



Mycoplasma pneumoniae Induced Warm Autoimmune Hemolytic Anemia – A Rare Case Report

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Abstract

Mycoplasma infection is commonly associated with subclinical hemolysis. We report a case of *Mycoplasma* infection in a 15 year-old young lady who had severe anemia with hemoglobin level of 2.4 on presentations. There was clinical and radiological evidence of pneumonia, as well as elevated *Mycoplasma* antibody titer. Peripheral blood film was suggestive of AIHA with active hemolysis and Coombs test was strongly positive (4+) for IgG and C3d suggestive of warm AIHA. She was treated with oral Azithromycin, IV methylprednisolone, IV immunoglobulin and blood transfusion. She was discharged with oral prednisolone and showed a favorable recovery on blood count on follow up.

Introduction

Mycoplasma pneumoniae is commonly associated with IgM cold agglutinins result in subclinical hemolysis and mild elevation of reticulocyte count. However, severe hemolysis due to *Mycoplasma* infection is extremely rare. We herein report a case of severe warm Autoimmune Hemolytic Anemia (AIHA) associated with *Mycoplasma pneumoniae* infection.

Case Presentation

A 15-years-old young lady with no previous medical illness presented to tertiary hospital with fever, cough and vomiting for 1 week. On examination, she was pale and jaundiced. She was breathless on minimal exertion and tachycardia at rest. There were crepitations heard bilateral lower zones upon lungs auscultation. There was no organomegaly or lymphadenopathy. The rest of the examination was unremarkable. Chest radiography was suggestive of pneumonia with reticulo-nodular infiltrates seen over both lungs (Figure 1). Laboratory evaluation showed severe anemia with hemoglobin level of 2.4 g/dL, leukocytosis with total white count of 36.2 and platelet of 328. Others laboratory results included: serum total bilirubin 59 mg/dL with predominant indirect bilirubin, serum Lactate Dehydrogenase (LDH) 1761 U/L, serum sodium 135 mmol/L with creatinine level of 52 mmol/L. Blood and urine culture were negative. Urgent peripheral blood film was suggestive of AIHA and active hemolysis. Direct Coombs test was strongly positive (4+) for IgG and C3d suggestive of warm AIHA. Indirect Coombs test was positive as well but antibody identification revealed non-specific autoantibody IgG. Other autoimmune and virology screening were negative. The diagnosis of *Mycoplasma pneumoniae* infection was confirmed on the basis of high mycoplasma antibody titer of 1:1280. Further testing showed red cell phenotype was O positive, R1R1, Jka-b+ and ss. She was treated with intravenous immunoglobulin, intravenous methylprednisolone and oral azithromycin. 2 pints of least incompatible packed cell were transfused during her stay without transfusion reaction. She was discharged after 5 days with oral prednisolone and subsequent follow up reviewed normal blood count (Figures 2-4).

Discussion

Subclinical hemolysis is common in *Mycoplasma pneumoniae* infection but severe warm AIHA requiring intensive treatment and blood transfusion is rare. Our patient demonstrated a severe form of hemolytic anemia with presentation hemoglobin level of 2.4 g/dl and it showed warm AIHA suggestive by Direct Antiglobulin Test (DAT), requiring high dose steroid with IV immunoglobulin and blood transfusion. Although such cases were rare, there have been several case reports reporting similar presentation [1-3].

AIHA was defined as positive Direct Antiglobulin Test (DAT-positive) after exclusion of alternatives [4]. Autoantibody or complement fragment deposition on the RBC can be detected

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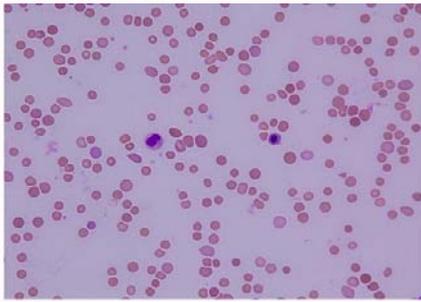


Figure 1: Patient's chest radiography on admission.

