CASE REPORT

Mycoplasma Pneumonia On the Rise

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ABSTRACT

Mycoplasma infections have been on the rise in the United States since spring of 2024. Notably, children under five years of age are being affected more than before. Symptoms are usually mild, self-limited, and typically include fever, cough, runny nose, and sore throat. Diagnosis can be made clinically or confirmed by respiratory panels. First-line treatment includes macrolides; although, doxycycline and fluoroquinolones can also be used. Providers should consider Mycoplasma if patients fail empiric treatment of community-acquired pneumonia with beta-lactams like amoxicillin.

INTRODUCTION

Cases of *Mycoplasma pneumoniae* pneumonia, also known as "walking pneumonia" or atypical pneumonia, have been on the rise since spring of 2024 in both adult and pediatric populations[1].

CASE PRESENTATION

A five-year-old male with no significant past medical history presents to the emergency department with shortness of breath following three days of worsening cough, fever and decreased activity. He was seen two days prior to presentation by his pediatrician and was diagnosed with community-acquired pneumonia. He was given a prescription for high-dose amoxicillin (45 mg/kg twice daily) and patient was adherent with medication. His symptoms did not improve. He returned to the emergency department (ED) because he was noted to be breathing "heavily."

In the ED, his temperature was 101° F, a heart rate of 120/minute, and a respiratory rate of 38/minute. His oxygen saturation was 87% in room air. Physical exam was remarkable for decreased breath sounds bilaterally in the lung bases, with scattered crackles and wheezes. He was able to say 3-4 words between episodes of coughing. The remainder of his physical exam was unremarkable. A chest X-ray showed patchy areas of consolidation and perihilar infiltrates.

He was placed on two liters of oxygen via low flow nasal cannula which improved his oxygen saturations to 90-94%. He was given

acetaminophen for his fever, IV Ampicillin/Sulbactam (Unasyn® 300 mg/kg/day divided every 6 hours) was started and patient was hospitalized. On day two of hospitalization, after receiving three doses of IV Ampicillin/Sulbactam, he was not improving and continued to need supplemental oxygen. His physical exam remained unchanged. Due to the lack of improvement and findings of diffuse crackles and wheezes on physical exam, *M. pneumoniae* infection was suspected. A respiratory pathogen panel was performed and was reported positive for *M. pneumoniae*. He was started on azithromycin (10 mg/kg). By day 3, he was weaned off supplemental oxygen as his respiratory symptoms improved. He was discharged home with instructions to complete azithromycin for a total five-day course.

DISCUSSION

Once regarded as an infection that primarily affected school-aged children and adolescents, *M. pneumoniae* pneumonia is now being seen more frequently in infants and toddlers. Data collected from the Center of Disease Control (CDC) show that from January 2024 to November 2024, the discharge diagnosis of *M. pneumoniae* infections increased from 0.4% to 7.6% in children ages 0-1, from 0.3% to 7.0% in children ages 2-4, and from 2.2% to 7.6% in children ages 5-17.[1] In 2024, the diagnosis of *M. pneumoniae* infections peaked in August in children ages 2-4 and 5-17. However, at the time of writing this article, the diagnosis of *M. pneumoniae* infections is peaking in some of the most vulnerable children, infants ages 0-1 year of age. Given these increasing numbers, it is important for clinicians to be familiar with the epidemiology, presentation, diagnosis, and treatment of *M. pneumoniae* infections, including pneumonia.

EPIDEMIOLOGY

Mycoplasma pneumoniae is a bacterium that causes an atypical community-acquired pneumonia. It is transmitted via respiratory droplets with outbreaks occurring in places with close contact including schools, college dorms, prisons, nursing facilities, hospitals, and military barracks. It affects all age groups but most commonly affects children ages 5-17. About 2 million infections occur each year in the United States, though many infections go undetected due to lack of point-of-care testing and mild clinical presentation.[2] Per CDC data, since Spring 2024, the number of positive tests has increased from 0.7% to 3.3% for all age groups.[1] The best methods for preventing the spread of *M. pneumoniae* are appropriate hand-washing, good cough etiquette by covering mouth and nose when coughing or sneezing, and wearing masks.

PRESENTATION

Infection with *M pneumoniae* is usually mild and self-limiting. The incubation period ranges from 1-4 weeks, which is longer than for most pathogens. Symptoms of infection are non-specific and can include, but are not limited to: fever, rhinorrhea, cough, pharyngitis, tracheobronchitis, otalgia, headache, and malaise. Cough can persist for 3 to 4 weeks, which can be distressing to children and their families.[3] Extrapulmonary manifestations include erythema multiforme[4] and reactive infectious mucocutaneous eruptions (RIME)[5,] hemolysis due to IgM cold agglutinins[2], arthralgias[6], and GI disturbances. Cardiac manifestations include pericarditis, myocarditis, endocarditis, and cardiac tamponade.[7] Another disease process caused by *M. pneumoniae* that has garnered attention is Mycoplasma-induced Acute Disseminated Encephalomyelitis (ADEM).[8,9]

Physical exam findings are non-specific and can include scattered rales and wheezes or decreased aeration throughout lung fields. Some extrapulmonary physical exam findings include oropharyngeal erythema, erythematous maculopapular rash, and bullous myringitis.

DIAGNOSIS

Diagnosis of *M. pneumoniae* pneumonia is mostly made in the outpatient setting based on history and physical exam. It is often diagnosed after there is lack of improvement on empiric treatment of community-acquired pneumonia with beta-lactams such as amoxicillin. There is no approved point-of-care testing for *M. pneumoniae* in the United States. However, it is included on many respiratory pathogen panels that utilize PCR testing. These tests are more commonly used in EDs and hospitals. The remainder of the bloodwork may be normal, or it may show hemolysis, and/or there may be elevated inflammatory markers such as CRP or procalcitonin. Given that many of the laboratory findings are non-specific or may not be present, labs tests are not usually required to make the diagnosis. Chest x-ray findings are also non-specific and not necessary for diagnosis. The most common chest x-ray findings are unilateral or bilateral patchy areas of air-space opacification or a diffuse reticulonodular pattern.[10]

TREATMENT

Antimicrobial treatment is not necessary in all cases of *M. pneumoniae* pneumonia. When antimicrobial treatment is needed, macrolides, most commonly azithromycin, are the first-line treatment. *Mycoplasma pneumoniae* does not have a cell wall, which makes it resistant to beta-lactam antibiotics that act by disrupting cell wall synthesis.[2] Fortunately, macrolide resistance remains low in the United States; especially compared to other parts of the world such as Asia.[11] Though not commonly used in pediatrics due to their side effect profiles, doxycycline and fluoroquinolones can also be used for treatment of *M. pneumonie* infections. Supportive care should also be encouraged.

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