CASE REPORT

Empyema Thoracis: A Case Report of an Unusual Respiratory Catastrophe in a Neonate

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Abstract

The community-acquired methicillin-resistant *Staphylococcus aureus* of skin and soft tissue infection is commonly seen in neonates. Here, we present a neonate with the empyema thoracis. He was managed successfully with respiratory support, antibiotics, and surgical intervention and discharged home on full feeds.

Keywords: Empyema thoracis, Methicillin-resistant *Staphylococcus aureus*, Neonate, Thoracotomy.

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Case Description

A 15-day-old neonate was brought to the emergency department with a history of cough, hurried to breathe, and inactivity for the last 3 days. He was born term by normal vaginal delivery with no immediate neonatal morbidity. He was started on breastfeeding from birth and got discharged home on day 3 of life. He developed a running nose on day 10 of life and progressed to have fever and difficulty in breathing. On examination, he was in respiratory distress, with the heart the sound is felt on the right side, required ventilator support to stabilize. The chest roentgenogram showed the collapse consolidation of the left lung with mediastinum shift to the right (Fig. 1). The heart sound was felt on the right side of the chest, and the extraposition of the heart was confirmed on echocardiography (Fig. 2) and structural heart disease also was ruled out. Because of worsening respiratory distress, the bedside ultrasound chest was performed which demonstrated pus in the pleural space (Fig. 3). The diagnostic tap of pleural space was performed and 15 mL of thick pus was aspirated and sent for analysis (Fig. 4). The pus grew methicillin-resistant *Staphylococcus aureus* (MRSA) sensitive to vancomycin. He was treated for 21 days with a dose of 15 mg/kg/dose 6th hourly. As the pus was thick and respiratory distress was worsening, the thoracotomy and decortication were done. Gradually, the respiratory distress settled, and chest roentgenogram demonstrated the clearance of the lung (Fig. 5). He gradually improved and was discharged home on direct breastfeeding.

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Discussion

Over the last decade, the community-acquired MRSA infection is at rise all over the world.

Fig. 1: Chest X-ray showing left-sided pleural effusion with collapse and a shift of the mediastinum to the right

Fig. 2: Placement of the ultrasound probe in the right second intercostal space to demonstrate a parasternal long-axis view of the heart (usually the probe is placed in the left second intercostal space) indicating the dextroposition

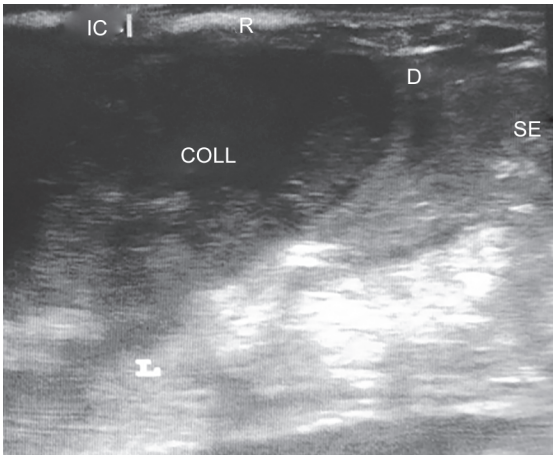

Fig. 3: Ultrasound of the chest demonstrating a collection of pus in the left pleural cavity

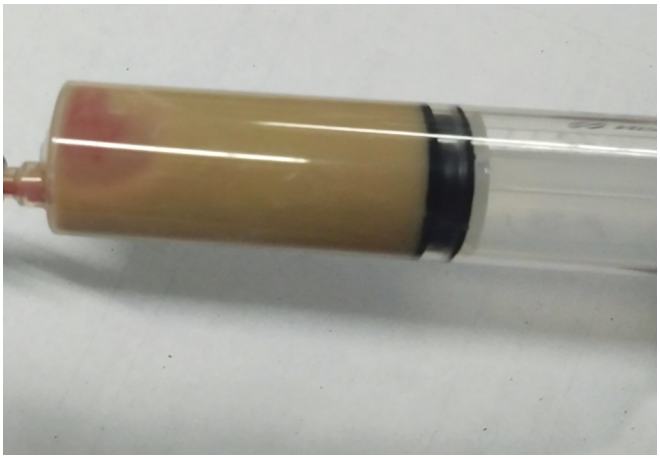

Fig. 4: Pus collected in the syringe from the pleural cavity post intercostal drainage

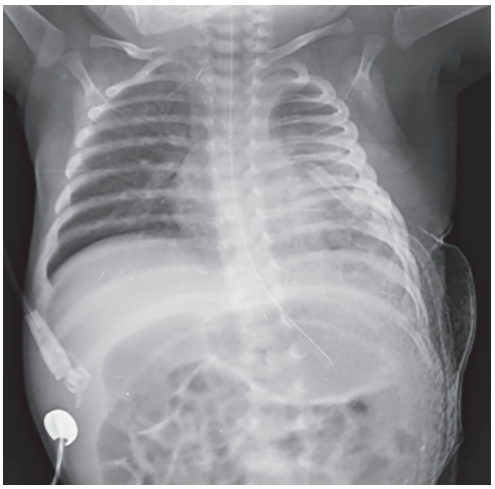

Fig. 5: Chest X-ray showing the clearance of the lung post-thoracotomy and decortication. *In situ* chest drain is seen

The worsening of respiratory distress occurs either as an early onset or late onset of sepsis, vertical transmission is the main route of transmission in early-onset sepsis. There are many cases reported in neonatal pleural effusion such as empyema, para pneumothorax, chylothorax, hydrothorax, and leakage from the central line.[1] The incidence varies from 5.5 per 10,000 to 2.2%.[2,3] Our case was diagnosed with late-onset sepsis in the form of pneumonia caused by MRSA and further complicated by empyema. The change in the pulmonary venous hydrostatic pressure, blood oncotic pressure, and lymphatic pressure and local tissue damage will lead to pleural effusion.[4] The roentgenogram and the bedside ultrasound are useful in the diagnosis of pneumonia and pleural effusion, as it was evidenced in our index case. A pleural fluid culture is an essential tool in identifying the pathogen in 60–80% cases, and the blood culture yield is seen only in 13–31% cases.[5] There are three different stages of empyema: exudative, fibrinopurulent, and organized. In our index case, the ultrasound-guided aspiration of pus was performed and aspirated 15 mL of pus. The neonate underwent thoracotomy and decortication because of worsening.[6]

The thickened pleura with the trapped underlying lung usually needs thoracotomy and decortications. Gradually, he improved and got discharged home on full feeds. His clinic follow-up was unremarkable.

References

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