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# Secondary Pyogenic Infection in MDR Pulmonary Tuberculosis - A Case Report

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**Abstract:** ***A 43 years old female patient was diagnosed with multi - drug resistance (MDR) tuberculosis on anti tubercular treatment (ATT). She presented with chief complaints of fever off and on since 4 months, shortness of breath for 3months, palpitations and pain in the right mid - axillary region for 4days, history of multiple pleural aspirations and multiple intercostal drain insertions (ICD). She presented to us with right ICD drain having seropurulent collection 25 - 50 ml daily. Clinical examination revealed decreased air entry over the right hemi - thorax. Chest x - ray and ct chest showed empyema with pleural thickening and atelectasis of adjacent lung noted in right hemi - thorax along with consolidation and air bronchogram noted in the right lower and medial lobe. The patient underwent right postero - lateral thoracotomy and done right lung decortication.***

**Keywords:** Tuberculous empyema, Decortication

## 1. Introduction

Chronic tuberculous empyema (CTE) is a common complication of tuberculosis that requires some form of surgical intervention along with anti - tuberculosis therapy (ATT).

The bacteria that cause tuberculosis (TB) can develop resistance to the antimicrobial drugs that are used to cure the disease. Multidrug - resistant tuberculosis (MDR TB) is a condition that does not respond to isoniazid and rifampicin, the two most powerful antituberculous drugs.

The two reasons why multidrug resistance continues to emerge and spread are mismanagement of TB treatment and person - to - person transmission. Most people with tuberculosis are cured by a strictly followed, 6 - month drug regimen that is provided to patients with support and supervision. Inappropriate or incorrect use of antimicrobial drugs, or use of ineffective formulations of drugs (such as use of single drugs, poor quality medicines or bad storage conditions), and premature treatment interruption can cause drug resistance, which can then be transmitted.

## 2. Case Report

A 43 year old female came with complaint of fever off and on since 4 months which relieved on taking medications, shortness of breath for 3months with multiple ICD insertions since 3 months which still drains 25 – 50 ml seropurulent collection, pain at right mid axillary line which increases on lying down and gradually progressing in nature and palpitations for 4days.

**Past history**:
Patient has history of MDR TB and was on ATT for four months.

She gave history of multiple pleural fluid aspirations and multiple right ICD insertions over the last 3 months.

She was a known diabetic for 6months.

There was no history of hypertension, hypothyroidism, coronary artery disease or bronchial asthma.

**Clinical examination**: On inspection bilateral symmetrical chest with bilateral asymmetrical chest movements (left > right) was present.

**On palpation:** All inspectory findings were confirmed, and the apex beat was half inch medial to mid - clavicular line.

**On percussion:** Dull note was present on the right anterior and posterior intercostal spaces.

**On auscultation:** Decreased breath sounds on right hemithorax, harsh breath sounds on left hemithorax.
Chest X - ray findings was suggestive of empyema with thick pleura and collapsed right lung **(figure 1)**

**CECT Chest:** Empyema with pleural thickening and atelectasis of adjacent lung noted in right hemithorax along with consolidation and air bronchogram noted in the right lower and medial lobe. (**figure 2)**

Later the patient was referred from pulmonology to CTVS (cardio thoracic vascular surgery)

