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Case Report

Autoimmune Hemolytic Anemia Secondary to Mycoplasma Pneumoniae Infection in a Child with Chromosomal Abnormality: Case Report

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Abstract:

Mycoplasma pneumoniae is a common cause of respiratory infections in children and is well recognized for its potential extrapulmonary complications, including autoimmune hemolytic anemia (AIHA). Cold agglutinin disease represents a rare but severe form of AIHA associated with Mycoplasma infection and may lead to life-threatening hemolysis. We report the case of a 7-year-old female with a pathogenic mosaic gain of chromosome 12p13 and multiple medical comorbidities who developed rapidly progressive cold agglutinin–mediated AIHA secondary to Mycoplasma pneumoniae infection. Her clinical course was marked by sudden hemodynamic collapse, profound anemia with a hemoglobin nadir of 2.7 g/dL, and an unusual presentation with bradycardia. Diagnostic evaluation confirmed immune-mediated hemolysis with a positive direct antiglobulin test for complement, positive cold agglutinin testing, and positive Mycoplasma IgM serology. Management included aggressive supportive care, packed red blood cell transfusions, pulse corticosteroid therapy, and targeted antibiotic treatment with azithromycin. The patient showed progressive clinical and hematological recovery.

Key words: mycoplasma pneumoniae; autoimmune hemolytic anemia; cold agglutinin disease; chromosomal abnormality; pediatrics

Introduction

Mycoplasma pneumoniae is a frequent cause of community-acquired pneumonia in children and adolescents, accounting for up to 40% of pediatric cases [1,2]. Extrapulmonary manifestations may occur in 25–50% of hospitalized patients and include neurological, dermatological, cardiovascular, and hematological complications such as autoimmune hemolytic anemia (AIHA) [1,3]. Elevated cold agglutinin titers are detected in up to 50–60% of infected patients; however, clinically significant hemolysis remains rare [6,12]. Severe cold agglutinin–mediated AIHA can lead to rapid hemodynamic deterioration and requires early recognition and aggressive management [7,8].

Case Presentation

A 7-year-old female with a pathogenic mosaic gain of chromosome 12p13, global developmental delay, seizures, and recurrent supraventricular tachycardia presented with fever, vomiting, and respiratory distress. She subsequently developed sudden cardiovascular collapse due to profound hemolysis, with hemoglobin dropping to 2.7 g/dL. Laboratory findings were consistent with hemolysis, including positive direct antiglobulin test for complement and reticulocytosis [4,6]. Mycoplasma pneumoniae infection was confirmed by positive IgM serology [2]. The patient required intensive care support, blood transfusions, corticosteroids, and azithromycin therapy, with eventual clinical and hematological recovery [5,7].

Discussion

Cold agglutinin hemolytic anemia associated with Mycoplasma pneumoniae is rare but potentially fatal [7,8]. The pathophysiology involves IgM antibodies directed against red blood cell I antigens, leading to complement activation and intravascular or extravascular hemolysis

[6,9]. Severe cases may present with cardiovascular instability, acute renal injury, and multiorgan dysfunction, necessitating intensive care support [5,8]. Management focuses on treatment of the underlying infection, avoidance of cold exposure, transfusion support, and immunomodulatory therapy in selected severe cases [7,10–12].

Conclusion

This case highlights that Mycoplasma pneumoniae infection can precipitate severe, rapidly progressive autoimmune hemolytic anemia in medically complex pediatric patients. Early diagnosis and prompt multidisciplinary management are essential to prevent fatal outcomes and ensure recovery [7,8].

Conflict of interest

The authors declare no conflicts of interest.

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