Can a Spurious Blood Result give a Clue to the Aetiological Diagnosis of Pneumonia? A Case Report

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ABSTRACT

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Extra pulmonary manifestations of Mycoplasma pneumoniae pneumonia include hematologic, gastrointestinal, musculoskeletal, dermatologic, and neurologic complications. We report a case of serologically confirmed M. pneumoniae infection in a patient who presented with breathlessness and in whom the diagnosis was suspected because of evidence of hemolysis and some spurious values in the haemogram which were reported by the coulter counter haemogram machines due to the presence of cold agglutinins in the blood.

Keywords: Mycoplasma pneumoniae, Hemolytic anemia, Coulter counter

*See End Note for complete author details

INTRODUCTION

Mycoplasma pneumoniae is responsible for more than 20% of community acquired pneumonia cases, and is capable of causing upper respiratory illness as well. Complications of *M.pneumoniae* infections are numerous and includes haematological, neurological, cardiological and dermatological involvement.[1] Although all treatment guidelines for community acquired pneumonia recommend the coverage for atypical organisms such as Mycoplasma, it is usually very difficult to prove cases of atypical pneumonia and in particular the aetiological agent. The lack of feasible culture methods and under appreciation of the pathogen's ability to cause invasive disease leads to reduced number of diagnosed *M. pneumoniae* related complications. Herein we report a case of a lady with *Mycoplasma pneumoniae* infection who presented with pneumonia and subtle haematological abnormalities, but the prompt recognition resulted in optimal treatment and cure.

CASE HISTORY

A 55 year old lady with no known co morbidities presented to the respiratory clinic of our hospital with complaints of cough and breathlessness of two weeks duration which was preceded by history of low grade fever and headache. The cough was associated with scanty mucoid expectoration which did not foul smell. Her breathlessness was Class 2 MMRC initially which progressed to dyspnea at rest two days prior to admission. There was no postural or diurnal variation of dyspnea and there was no history suggestive of paroxysmal nocturnal dyspnea. For the same complaints she had consulted another physician and was started on oral cephalosporins but her symptoms did not subside and hence she came to our hospital. On examination she was tachypneic with a room air oxygen saturation of 90%. Other general examination findings did not

Table 1. Complete blood count values on Day 1, Day 2 and after the treatment

Normal values	3/3/2014 (Day 1)	4/3/14 (Day 2)	13/3/2014 (Day 10)
Hemoglobin 12-15g/dl	11.2	10.7	12.1
Total Leucocyte count 4000-10000 cells/cumm	8100	10700	6700
Differential count	$P_{69.6}L_{22.8}M_{6.7}E_{0.3}B_{0.6}$	$P_{89.6}L_{7.2}M_{2.9}E_{0.1}B_{0.2}$	$P_{50.7}L_{39.4}M_{8.6}E_{1.1}B_{0.2}$
RBC count 4.5-6.5 million/cumm	1.57	1.80	3.81
PCV 36-47%	13.5	16.3	33.7
MCV 82-92 fl	86.1	90.5	88.5
MCH 27-32pg	71.1	59.3	31.6
MCHC 32-36 g/dl	82.6	65.5	35.7
Platelet count 150-400 thousand/cu.mm	382	383	334

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reveal any abnormality. Examination of the respiratory system revealed bilateral rhonchi and crackles at the lung bases. Other systems were normal.

Her blood investigations are detailed in **table 1.**

Her chest x ray postero anterior view showed features of bronchopneumonia with a suspicious nodular lesion in the right lower zone **(figure 1).**

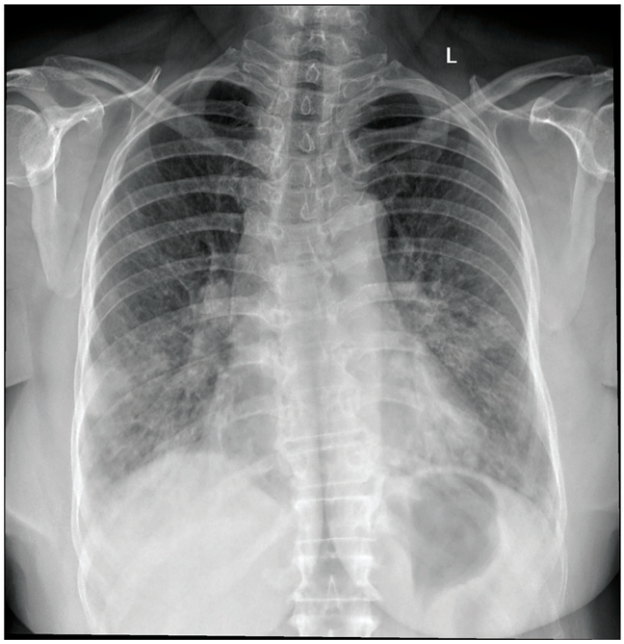

Figure 1. **Chest X Ray PA view showing bilateral bronchopneumonia**

Since it was thought that there was a laboratory error, complete blood counts repeated the next day which showed similar values **(table 1).**

While analysing the possible causes of such an abnormal haemogram values, one possibility that was considered was to look for the presence of cold agglutinins in blood. Hence cold agglutinin test was done and it was positive. There was evidence of hemolysis as evidenced by elevated LDH and reticulocyte count. This prompted us to specifically test for causes of atypical pneumonia and serum IgM and IgG for *Mycoplasma pneumoniae* were sent and she was started on oral azithromycin 500mg once daily for 5 days. A CT scan of the thorax was taken in order to evaluate the doubtful mass lesion in the right lower zone **(figure 2).**

