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ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

Medical Imaging Quiz – Case 80

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ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2025, 42(1):137–138

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A 21-year-old male patient presented with fever, fatigue and cough for 8 days. He referred travelling to South Africa two months ago. Clinical evaluation revealed pathological auscultatory findings, whereas laboratory findings were normal. A chest computed tomography (CT) was performed which revealed the underlying pathology (fig. 1).

Comments

Mycoplasma pneumoniae is one of the most frequent causes of community acquired pneumonia (CAP) in otherwise healthy adults until age of 40 and is particularly common between the ages of 5 to 20 years accounting for 40% of CAP in this age-group. It is "atypical" with regard to resistance to beta-lactam antibiotics, paucity of sputum, minimal leukocytosis and rarity of lobar consolidation.

Transmission is human to human by respiratory droplets induced by coughing and the incubation period is long, averaging 2 to 3 weeks. Up to 10% of those infected develop pneumonia. Outbreaks commonly occur in schools, colleges, hospitals, aged-care facilities and in closed populations such as military establishments or prisons. Epidemics may occur every 3 to 5 years. Lingering cough is typical and organisms continue to be excreted after clinical recovery.

Mycoplasma pneumoniae is a tiny parasitic bacterium in the class mollicutes. They lack a cell wall, making them resistant to penicillins and invisible on Gram stain. M. pneumoniae causes upper and lower respiratory tract disease. It binds to ciliated epithelium preventing ciliary clearance. Pneumonia severity depends on the maturity of the host immune system.

Bronchitis and peribronchitis with interstitial thickening, alveolar filling and areas of atelectasis are typical, similar to other atypical pneumonias. Fatal pneumonia is rare and is associated with edema, mucosal ulceration, hemorrhage, acute respiratory distress syndrome (ARDS), thrombosis, disseminated intravascular coagulation (DIC) and multi-organ failure. Fulminant infection accounts for less than 0.5% of cases.

Confirmation of the diagnosis is helpful to track outbreaks or to investigate autoimmune complications such as hemolytic anemia, myocarditis or encephalitis. DNA testing using nucleic acid amplification techniques (NAATs) and real-time PCR is rapid and reliable if there are sufficient organisms in the sample. A positive result can

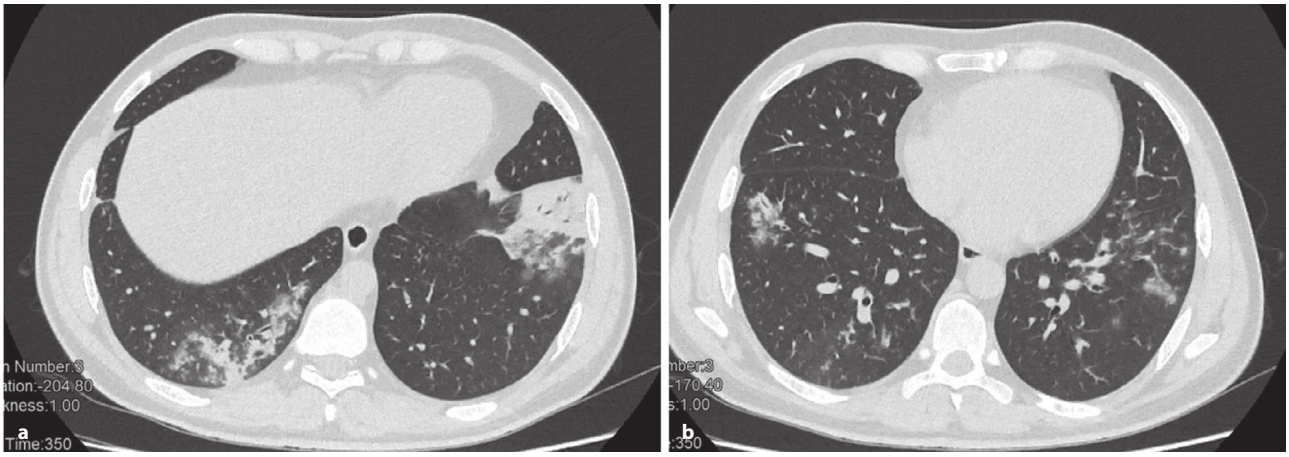

Figure 1. Chest computed tomography (CT) images revealed bilateral lower lobe bronchopneumonia with tree-in-bud pattern, peri-bronchial thickening, patchy distribution, ground glass opacities and left lobular opacity.

indicate active or recent infection or the presence of commensal or non-viable organisms. Rising antibody titers indicate active infection in immune-competent hosts.

Following infection, non-productive cough slowly increases over a period of 2 to 3 weeks becoming incessant and persisting for weeks. Although spontaneous resolution is the rule, <25% develop extrapulmonary invasion or autoimmune disease which can be severe.

Clinical features invariably include intractable cough and headache (typical), low fever and chills, sore throat, tracheobronchitis, arthralgia and myalgia, septic arthritis and osteomyelitis and dermatological complications. Central nervous system (CNS) invasion is relatively common and is usually delayed by about 10 days; however, in 20% respiratory disease may be absent. Cardiac disease is uncommon and generally affects adults.

Radiographic findings may be greater than expected from the clinical features and commonly include uni- or bilateral lower lobe or perihilar bronchopneumonia with reticulonodular opacity, bronchial cuffing and linear atelectasis. Lobar consolidation is rare but interstitial disease may cause confluent hazy opacity. Small effusions can be seen on lateral views or decubitus views in up to 20% and may indicate more severe disease. Empyema is rare. Hilar lymphadenopathy is uncommon. CT findings include centrilobular nodules and tree-in-bud pattern, peri-bronchial thickening, patchy distribution, hazy and ground glass opacities, lobular opacity, pseudoconsolidation due to interstitial disease, pleural effusion in 20%. Viral and other atypical pneumonias such as Chlamydia pneumoniae which cause a bronchitis/bronchopneumonia pattern. Hilar lymphadenopathy with patchy lung opacity could mimic tuberculosis (TB).

Most patients recover well without antibiotics. Patients with serious complications, patients with immune-deficiency and those with sickle cell disease should be treated. Macrolides such as azithromycin and clarithromycin are generally effective and are preferred in children due to lower toxicity. Resistance is known to occur. Tetracyclines are indicated for CNS involvement. Fluoroquinolones are bactericidal and therefore advantageous for immunocompromised patients and systemic infection. Immunity is short-lived and reinfection is possible.

References

1. CAMERON DC, BORTHWICK RN, PHILP T. The radiographic patterns of acute mycoplasma pneumonitis. *Clin Radiol* 1977, 28:173–180
2. REITTNER P, MÜLLER NL, HEYNEMAN L, JOHKOH T, PARK JS, LEE KS ET AL. *Mycoplasma pneumoniae* pneumonia: Radiographic and high-resolution CT features in 28 patients. *AJR Am J Roentgenol* 2000, 174:37–41
3. KASHYAP S, SARKAR M. *Mycoplasma* pneumonia: Clinical features and management. *Lung India* 2010, 27:75–85
4. BAJANTRI B, VENKATRAM S, DIAZ-FUENTES G. *Mycoplasma pneumoniae*: A potentially severe infection. *J Clin Med Res* 2018, 10:535–544
5. DUECK NP, EPSTEIN S, FRANQUET T, MOORE CC, BUENO J. Atypical pneumonia: Definition, causes, and imaging features. *Radiographics* 2021, 41:720–741

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