When Coughing is a Burden

The Mycoplasma Story

by Professor Philip Eng

Mycoplasma infection is often misunderstood and probably over diagnosed. Infection caused by *Mycoplasma pneumoniae* typically cause respiratory symptoms. The organism was first discovered by Albert Bernhard Frank, a German biologist in 1889 who originally thought it was a fungus. There are over 100 species of Mycoplasma. The older name was called Pleuro-pneumonia like organisms (PPLO).

The Mycoplasma is the smallest bacteria known to man. They have no cell wall. As a result, common antibiotics like Penicillin and other beta lactams like Rocephine and Meropenam are ineffective as these antibiotics work by inhibiting cell wall synthesis. The *Mycoplasma pneumoniae* bacteria can cause either, upper respiratory tract infection (URTI) or pneumonia.

Note that many viruses (e.g. influenza, adenovirus) can cause exactly the same spectrum of diseases and is clinically indistinguishable.

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Upper versus Lower Respiratory Tract Infection

URTI describes infection involving the nose or the throat and causes symptoms like fever, running nose, sore throat or cough. The specific syndrome depends on which part of the upper airway is affected most (e.g. rhinosinusitis, tonsillitis or bronchitis). Most of these are due to viruses. URTI symptoms mainly cause discomfort and mortality is unusual. URTI is probably the most common cause for patients to see their primary care doctors. The disease is usually self limiting and antibiotics are usually unnecessary. Overuse of antibiotics results in an increase in resistance in the community. The challenge when facing the individual patient is deciding on the need for antibiotics. One useful guideline describes limiting the use of antibiotics for those with acute pharyngitis (i.e. fever and sore throat) to only those where Group A strep is the suspected pathogen (10%). Clinical suspicion of Group A Streptococcal throat infection is high when the patient has fever, no cough, tonsillar exudates and tender anterior cervical lymphadenopathy.

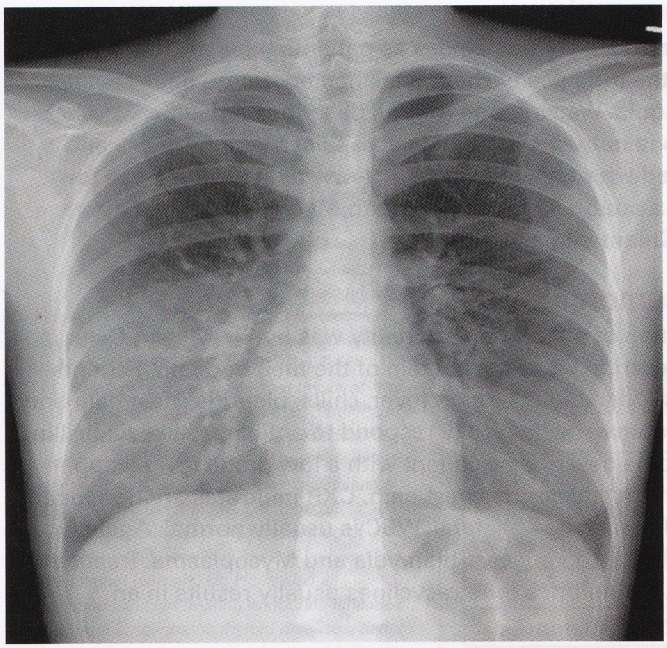
Patients with pneumonia usually have fever, cough, purulent sputum and chest pain. Clinical examination usually reveals abnormal findings on chest auscultation and the presence of an abnormal chest examination suggests the need for a chest x-ray. Pneumonia can be due to various etiologies and the *Mycoplasma pneumonia* patient is typically a young patient from the community with a low grade fever, non-purulent cough with little to no chest pain. Most patients are otherwise quite well and seldom require hospitalisation. It is important to recognise that patients who have asthma are predisposed to develop *Mycoplasma Pneumoniae* infections.

Frequency of Mycoplasma Pneumonia causing Community Acquired Pneumonia

Mycoplasma is a rare cause of pneumonia requiring hospitalisation including ICU admission. The converse is true. In patients with Community Acquired Pneumonia managed as outpatient, *Mycoplasma Pneumoniae* is a common cause (15%).

Is there a Need to Ascertain the Microbiological Cause of Respiratory Tract Infections?

In very sick patients with pneumonia (e.g. those admitted to the hospital ICU), it is useful to try to ascertain the microbiological cause. This is because various types of organisms have varying response to different antibiotics. Mortality from *Streptococcal Pneumonia* is about 10%, *Legionella* is about 30% and *Mycoplasma* is about 0.1%. Determining the cause of the pneumonia may involve blood tests or sputum tests or tests on fluid obtained via bronchoscopy. The situation is different with respect to upper respiratory tract infections. It is not usual to try to ascertain the etiology of upper respiratory tract infections as tests are costly; tests take time for the results to come back; they are usually caused by viruses which do not have any specific treatment; and the outcome in such patients is usually good and death is a rare event. The only situation where it is important to do testing for those with symptoms of upper respiratory tract infections is in situations of an epidemic (e.g. SARS or Pandemic Flu).



X-ray of 25-year old female with cough due to Mycoplasma Pneumonia.

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