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Case Report

Ruptured Lung Abscess with Empyema Thoracis without Pneumothorax in Children - A Rare Presentation

Maksudur Rahman[1*], Md. Mofizur Rahman Mia[2]
[1]Associate Professor, Department of Neonatology, Bangladesh Shishu Hospital and Institute, Bangladesh
[2]Associate Professor, Chest Surgeon National Institute of Diseases of the Chest and Hospital (NIDCH), Bangladesh

***Corresponding Author:** Maksudur Rahman
Associate Professor, Department of Neonatology, Bangladesh Shishu Hospital and Institute, Bangladesh

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Abstract: A 5-month-old male infant was admitted with the complaints of cough & fever for 18 days and respiratory distress for 4 days. He was febrile, tachypneic (RR-58/min) with SpO_2 - 94% on 2 L/min with face mask with left sided restricted chest movement with diminished breath sound. Initially he was diagnosed as left sided pleural effusion. Chest x-ray was suggestive of encysted pleural effusion (left). CT of chest revealed collapsed left lower lobe with pleural effusion and inflammatory changes in left upper lobe. Per operative finding showed pleural thickening, adhesion of oblique fissure, and perforated lower lobe of left lung. And finally infant was diagnosed as ruptured lung abscess of lower lobe of left lung with empyema thoracis. The patient was managed with decortication with segmental resection, and inj. linezolid after getting C/S and recovered.

Keywords: Ruptured lung abscess, Empyema thoracis.

INTRODUCTION

A pus-filled cavity surrounded by inflamed tissue, in the lung parenchyma is called lung abscess [1]. Sometimes it is ruptured and cause secondary empyema via formation of a bronchopleural fistula [1]. Lung abscess is resulting from primary causes like pneumonia or secondary [2]. This generally takes place if early treatment is not instituted with appropriate antibiotics and postural drainage [1]. It is uncommon in children with an estimated incidence of 0.7 per 100,000 admissions/year [3, 4].

Most of the cases we, the physician, often get the diagnosis of chest diseases by clinical and radiological findings and treat accordingly such as pleural effusion, empyema thoracis, pneumothorax etc. [2, 5].

Sometimes we, find very unusual consequences and complications of common pulmonary diseases. But we do not easily recognize them both clinically and radiologically. That is why we discuss ruptured lung abscess with empyema thoracis without pneumothorax in children to disseminate more scientific information.

CASE SUMMARY

A 5-month-old male infant was admitted in Dhaka shishu (children) hospital on January, 2020 with the complaints cough & fever for 18 days and respiratory distress for 4 days. He had no history of exposure to TB patient and treated with commonly used antibiotics like amoxicillin, flucloxacillin, ceftazidime oral and I/V form. He was febrile, tachypneic (RR-58/min) with SpO_2- 94% on 2 L/min with face mask with left sided restricted chest movement with diminished breath sound. Initially he was diagnosed as left sided pleural effusion. Chest x-ray was suggestive of encysted pleural effusion (left). CT of chest revealed collapsed left lower lobe with pleural effusion and inflammatory changes in left upper lobe. Per operative finding showed pleural thickening, adhesion of oblique fissure, and perforated lower lobe of left lung. And finally infant was diagnosed as ruptured lung abscess of lower lobe of left lung with empyema thoracis. Pleural fluid C/S showed - Staphylococcus aureus (profuse

growth), resistant to all commonly used antibiotics and sensitive to linezolid, In Gene Xpert (MTB/RIF) of pleural fluid MTB was not detected. The patient was managed with decortication with segmental resection, and inj. linezolid after getting C/S and recovered.

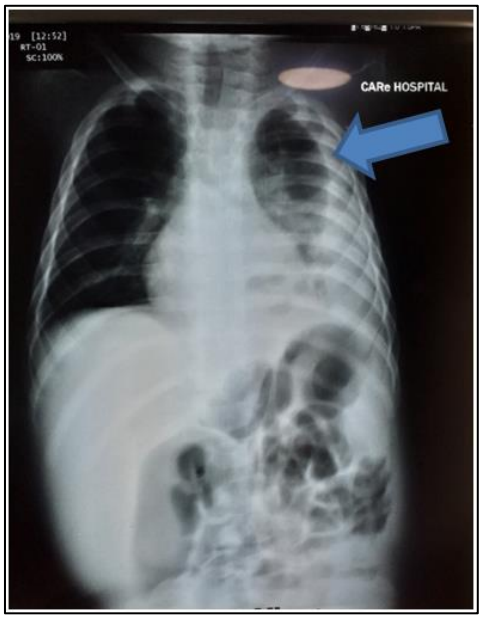

Figure 1: Chest x-ray A/P view shows left sided homogenous opacity occupying upper, middle and lower zone sparing medial part of left upper zone. Features are suggestive of encysted pleural effusion (left)