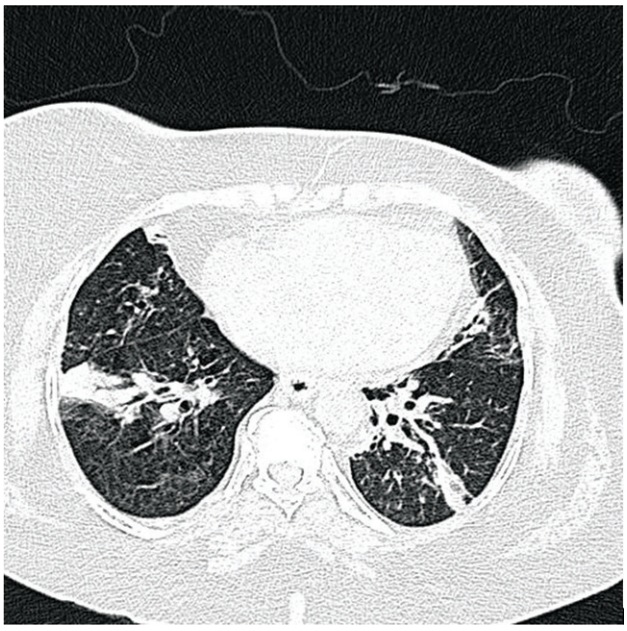

Figure 2. **HRCT chest lung window showing bilateral areas of patchy consolidation**

The CT scan showed features of bilateral consolidations with a dense patch of consolidation in the right lower lobe which was misinterpreted as mass lesion. She had a dramatic improvement with the therapy and was discharged after a couple of days. On review after 1 week her haemogram had normalized completely, chest

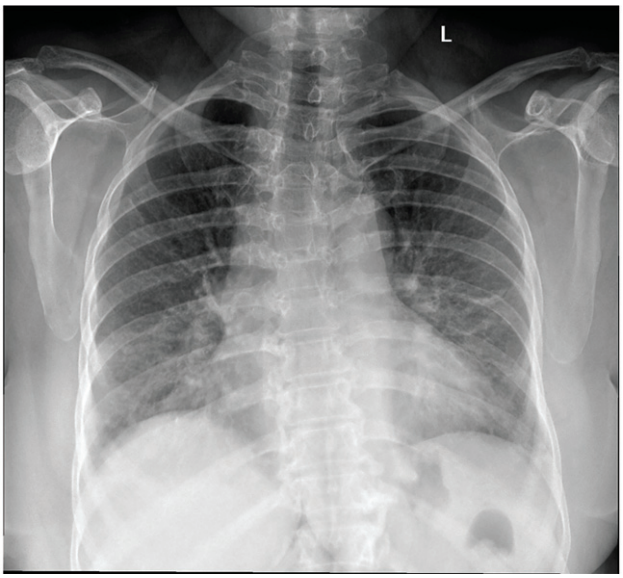

Figure 3. **Chest X Ray PA view showing clearance of the infiltrates after a adequate course of antibiotics**

X-ray showed considerable clearance **(figure 3)** while serial titres of IgM & IgG Mycoplasma showed a four fold rise in titre.

DISCUSSION

Mycoplasma are the smallest free-living organisms. *M. pneumoniae* is a short rod, but due to the lack of a cell wall it is not visible following Gram staining. It is spread from one patient to another by respiratory droplets produced by coughing. Mostly *M. Pneumoniae* affects the upper respiratory tract with 5-10% of case depending somewhat on age progressing to pneumonia.[2] Laboratory abnormalities include subclinical evidence of hemolytic anemia in the majority of patients with pneumonia suggested by a positive Coombs' test elevated reticulocyte count. Cold agglutinin titres are elevated in greater than 50 percent of patients with

Mycoplasma disease, and the titre usually exceeds 1:128 in patients with pneumonia however it is neither sensitive nor specific.[3] Enzyme immunoassay (EIA) techniques for IgM and IgG have been used with a sensitivity of 97.8 percent and specificity of 99.7 percent. EIAs are more sensitive for detecting acute infection than culture, and can be comparable in sensitivity to the polymerase chain reaction, assuming that enough time has elapsed.[4] Current recommended treatment include respiratory fluoroquinolones for 10-14 days or azithromycin 500 mg for 5 days with the latter having more invitro activity and lower rates of emergence of resistance.[5]

Though *Mycoplasma pneumoniae* is a common cause of community acquired pneumonia, proven cases do not match with the incidence of the disease especially in Indian scenario. There were many clues in our case which pointed towards a diagnosis of atypical pneumonia. The patient had not responded to oral cephalosporins which was started earlier in the course of her disease the reason being Mycoplasma does not have a cell wall. Abnormal values of MCH and MCHC which occurred due to false interpretation by the coulter counter due to abnormal clumping of RBC also helped us to go in the right direction.[6] This case report highlights the importance of analyzing even routine blood counts meticulously as it could give valuable clues regarding possible atypical pneumonia infection.

END NOTE

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Conflict of Interest: We, the authors declare that there are no competing interests present as far as this submission for publication is concerned.

Editor's Remarks: The article deals with a practical problem encountered during the management of a case of pneumonia. The experience will be of help in avoiding such pitfalls in future.

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