

Atypical cause of lobar collapse

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DESCRIPTION

A 6-year-old previously healthy boy presented with a 5-day history of fever, malaise and pharyngitis. His parents brought him to the emergency department due to a new onset of cough and difficulty in breathing. He was fully immunised with no recent travel history or infectious contacts. At presentation his respiratory rate and oxygen saturation were normal. Chest examination revealed reduced air entry over the right upper zone. His chest radiograph (day 7 of illness, [figure 1](#)) showed right upper lobe subsegmental consolidation and right paratracheal lymphadenopathy. He was discharged with oral co-amoxiclav, however re-presented after 48 hours with worsening symptoms.

On admission he was feverish (38.5°C), hypoxic (saturation 91% breathing room air) and tachypnoeic (respiratory rate 28 breaths/min). Examination demonstrated signs of respiratory distress with bronchial breathing over the right upper zone, pharyngeal congestion, anterior cervical lymphadenopathy but no hepatosplenomegaly. Investigations showed a normal white cell count ($5.78 \times 10^9/L$), neutrophil count ($3.28 \times 10^9/L$), lymphocyte count ($1.58 \times 10^9/L$) and a mildly raised C-reactive protein (10 mg/dL). A repeat chest radiograph (day 10 of illness, [figure 2](#)) demonstrated right upper lobe collapse and consolidation within the left lower lobe. He was referred to a specialist paediatric respiratory team on day 12 of his illness due to persistent fever and respiratory symptoms.

Right upper lobe collapse secondary to extrinsic bronchial obstruction due to lymph node enlargement should prompt exclusion of tuberculosis (TB). However, the clinical presentation is more suggestive of an atypical infection which has not improved with empirical treatment for a presumed typical



Figure 1 Chest radiograph (day 7 of illness). There is right upper lobe subsegmental consolidation and right paratracheal lymphadenopathy; the lungs are also hyperinflated.



Figure 2 Chest radiograph (day 10 of illness). There is a dense right upper lobe collapse; consolidation is present within the left lower lobe and right middle lobe.

community-acquired pneumonia (CAP). Investigations for TB including Mantoux test, Quantiferon-TB and three early morning gastric aspirates were negative. Nasopharyngeal aspirate for respiratory virus detection by reverse transcription PCR was also negative. As the cough was non-productive, sputum cultures were not sent. Multiplex PCR assay was positive for *Mycoplasma pneumoniae* from an oropharyngeal swab. This patient showed significant clinical and radiological response to intravenous co-amoxiclav and oral azithromycin after 5 days. Follow-up (8 weeks) chest radiograph showed complete aeration within the right upper lobe.

M. pneumoniae pathogenicity arises from specialised terminal organelles composed of integral membrane proteins (eg, P30) that mediate attachment and gliding motility along the respiratory epithelium.¹ *Mycoplasma* lacks a peptidoglycan cell wall, differentiating it from other bacteria and conferring intrinsic resistance to beta-lactam antibiotics that inhibit cell wall synthesis.² Macrolides exhibit activity against *Mycoplasma* by binding to the 50S ribosomal subunit inhibiting protein synthesis at the chain elongation step.

M. pneumoniae in children hospitalised with CAP is associated with variable radiographic abnormalities.^{3,4} In a prospective study of 2254 US children (<18 years) hospitalised with CAP, 8% were *M. pneumoniae* PCR-positive.⁴ Hilar lymphadenopathy was more common in *M. pneumoniae* PCR-positive than negative children (10% vs 6%; $p=0.02$).⁴ There were no reports of lobar or segmental collapse. The most frequent radiographic abnormalities included consolidation (59%), single lobar infiltrate (32%) and pleural effusion (26%). Our case highlights an 'atypical' radiographic presentation of *M. pneumoniae* responsive to both the antimicrobial and anti-inflammatory effects of a macrolide agent.



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Learning points

- ▶ *Mycoplasma pneumoniae* pneumonia is associated with variable radiographic abnormalities and should be suspected in those with a compatible clinical syndrome.
- ▶ An antibiotic with activity against *M. pneumoniae* (eg, a macrolide) should be considered in children of all ages who do not respond to treatment for a presumed typical community-acquired pneumonia .

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