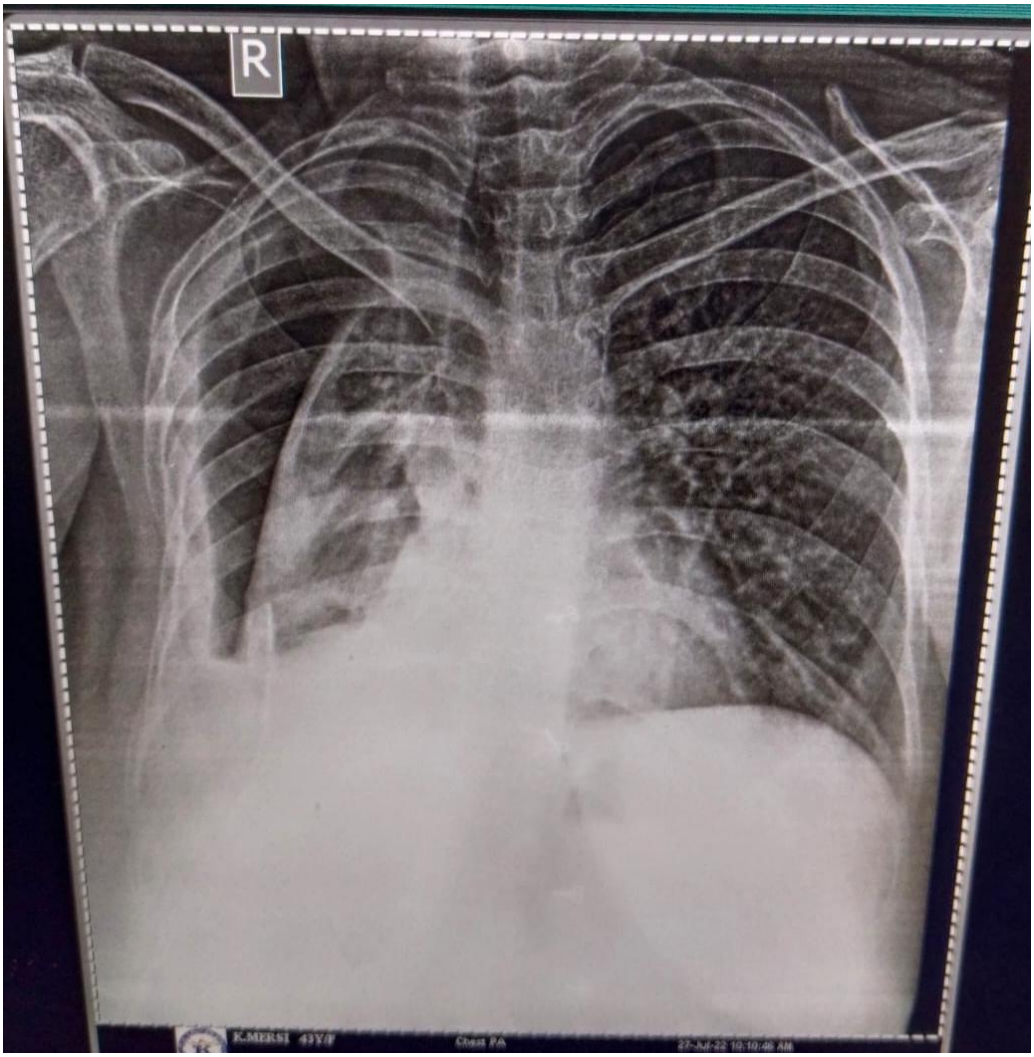


**Figure1**: CHEST X RAY showing empyema with thick pleura and collapsed right lung

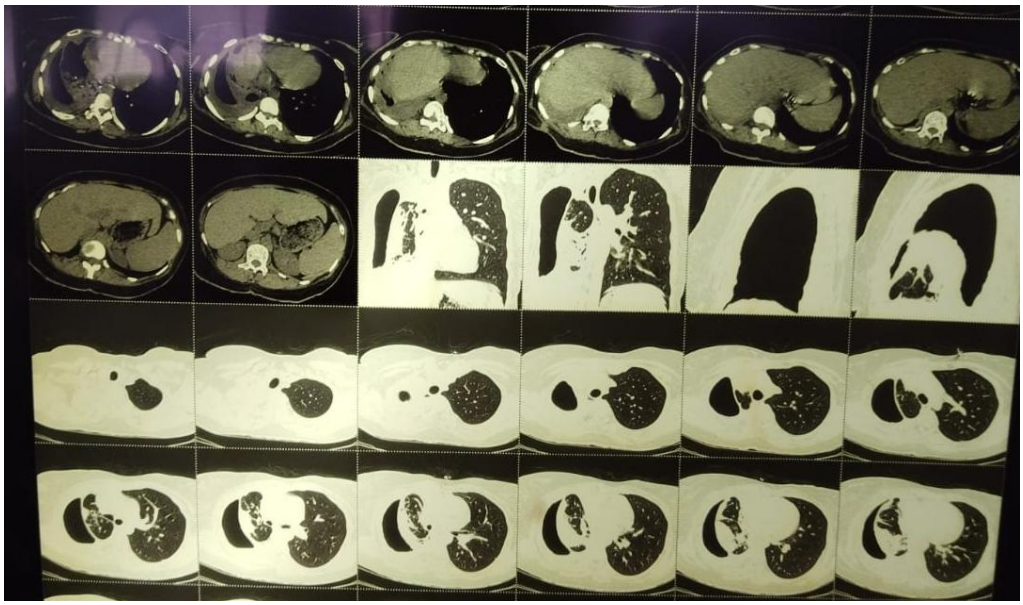

**Figure 2:** CECT chest showing pleural thickening and atelectasis of right lung

**Pleural fluid culture and sensitivity:**
Grams stain – gram negative bacilli
Culture report suggestive of pseudomonas aeruginosa isolated.

## 3. Operative Procedure

Right - posterolateral thoracotomy was done and chest opened through the seventh intercostal space under one - lung anaesthesia.200ml of thick yellowish green pus was

removed by suction. Thick 2 inch parietal pleura mobilized from chest wall. Next the visceral pleura was excised by making cruciate incisions over the pleura. Visceral pleura removed from mediastinum, apex, posterior and diaphragmatic surfaces. (Figure 3.1, 3.2, 3.3). Betadine, hydrogen peroxide and saline wash given. Both lungs ventilated and partially expanded right lung was achived. (Figure 3.4) Haemostasis achieved, two chest tubes placed anterior apical and posterior basal. Intercostal block was given with 0.5% bupivacaine. Pericostal sutures was done with 5 - ethibond. Chest closed in layers. Patient was extubated on table and shifted to ICU. The pus was sent for culture and sensitivity and the excised pleura was sent for histopathological examination.

**Intra operative findings:**

1) Crowded ribs
2) 2 - 3 inch thick shaggy parietal pleura
3) 1 inch thick visceral pleura

Collapsed right lung (well expanded after decortication).

