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Case Report

Adolescent with Acute Myositis Due to Mycoplasma pneumoniae Infection

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Abstract

Objective: *Mycoplasma pneumoniae* causes infections mainly in lungs. Central nervous system infections, cardiovascular, gastrointestinal, blood and joint disorders could also be appeared. In rare cases complications may occur in muscles such as calf muscle caused rhabdomyolysis. Evaluation of mycoplasma infection in adolescents with myositis is crucial in order to exclude influenza virus infection.

Case Report: In our case report a 15-year-old male patient proceed to emergency department with two days fever (39.2°C) cough, joint and muscle pain especially in calf muscle. Clinical examination of lungs revealed humorous sounds bilaterally. The enzyme-linked immune-assay revealed increased level of immunoglobulin IgM against *M. pneumoniae* (1: 160, Positive > 1:80) and IgG negative and increased CPK levels though blood analysis. Patient was diagnosed with rhabdomyolysis due to *M. pneumoniae* infection and went into improved general condition completing antibiotic treatment.

Conclusion: In cases of myositis the possibility of mycoplasma infection should always be investigated and treated with the onset of specific antibiotic treatment.

Keywords: *Myositis; Rhabdomyolysis; Mycoplasma pneumoniae*

Introduction

Mycoplasma pneumoniae causes infections in humans; most cases of mycoplasma infection are restricted to respiratory and above 3 to 10% of patients develop clinical pneumonia [1,2]. Apart from pneumonia extravascular manifestations in several cases also developed. Symptoms except lung infection may occur at 25% of patients. The main extravascular manifestations include central nervous system infection, cardiovascular, gastrointestinal, blood and joint disorders [2,3]. In rare cases complications may occur in muscles such as calf muscle caused rhabdomyolysis. At present study we present a rare case of myositis caused by *mycoplasma pneumoniae* infection in an adolescent male patient. Evaluation of mycoplasma infection in adolescents is crucial in order to exclude influenza virus infection [1,2,4]. Elevated levels of creatinine kinase (CPK) and myositis causing by mycoplasma seems to be related with reduced likelihood of acute renal failure and complications such as rhabdomyolysis, compared with myositis due to influenza infection.

Case Report

In our case report a 15-year-old male patient proceed to emergency department with two days fever (39.2°C) cough, joint and muscle pain especially in calf muscle. Clinical examination revealed HR = 119/min, blood pressure 108/71 mm Hg, RR: 29 breaths/minute, T = 38.8°C and SpO_2 97%. Clinical examination of lungs revealed humorous sounds bilaterally.

According to blood analysis revealed WBC: 5600/μL, N: 50.5%, L: 40.9%, M: 8.1%, Hgb: 10.5 g/dl, Hct: 33%, MCV: 53.3, PLT: 195000/μL, CRP: 3.14 mg/L, glucose: 80 mg/dl, Urea: 30 mg/dl, Creatinine: 0.6 mg/dl, SGOT: 246 IU/L, SGPT: 43 IU/L, Na: 137 mmol/L, K 5.0 mmol/L, Cl: 99 mmol/L, CPK: 6316 IU/L. *Streptococcus* and influenza A and B tests were negative and septum culture was normal.

Chest X-ray revealed medial infiltrates and the electrocardiogram showed sinus tachycardia. Cultured blood samples were negative for microbial infection. Due to possible respiratory infection, intravenous (IV) treatment with ampicillin and azithromycin were given and due to rhabdomyolysis intravenous fluids were proceeding according to daily needs.

Laboratory tests of human immunodeficiency virus (HIV), Hepatitis A, B, C, CMV, EBV and Brucella were negative. The components of the C3, C4 complement were normal. Patient hospitalized for 5 days with no fever after the 3rd day of hospitalization. During 4th day of hospitalization blood test was taken and revealed WBC: 4200/μL, P: 48.6%, L: 39.5.9%, M: 11.1%, Hgb: 9.9 gr/5%, MCV: 53.4 fl, PLT: 125000/μL, CRP: 3.14 mg/L, glucose: 102 mg/dL, Urea: 14 mg, SGOT: 154 IU/L, SGPT: 56 IU/L, Na: 140 mmol/L, K 4.6: mmol/L, Cl: 100 mmol/L, CPK: 1523 IU/L.

The enzyme-linked immune-assay revealed increased level of immunoglobulin IgM against *M. pneumoniae* (1: 160, Positive > 1:80) and IgG negative. Immune-assay After 6 weeks revealed increased level of immunoglobulin IgG against *M. pneumoniae* (1: 320, Positive > 1:80) and IgM negative. Patient was diagnosed with rhabdomyolysis due to *M. pneumoniae* infection and went into improved general condition completing antibiotic treatment.

Discussion

Acute myositis is a rare disorder most commonly associated with viral respiratory infections [1,2]. In most cases it occurs after infections with type B influenza. Rarely revealed after infections with influenza A and other viral infections such as parainfluenza, adenoviruses, herpes simplex, Epstein-Barr, Coxsackie, rotavirus and *M. pneumoniae* as in our case [3,4]. Most of the associated respiratory infections cause acute joint pain and clinical myositis mainly affecting calf muscle [5,6]. From laboratory tests reveal elevated levels of CK and AST aminotransferase [7,8] and may be associated with haematological abnormalities such as leucopenia, neutropenia and thrombocytopenia while red cell rate and CRP are usually normal [4,9,10].

Myositis is caused by invasion of skeletal muscle, which causes release of proteins and electrolytes into circulation. Other causes of syndrome includes toxins, drugs, trauma, excessive muscle activity, excessive and electrolyte disturbances [11-13]. The *M. pneumoniae* infection as mentioned is rare. Serum CK levels are a hallmark of the appearance of rhabdomyolysis. These levels should be 5 times greater than normal. In cases of absence of other heart or brain symptoms diagnosis of mycoplasma infection is possible [14-16].

In our case *M. pneumonia*e myositis was diagnosed due to high levels of IgM antibodies and elevated CPK, while other infections were excluded due to laboratory and clinical data [17,18]. The presence of elevated CPK levels may cause renal insufficiency, glomerulonephritis, interstitial nephritis and nephrotic syndrome [19-22].

Conclusion

Rhabdomyolysis is a rare serious complication of infection by many viruses and *M. pneumonia* even if is often self-limiting with an excellent prognosis. In cases of myositis, the possibility of mycoplasma infection should always be investigated and the progression of myositis could be treated with the onset of specific antibiotic treatment.

What is already known on this subject

Rhabdomyolysis is a rare serious complication of infection by many viruses and *M. pneumonia* even if is often self-limiting with an excellent prognosis. In most cases it occurs after infections with type B influenza. Rarely revealed after infections with influenza A and

other viral infections such as parainfluenza, adenoviruses, herpes simplex, Epstein-Barr, Coxsackie and rotavirus. The *M. pneumoniae* infection as mentioned is rare. Serum CK levels are a hallmark of the appearance of rhabdomyolysis and diagnosed due to high levels of IgM antibodies and elevated CPK, while other infections were excluded due to laboratory and clinical data.

What this study adds

The acute myositis though mycoplasma infection is a rare case of rhabdomyolysis with few published studies. In cases of myositis, the possibility of mycoplasma infection should always be investigated as the course of the disease and the progression of myositis could be treated with the onset of specific antibiotic treatment. At any time of caused myositis related with respiratory infection we should investigate the chance of Mycoplasma infection except influenza virus.

Conflict of Interest

The authors declare that they have no conflict of interest.

Consent

Written informed consent was obtained from the patient for publication of this study and any accompanying details. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

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