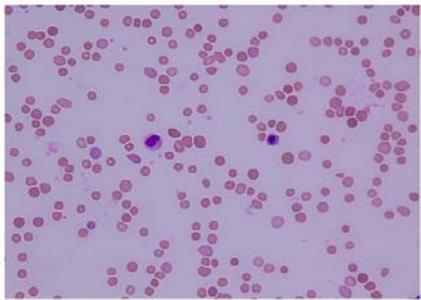


Figure 2: Peripheral blood film showed anemia with numerous spherocytes and polychromasia. Nucleated RBC also seen.

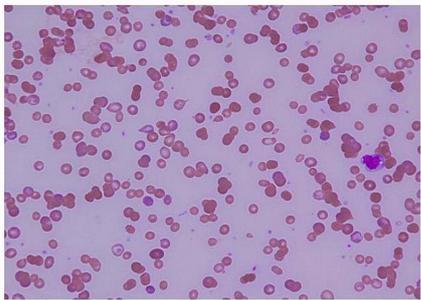


Figure 3: Presence of teardrop-shaped red cells and red cell auto-agglutination.

using polyspecific and monospecific DAT. Warm AIHA is caused by autoantibodies that bind red cells optimally *in vitro* at 37°C leading to destruction of red cells. Warm AIHA comprising mainly in adult cases which half of the cases are called primary because unknown etiology. Secondary warm AIHA such as lymphoproliferative disorder, autoimmune disease especially systemic lupus erythematosus [5,6], infections mostly viral or drug induced. The autoantibodies in warm AIHA are the IgG in most cases [7]. Complement fragments, most often C3d combined with IgG happened in 50% of warm AIHA. In other word, warm AIHA can be happened in the presence of DAT positive for IgG with or without C3d. C3d may be found in both cold and warm AIHA, hence testing for cold agglutinin in patient is needed.

Serology such as *Mycoplasma pneumoniae* enzyme-linked immunosorbent assays for immunoglobulin M and immunoglobulin G antibodies are currently widely used. The most convincing evidence of ongoing infection is a significant increase in IgG or an IgG seroconversion in paired sera, collected 3 to 4 weeks part [8]. In this case, our laboratory used particle agglutination test (Serodia

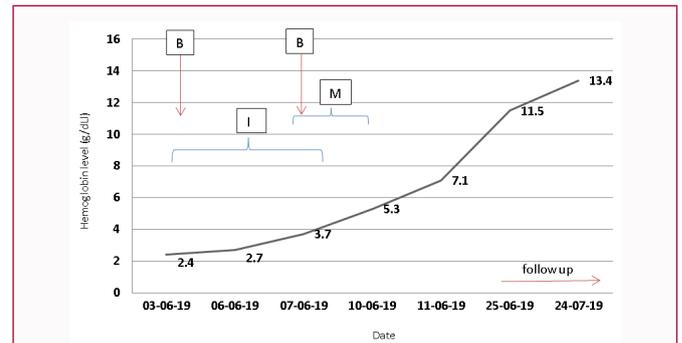


Figure 4: The chart showed series hemoglobin level and treatment given. A: Oral azithromycin; B: Blood transfusion; I: Immunoglobulin; M: Methylprednisolone

Myc II). Serodia Myco II is an *in vitro* diagnostic test for detection of antibodies to *Mycoplasma pneumoniae* which is manufactured using artificial gelatin particles sensitized with cell membrane component of *Mycoplasma pneumoniae* (Mac strain). In a study conducted in Malaysia, it concluded that titer of 1: >80 was the most suitable cut-off titer for diagnosis of *Mycoplasma pneumoniae* in Malaysians. Based on her clinical and radiological evidence suggestive of pneumonia, together with high titer of antibody detected, *Mycoplasma pneumoniae* infection was diagnosed. While other causes of hemolysis had been excluded, it is strongly suggestive warm AIHA in this patient was associated with *Mycoplasma* infection.

Corticosteroid with or without immunoglobulin remain the mainstay of treatment of warm AIHA. Our case report demonstrated that severe warm AIHA associated with *Mycoplasma pneumoniae* can also be treated with systemic corticosteroid and IV immunoglobulin. Nevertheless, she should be seen periodically to monitor for relapse and reemergence of new symptoms that suggest other underlying causes of warm AIHA [6].

Conclusion

Severe warm autoimmune hemolytic anemia can be associated with *Mycoplasma* infection which responded well with antibiotics, steroid, immunoglobulin and blood transfusion if indicated.

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