

Successful Resolution of Loculated Pleural Effusion through Medical Thoracoscopy and Bronchoscopy

Dr Aditya S Bhushan, Dr B L Shashi Bhushan, Dr Anupama R

Bangalore Medical College and Research Institute, Bangalore, India

Abstract: A 30 year old male had come with a short history of 3 days of left sided chest pain, breathing difficulty and fever. Initial investigations revealed a loculated pleural effusion with inconclusive pleural fluid analysis. Medical thoracoscopy was done which showed adhesions between the visceral and parietal pleura. Pleural biopsy favoured inflammation. Flexible bronchoscopy with bronchoalveolar lavage was done for isolation of causative organism, that is, methicillin resistant staphylococcus. Patient was started on sensitive antibiotics, and patient showed clinicoradiological improvement and was hence discharged.

Keywords: Loculated pleural effusion, Medical thoracoscopy, Flexible bronchoscopy, pleural biopsy, Methicillin Resistant Staphylococcus aureus

1. Introduction

Loculated pleural effusions are serious conditions that can cause morbidity and mortality. It warrants early diagnosis and management. Majority of cases of loculated pleural effusion leads to the requirement for surgical management.

2. Case

A 30 year old male patient, Carpenter by occupation, with no significant past history, presented to OPD with 3 days history of left sided chest pain, difficulty in breathing and fever. On examination, pulse rate was 110/ min, respiratory rate of 20 /min, blood pressure of 120/70 mm Hg and room air saturation of 95%. On respiratory system examination, there was decreased movements on left infraclavicular and infrascapular areas. With decreased vocal resonance in left infra axillary area. On Auscultation, bilateral breath sounds heard with decreased intensity in left infra axillary and infra scapular areas.

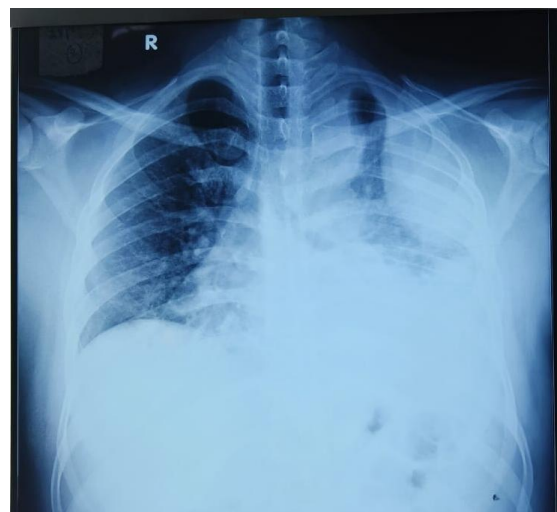


Figure 1: Chest radiograph showing left loculated pleural effusion

Initial chest radiograph showed a loculated left pleural effusion. Ultrasound guided thoracentesis was done, which showed lymphocytic predominant, exudative fluid with low ADA levels. CT scan of thorax with contrast was done which showed moderate loculated left sided pleural effusion with passive collapse of the underlying lung causing mild shift of the mediastinal components towards the right side.

