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Case report

Mycoplasma pneumonia with hydropneumothorax: A case report

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ABSTRACT

Mycoplasma pneumoniae is one of the most common causes of community-acquired pneumonia in adults. Mycoplasma pneumoniae pneumonia (MPP) presents with pulmonary and extrapulmonary manifestations. Pneumothorax is a rare MPP complication in children. But, we reported a case of MPP with hydropneumothorax in an adult. The association of MPP, hydropneumothorax, and empyema is extremely rare.

1. Introduction

Community-acquired pneumonia (CAP) is an important cause of hospitalizations and mortality among all age groups. Mycoplasma pneumoniae (MP) is among the most common respiratory pathogens causing CAP [1,2]. Pleural effusion is a rare complication of mycoplasma pneumoniae pneumonia (MPP) [3]. Spontaneous pneumothorax associated with MPP has only been reported in children [4]. We report a case of MPP in an adult, presented with a hydropneumothorax (HNT) due to a pleural effusion. This secondary spontaneous pneumothorax resulted from a parenchymal lung infection.

2. Case

A 35-year-old female with a history of asthma and anxiety presented with three weeks of progressively worsening shortness of breath (SOB). Initially evaluated at another facility, a computer tomography (CT) scan of the chest revealed multiple nodules with irregular borders and speculated margins. Prescribed oral antibiotics, she was to follow up with her physician. However, more symptomatic and with new onset chest pain, the patient came to an emergency department. She complained of SOB, chest pain, a productive cough, and of fever. Attributing this to asthma, she used her inhaler daily, but without relief. A chest x-ray documented a large left-sided hydropneumothorax with air-fluid levels. These findings were confirmed by a repeat chest CT evidencing a left superior pneumothorax with a 30% volume loss, and a left pleural effusion (Fig. 1). Intravenous vancomycin and piperacillin-tazobactam were infused. A chest tube placed in the left pleural cavity produced fluid output of about 300mL. Pleural fluid analysis was consistent with an exudate. Serologies for organisms were negative, except the MP IgM titer which was positive. Sputum gram stain and cultures were unremarkable. Based on these findings, antibiotic therapy changed to a 14-day course of azithromycin. A third CT chest documented collapse of the left lung, with cavitation, left-sided pleural thickening, and a fluid density, likely to be an empyema. Subsequently, a pneumonectomy, with left lung decortication, was performed because of the empyema and left-sided pneumothorax. Her condition improved without any complication.

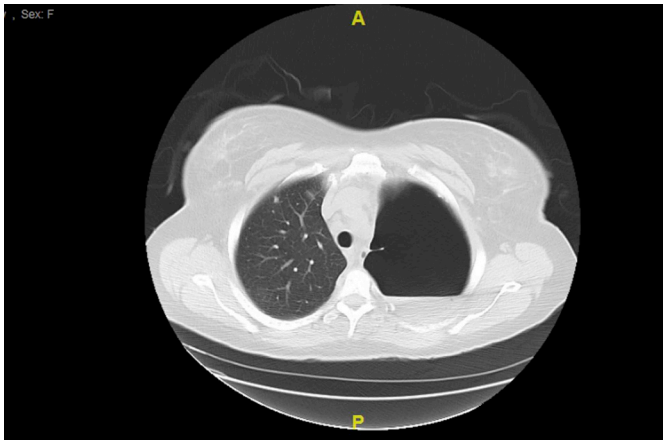

Fig. 1. Left sided Hydropneumothorax.

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3. Discussion

The prevalence of MPP is underestimated, since most patients infected with MP usually are asymptomatic and rarely seek medical attention. MP is a common etiology for CAP. MPP is often called “walking pneumonia” because of its presumed benign nature. Fulminant MPP accounts for 0.5–2% of cases, commonly among healthy, young individuals [5].

The presentation of MPP is usually non-specific with pulmonary or extrapulmonary manifestations [6–8]. Severity increases with the bacterial burden and any lack of pre-existing antibody [9,10]. Fever, myalgias, headache, a productive cough, and/or gastrointestinal complaints are frequent at presentation. The disease is often self-limiting, with a good prognosis; however, MPP can be life-threatening, resulting in respiratory failure or acute respiratory distress syndrome (ARDS). Fulminant presentations with diffuse alveolar hemorrhage and/or ARDS are reported [6–12]. Pulmonary complications like parapneumonic effusions are rare and occur mainly in children or adolescents; most cases are unilateral, low-volume, and resolve with antimicrobial therapy [13–15].

Pulmonary complications of MPP include acute alveolitis, abscesses, cavity formation, pleural effusions, and interstitial fibrosis. Underlying condition such as diabetes, cancer, and heart disease complicate the course of MPP [16]. The patient discussed had HNT and an empyema due to a pleural effusion induced by MPP.

Diagnosing MPP is difficult especially since radiographic findings can be variable. However, focal reticulonodular opacification confined to a single lobe is associated with MPP; consider the diagnosis whenever focal or bilateral reticulonodular opacification are evident. Transient pseudo-consolidations with confluent interstitial shadows or atelectasis are also common. The definitive diagnosis of MPP is not based on imaging features, rather but on combination of clinical, radiographic, and serological findings [15]. MP cannot be identified on gram stain due to its lack of a cell wall. Enzyme-linked immunoassay-based serology for IgM, IgA or IgG against MP is useful in diagnosis [17]. In our case, we confirmed the diagnosis using IgM titres. There is no differentiation between throat swab polymerase chain reaction positivity rates of individuals with suspected MP and those of healthy subjects [18]. Evaluate pleural effusions with thoracocentesis and laboratory testing to distinguish a transudate from an exudate and help define the etiology [19].

Whenever the diagnosis of MPP is not confirmed, empiric antimicrobial therapy for atypical pneumonia is prescribed initially. In such cases, macrolides such as azithromycin and erythromycin, doxycycline, or a fluoroquinolone such like levofloxacin are the most common choices [20].

Empyema can be managed by prompt initiation of antibiotic therapy, pus drainage, and restoring lung expansion. Needle thoracocentesis analysis, gram staining, and culture confirm the diagnosis of empyema. Thoracocentesis and pharmacotherapies are successful in treating 6%–20% of patients with an empyema. Closed tube thoracostomy with underwater drainage produces better remission rate. Patients who do not respond to tube drainage and antibiotic medications indicate a need for removal of the restrictive peel by open or thoracoscopic surgery [21]. Recurrent effusions and intractable or recurrence pneumothorax can be treated with pleurodesis [22,23].Surgical modalities like decortication, pleurectomy, pleuropneumonectomy, window operation, fenestration, thoracostomy, and thoracoplasty are available; however, there is no established best method to treat people with an empyema [24]. The indication for empyema surgery is infection control, not lung function impairment. Decortication should be planned for patients not responding to appropriate antibiotics and drainage, along with persistence of fever, provided they are fit for it [25].

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