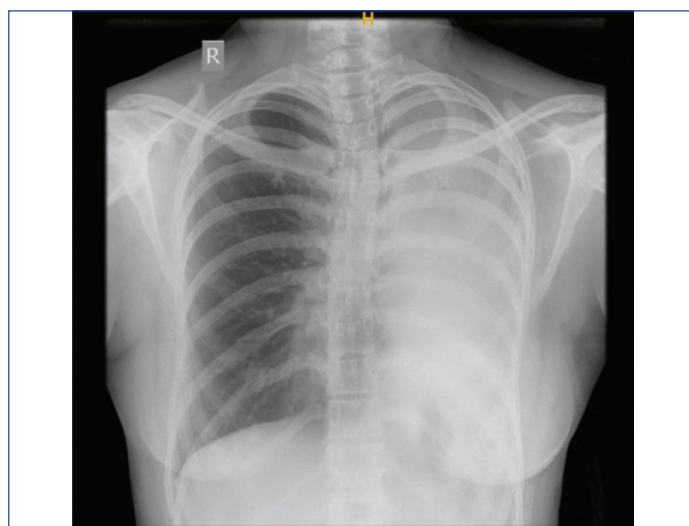
A 36-year-old female, a homemaker, came with a primary complaint of chest pain that began one day before admission. The patient characterised the discomfort as abrupt, starting on the left-side of her chest and extending to the back. The ache persisted and exacerbated with deep inspiration. She also complained of left-sided back pain, which had persisted since the onset of the chest symptoms. Notably, it was not associated with cough, shortness of breath, or recent trauma. Before the onset of symptoms, the patient was fully independent in performing all daily activities. The patient's previous medical records revealed a history of pulmonary TB in 2009, for which she received a full course of antitubercular medication for 10 months and had been asymptomatic for the past 15 years.

Upon examination, the patient appeared comfortable and her vital signs were stable. The respiratory examination revealed reduced breath sounds over the left-side of the chest, without any added sounds such as wheezes or crackles. There were no signs of respiratory distress or cyanosis. The cardiac examination was unremarkable, with no murmurs or abnormal heart sounds. The absence of fever, weight loss, night sweats, or other systemic symptoms ruled out acute infectious processes or malignancy as immediate concerns.

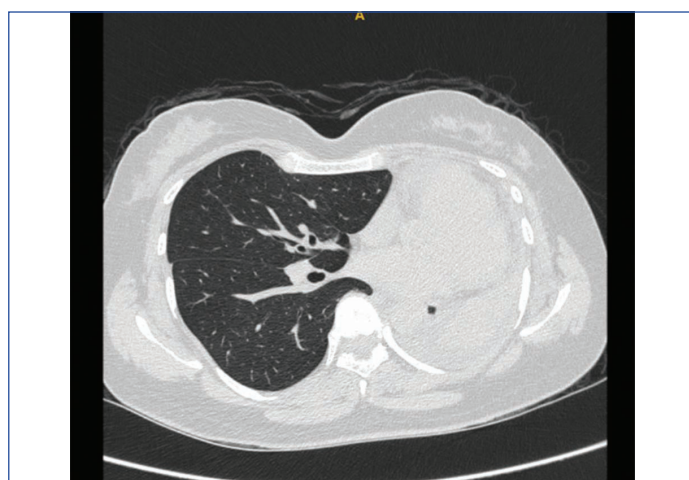
To determine the aetiology of her symptoms, a chest radiograph was taken, which revealed a homogeneous opacity over the left hemithorax with signs of ipsilateral mediastinal displacement [Table/Fig-1]. This finding indicated the possibility of a left lung collapse. Given the patient's TB history, there were concerns about potential post-tuberculous complications such as bronchial stenosis or fibrosis, which could lead to lung collapse [1,2].

A Computed Tomography (CT) scan of the chest was then performed to offer a more thorough evaluation of the lung parenchyma and airways. The CT scan results revealed a complete left lung collapse along with signs of volume loss on the left-side, such as rib crowding and ipsilateral mediastinal shift with compensatory hypertrophy of the right lung [Table/Fig-2].