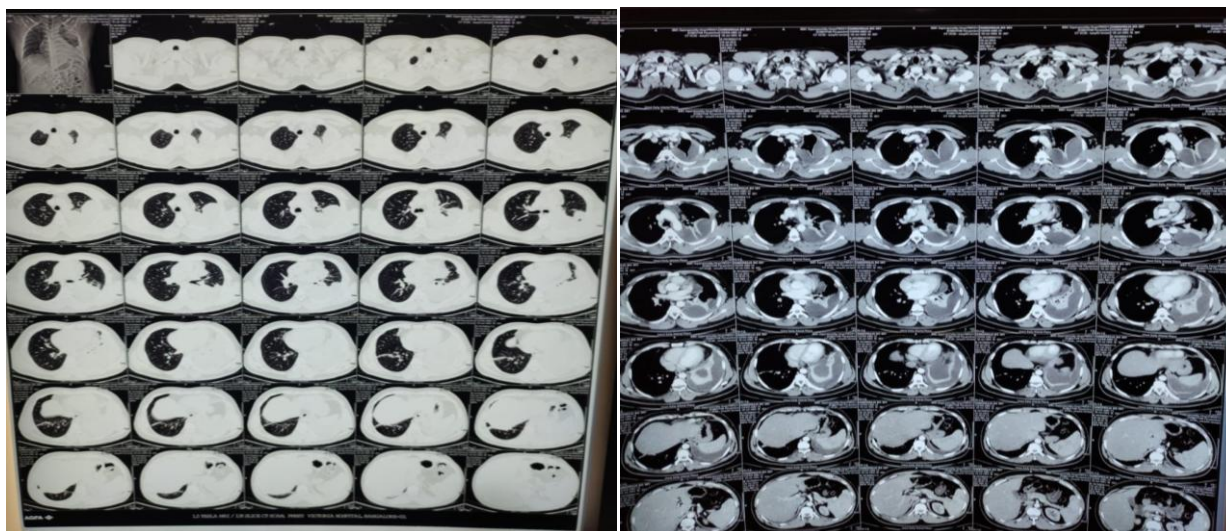


Figure 2: CECT Thorax showing left moderate pleural effusion with underlying collapse.

Medical thoracoscopy was done which showed multiple adhesions between the parietal and visceral pleura suggestive of infectious etiology. Pleural biopsy sent for histopathology showed non specific chronic inflammatory pathology.

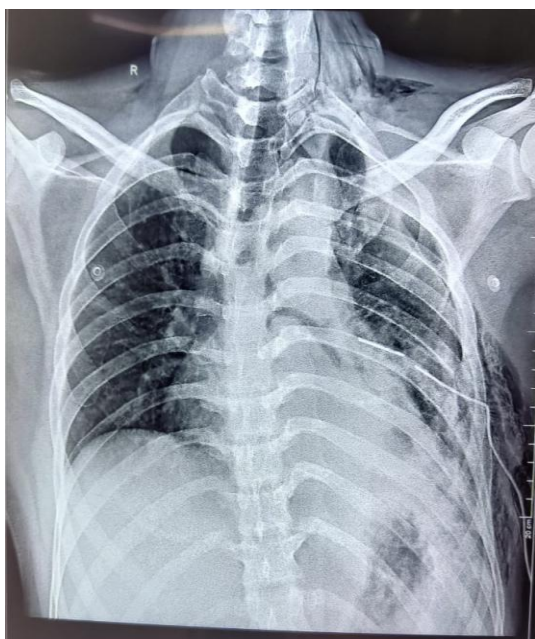


Figure 3: Post thoracoscopy chest radiograph with intercostal drain insitu.

Later, flexible bronchoscopy was done and petechiae was noted in the walls of left bronchial tree. Bronchoalveolar lavage was taken and sent for analysis. Culture of the BAL fluid revealed growth of Methicillin resistant *Staphylococcus aureus*.

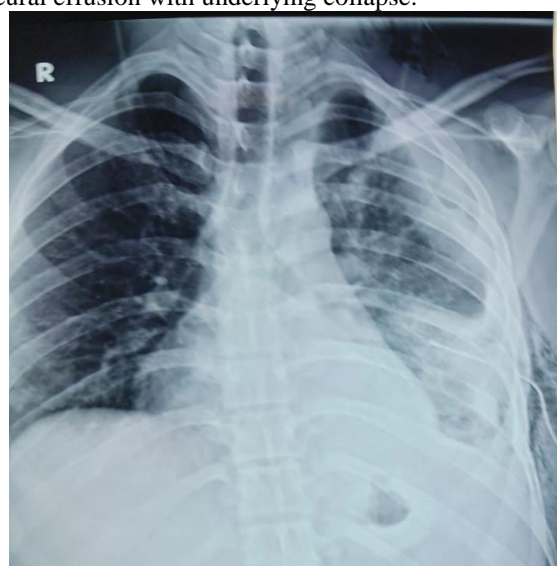


Figure 4: Post bronchoscopy chest radiograph

Patient was started on intravenous linezolid according to sensitivity pattern and later discharged with oral linezolid for a period of 14 days once the patient was symptomatically better.