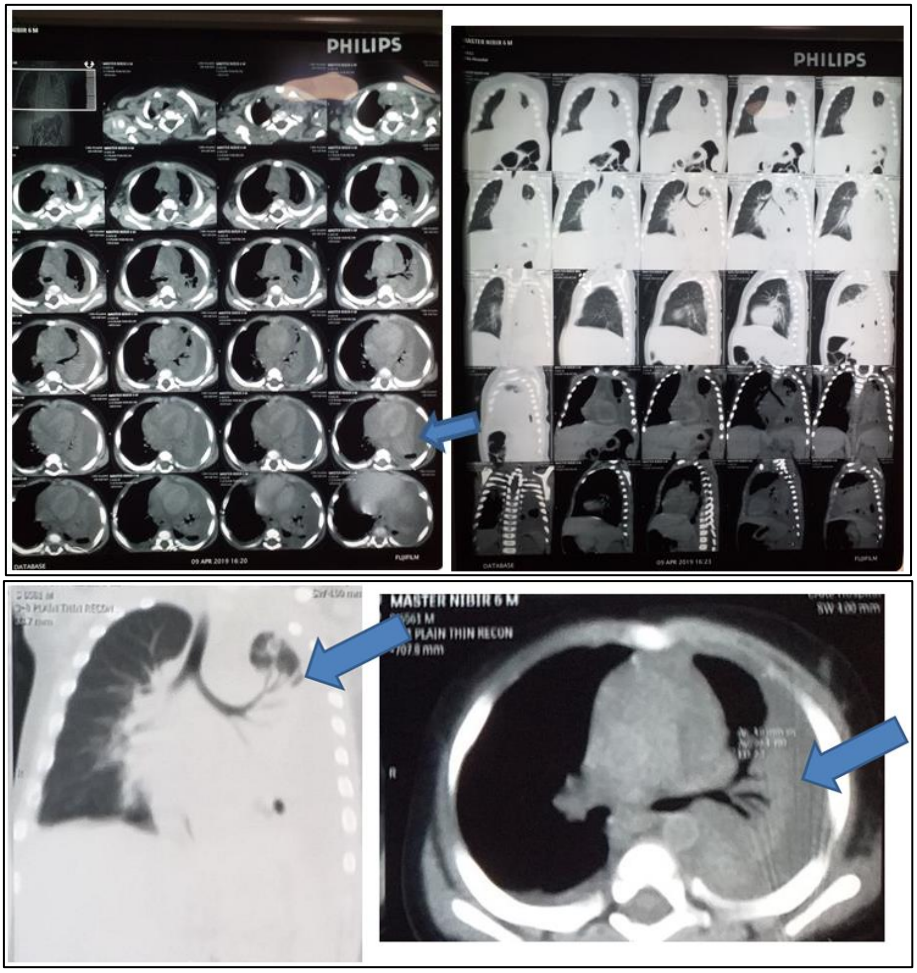

Figure 2: HRCT chest shows hypodense area with collapsed lung marking in left hemithorax. Features are suggestive of collapsed left lower lobe with pleural effusion and inflammatory changes in left upper lobe

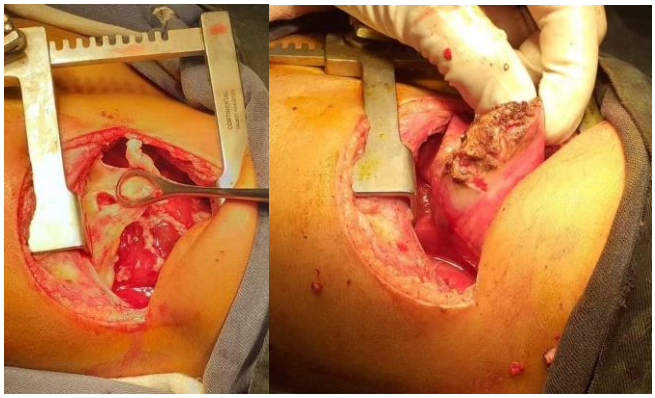

Figure 3: Per operative picture shows (Lt) pleural thickening, adhesion of oblique fissure, and (Rt) burst lower lobe of left lung due to abscess

Figure 4: The boy with his mother after recovery

DISCUSSION

In this case, ruptured lung abscess in left lung resulting from pneumonia caused empyema thoracis without pneumothorax due to air couldn't come out into pleural space owing to thickened pus. The common site of primary lung abscess predominantly develops on the right side unlike our case. If aspiration is the cause, then the upper lobes of either side are commonly involved [2]. Moreover, ruptured lung abscess in middle lobe is also a rare incident in paediatric population [2].

In a retrospective study from Taiwan, out of 27 children over a period of 16 years, 70% had underlying chronic diseases, and aspiration yielded 63.6% positive cases [6]. In another retrospective review of 23 lung abscess in children over a 20-year period revealed 11 cases were primary lung abscess, and 12 secondary, and they could isolate pathogens in 16 patients and blood cultures yielded in only 3(13.0%) cases, and the most common microorganism was streptococcus pneumonia [7].

Singhal *et al*, in their study showed two adult cases of ruptured lung abscess, one in left lower lobe and other in right lobe. In first case, x-ray revealed left hydropneumothorax and finally confirmed by CT of chest. This patient was completely recovered by appropriate antibiotics, intercostal drainage and chest physiotherapy. In second case, the abscess was in right lower lobe and pleural space. Bronchography was done with fiber optic bronchoscope and CT thorax taken. Post-bronchography showed presence of dye in pleural cavity, confirming the presence of bronchopleural fistula. Tuberculosis was diagnosed and well responded with antitubercular drugs [1]. In our study x-ray and CT of chest revealed encysted pleural effusion and inflammatory changes in left upper lobe and finally diagnosed per operatively raptured lung abscess in left lower lobe with empyema thoracis. Patient was treated with decortication with segmental resection, and inj. linezolid after getting C/S and recovered [1].

Management of lung abscess comprises of medical and few cases surgical like lobectomy. Parental antibiotics should cover gram positive organisms like staphylococcus aureus and anaerobes for 3 weeks followed by oral in uncomplicated cases for 4-6 weeks [6, 8].

For primary lung abscess the prognosis is good and in secondary cases, prognosis is bad in case of aerobic organisms [3].

CONCLUSION

In this case we see the ruptured lung abscess of left lower lobe with empyema that cannot be diagnosed easily by clinically and radiologically. So, in order to avoid delayed diagnosis and intervention of lung diseases, we should keep in mind some complex consequence of common diseases along with very common differential diagnosis.

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