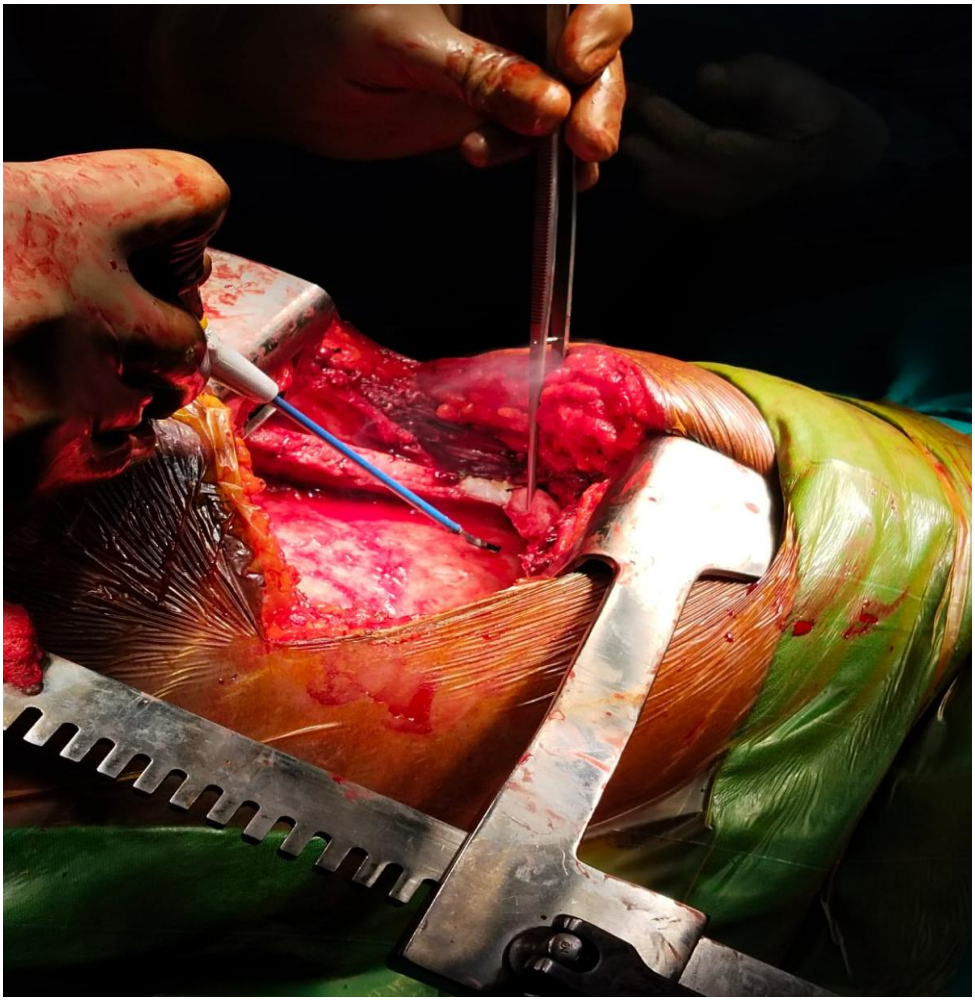

**Figure 3.1:** Image showing the thick parietal pleura

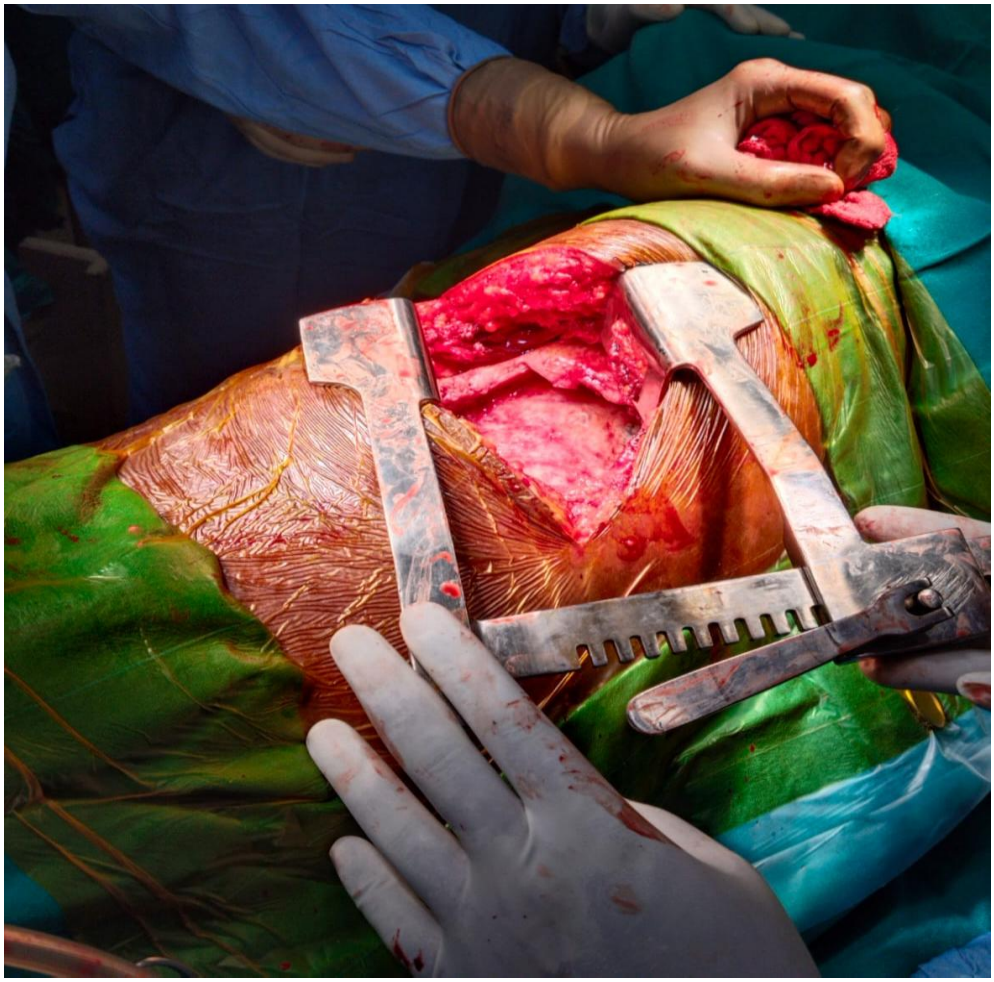

**Figure 3.2:** Image shows decorticated right lung.

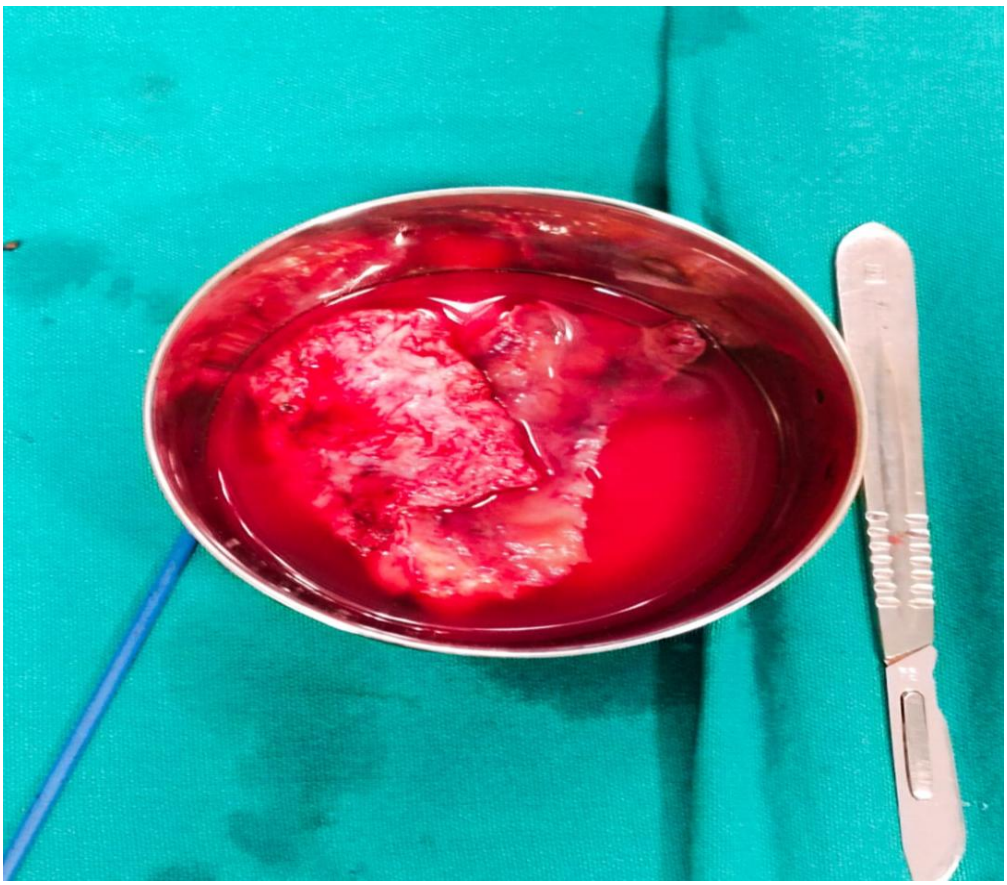

**Figure 3.3:** Excised portion of the parietal and visceral pleura

**Figure 3.4**: Lung expansion after decortications

**Histopathology Report:** Multiple Sections studied from decorticated pleural fragments showed ill - defined non - caseous epithelioid histiocytic granulomas with extensive fibrosis and granulation tissue. Focal calcifications also seen. Features were suggestive of "Granulomatous pleuritic - tubercular origin".