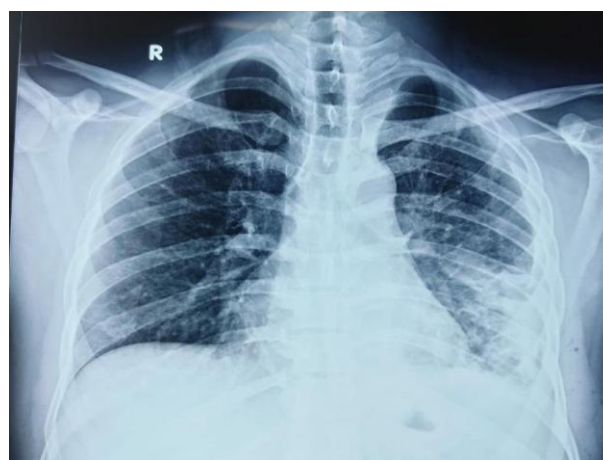


Figure 5: Chest radiograph at discharge.

On review after 2 weeks, repeat chest radiograph was done which showed left pleural effusion. Ultrasound thorax

confirmed it as left minimal pleural effusion.

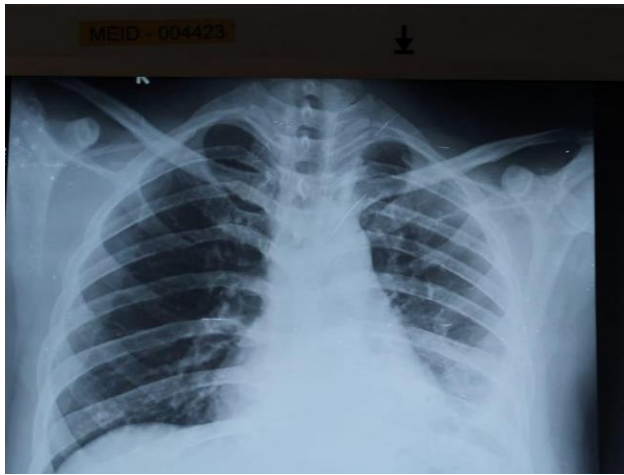


Figure 6: Chest radiograph after 2 weeks of discharge.

loculated tuberculous pleural effusions treated with intrapleural urokinase. *Respir Med.* 2006;100(11):2037-2042.

Repeat sputum culture was sent and yielded *Serratia marcescens*. Patient was started on oral Faropenem and Trimethoprim + Sulfamethoxazole according to sensitivity pattern.

3. Discussion

Pleural effusion is the fluid accumulation within the pleural cavity. Loculated pleural effusions occur as a result of adhesions between the visceral and parietal pleura.¹ The most common causes are infection, hemothorax and chylothorax.² The diagnosis of loculated pleural effusions can be made with ultrasound thorax and CT scans. The attenuation of the fluid can give a clue towards infectious and non infectious effusions. The non infected effusions have an attenuation similar to the soft tissue. If pleural fluid analysis is inconclusive, pleural biopsy can give definitive diagnosis. In this era of interventional pulmonology, this can be guided by thoracoscopy.

Once the diagnosis of loculated pleural effusion is made, the current treatment is drainage with intercostal drain. If not adequately drained, the next option is with surgical interventions like video assisted thoracoscopic surgery or open thoracotomy. In few cases, intrapleural fibrinolytics have been attempted with variable success.³ There is no approved medical treatment for loculated pleural effusion. In this present case, medical thoracoscopy has proved to be therapeutic in clearing the effusion and flexible bronchoscopy for the definitive diagnosis of the cause. Thus, with medical management alone the patient has shown clinicoradiological resolution.

References

- [1] Esmadi M, Lone N, Ahmad DS, Onofrio J, Brush RG. Multiloculated pleural effusion detected by ultrasound only in a critically-ill patient. *Am J Case Rep.* 2013;14:63-6.
- [2] Dalbah R, Al-Momani M, Nagpal S, et al. An Unusual Cause of Loculated Pleural Effusion. *Am J Respir Crit Care Med* 2023;207:A3360
- [3] Viedma EC, Dus MJL, Molina AG, et al. A study of