In addition, a chest ultrasonography indicated a moderate left-sided pleural effusion. This confounded the clinical picture and necessitated additional investigations to ascertain the aetiology [3]. A bronchoscopy was conducted to better analyse the airways, and it found that the left major bronchus was completely narrowed, revealing a complete blockage, most likely due to postinflammatory alterations [Table/Fig-3].



[Table/Fig-1]: Chest radiograph Posteroanterior (PA) view showing homogeneous opacity over the left hemithorax.



[Table/Fig-2]: HRCT Chest showing left lung collapse with ipsilateral mediastinal shift.

Given the patient's TB history, this was highly suggestive of post-tuberculous bronchial stenosis [4,5]. A biopsy was performed from the constricted area to rule out any malignant or other pathological conditions. The biopsy revealed benign bronchial mucosa, with no signs of cancer or current inflammation. Subsequently, the patient was given symptomatic treatment with analgesics (NSAIDs) along



**[Table/Fig-3]:** Bronchoscopy image at carina showing complete blockage of left major bronchus.

with a short course of the antibiotic ceftriaxone, following which her condition improved. The patient was haemodynamically stable upon discharge and was able to carry out all daily activities. On follow-up, she was advised to undergo endobronchial cauterization to open up the stenotic segment and relieve all her symptoms.

## DISCUSSION

This case presents a unique scenario in which a patient with a history of pulmonary TB remained asymptomatic and led a normal life for 15 years after completing antitubercular treatment, only to develop sudden-onset symptoms of chest pain, back pain and lung collapse. The most likely explanation for her symptoms was post-tuberculous sequelae, such as bronchial stenosis or fibrotic changes, which can occur long after the initial infection has resolved [6].

In this case, both the symptoms and radiological signs are attributed to post-tuberculous structural changes. However, it is also critical to consider that malignancies, such as bronchogenic carcinoma or other lung cancers, can present with similar features, including chest pain, back pain and even lung collapse. Both malignancies and certain types of Endobronchial Tuberculosis (EBTB) share common clinical features, such as persistent cough, haemoptysis, and radiologic findings like lung masses or atelectasis, which can complicate the differentiation between benign postinflammatory processes and neoplastic disease [7].

Chung HS and Lee JH categorised types of EBTB into the following seven subtypes based on bronchoscopic findings: oedematous-hyperemic, actively caseating, fibrostenotic, tumourous, ulcerative, granular and non specific bronchitic [8]. In particular, the fibrostenotic and tumourous types of EBTB can closely resemble these features. Despite successful treatment for TB, structural lung changes, including bronchial narrowing or fibrosis, can evolve over time, leading to airway obstruction and, in some cases, lung collapse [9].

The absence of any abnormal pathology on biopsy further supports the hypothesis of a benign postinflammatory process rather than an active disease or malignancy. The moderate pleural effusion could also be attributed to chronic inflammatory changes, which are common in post-tuberculous lung disease [10]. It is worth noting that the patient's long asymptomatic period before this acute presentation is unusual, making this case particularly notable [11].

In light of similar research on post-TB complications and their management, Lee KCH et al., examined the long-term outcomes of tracheobronchial stenosis due to TB, comparing airway interventions with conservative management in 131 patients to guide treatment strategies [12]. Additionally, Kim H et al., discussed bronchoscopy for post-TB tracheobronchial stenosis, highlighting advancements in non surgical interventions in such cases [13].

## CONCLUSION(S)

This instance highlights the necessity of taking late-onset problems into account in patients with a history of pulmonary TB, even if they have been asymptomatic for a long time. It also emphasises the importance of a comprehensive diagnostic approach when reviewing new respiratory symptoms in these individuals, as delayed issues such as bronchial stenosis can appear unexpectedly and abruptly. Awareness of these potential late consequences is critical for earlier identification and treatment, resulting in better outcomes for TB patients.

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