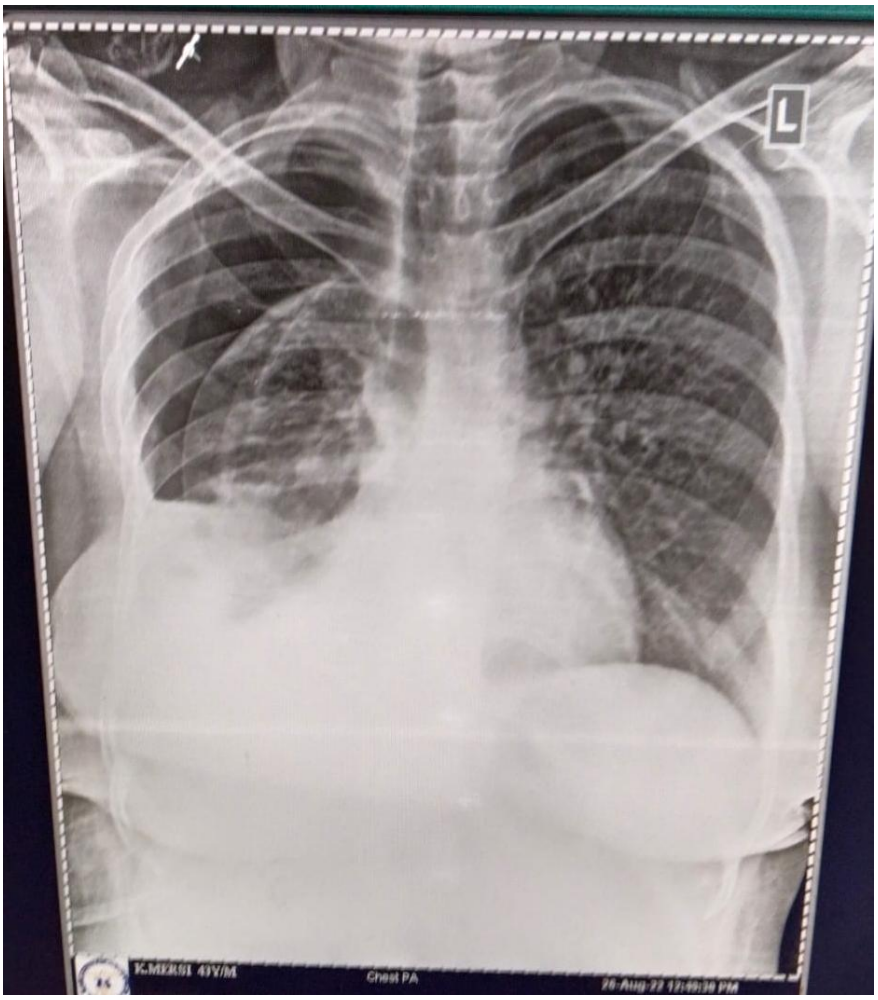


**Figure 4:** Post operative x - ray after 2 weeks showing partially - expanded lungs.

## 4. Discussion

TB is a common cause of empyema in countries like India where prevalence of TB is high[1], whereas in developed countries post pneumonic and post - surgical etiology is more common in patients with empyema[2]. TB has been found to be the cause of empyema in approximately 65% of cases in studies reported from high prevalence regions of the world[1, 3, 4]. The symptoms in patients of tubercular empyema are similar to that reported by patients of pulmonary tuberculosis. Many patients have cough with expectoration and fever. Tubercular as well as non - tubercular empyema patients report cough and fever, but these symptoms are present for a longer duration in tubercular patients, prior to their visit to health facility[2, 3, 4]. Treatment outcome of tuberculous empyema is less satisfactory than that of pulmonary tuberculosis, however, modern multidrug chemotherapy with repeated drainage and opportune surgical interventions could be in prospect of successful treatment of tuberculous empyema[7].

## 5. Conclusion

Tuberculous empyema represents a chronic, active infection of the pleural space that contains more number of tubercle bacilli. It is rare as compared with tuberculous pleural effusions that result from an exaggerated inflammatory response to a localized paucibacillary pleural infection. In this case secondary pyogenic infection occurred due to multiple pleural fluid aspirations and multiple intercostal drain change done which is the source of secondary infection in tuberculosis patient. After surgical inetrvention (decortication) patient improves better.

**Take home message** from this case study is early diagnosis and prompts antimicrobial treatment of pulmonary tuberculosis of adequate duration. One should avoid unnecessary interventions in the form of ICD insertions at the early stage unless clinical condition warrants. This could be only for massive pleural effusion causing respiratory compromise. Otherwise a diagnostic pleural tap should be sufficient. Such masterly inactivity with adequate and appropriate antituberculous treatment would prevent such complications and the need for surgery thereof.

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