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Mycoplasma pneumoniae meningoencephalitis: a case report

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ABSTRACT

Nervous system is the most affected area in *mycoplasma pneumoniae* infections with exception of respiratory system. It is an important agent of childhood acute encephalitis and respiratory system infections in school-age children and young adults. Routine clinical and laboratory findings to identify specific diagnosis is limited. Twelve-year-old female patient was admitted with fever, fatigue, sore throat, slipping the right eye, withdrawal of the mouth from the right and right hemiconic seizures. Test of anti-*Mycoplasma pneumoniae* (*M. pneumoniae*) IgM was positive and IgG antibodies were found to be 4-fold increase in the sera of follow-up. This article was presented with the aim of remembering *M. pneumoniae* to be an differential diagnosis in children with acute encephalitis.

1. Introduction

Mycoplasma pneumoniae (*M. pneumoniae*) is a microorganism that is contagious between humans and that can affect children of all groups of age^[1]. It principally affects the lower respiratory system but can also have an impact on organs and systems out of the lungs; it was seen in extrapulmonary nervous system mostly. Aseptic meningitis, encephalitis, meningoencephalitis, acute bilateral striatal necrosis, cerebellar ataxia, acute disseminated encephalomyelitis, post-infectious hemorrhagic leucoencephalitis, transverse myelitis, and Guillan Barré Syndrome had been report in relation with *M. pneumoniae*^[2–4]. In our study, we have presented a case with meningoencephalitis due to *M. pneumoniae* because of its specific features.

2. Case report

Twelve-year-old female patient was admitted with fever, fatigue, sore throat, slipping the right eye, withdrawal of the mouth from the right and right hemiconic seizures. According to the history, fever, cough and nasal draining started ten days before and in spite of the antibiotherapy, the fever pursued, deterioration in consciousness developed and the day of the admitted to our hospital, slipping the right eye and contraction

seizures in right arm and leg appeared and affected the patient 4–5 times a day. On physical examination, the general condition of the patient was medium-bad and the conscious was lethargic. A facial paralysis was present at right, the muscle tonus increased, deep tendon reflexes were active and bilateral babinski was positive. The other physical examination findings were normal. 81 lymphocytes and 24 neutrophils have been observed in the cerebrospinal fluid (CSF) examination; protein and glucose level were 740 mg/dL and 65 mg/dL respectively. No microorganism has been observed in gram coloration. In brain magnetic resonance imaging; signal increase and observations compatible with hemorrhagic encephalitis have been observed in the T2 and flair series of the cortical-subcortical area of the two parietotemporal lobes (Figure 1). The patient has been hospitalized with meningoencephalitis and seftriaxon, aciclovir treatment have been started. In the 10th day of her hospitalization, the serum mycoplasma IgM (+) has been found positive serologically and clarithromycin has been added to the treatment. The CSF analysis has been repeated and *M. pneumoniae* meningoencephalitis diagnosis has been established using PCR. Serum *M. pneumoniae* IgG antibodies were found to be 4-fold increase in the sera of follow-up. The positive results of the serologic tests and the detection using PCR and the correction of the neurological observations following the clarithromycin permitted to say that the symptoms were due to *M. pneumoniae* infection. The patient has been discharged at the 43rd day of her hospitalization with swallowing difficulties, right hemiparesis and the physical examination performed six months later was normal.

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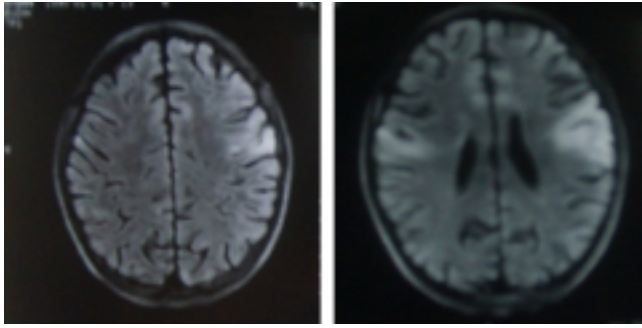


Figure 1. Signal increase and observations compatible with hemorrhagic encephalitis observed in the T2 and flair series of the cortical–subcortical area of the two–parietotemporal lobes.

3. Discussion

Encephalitis is a disease mostly seen in children and young adults and is more severe in young children. The encephalitis is characterized by a modification of the mental situation, seizure or focal neurological symptoms. Even if the general encephalitis rates are low, it is observed at a rate of 0.3–0.5 per thousand. In the pediatric age group, the rate is 10.5 per thousand for children. Enterovirus and herpes simplex virus (HSV) are the most frequent in etiology. *M. pneumoniae* is one of the factors leading to encephalitis with parasites, including the fungi^[1,2].

M. pneumoniae is a widely present pathogen and leads to respiratory system diseases such as pharyngitis, tracheobronchitis and pneumonia in children^[3]. However, extrapulmonary complications are not rare and may affect almost all organ system. The most frequently observed extrapulmonary complication is encephalitis, but dermatological, musculoskeletal, cardiac, hematological and renal complications have also been reported^[3–5]. The majority of the extrapulmonary complications develops as a result of autoimmune reactions and may be directly linked to *M. pneumoniae* invasion^[3]. Acute disseminated encephalomyelitis, Guillain–Barre syndrome and transverse myelitis can be rank as in central nervous system involvement^[6,7]. Moreover, in some studies, *M. pneumoniae* has been described as the most frequent cause of encephalitis and meningoencephalitis in pediatric cases^[8,9]. The most sensitive and specific method to determine *M. pneumoniae* infection is PCR test but its sensitivity is limited^[5]. PCR is less sensitive in diagnosis when used for the comparison of serum specimens at acute and convalescent period^[10]. It is difficult to diagnose *M. pneumoniae* infection for using routine laboratory analyses. Only a positive serological tests results does not demonstrate *M. pneumoniae* infection, but a positive result for *M. pneumoniae* specific IgM supports the acute infection^[5]. As the *M. pneumoniae* infection develops after a long incubation period, the antibody production usually reaches a significant level during acute disease. If the 4–fold increase of titration is detected in the serum with 5–7 d interval during acute period, the diagnosis is confirmed^[11,12]. A 4–fold increase has been observed in the repeated serum *M. pneumoniae* IgG antibodies of our patient. The clinical symptoms usually disappear with antibiotic treatment in Mycoplasma infections but for the cases

with neurological involvement due to *M. pneumoniae*, the symptoms do not really disappear or they completely disappear without any treatment has been reported^[8,9]. For the children hospitalized with meningoencephalitis symptoms without any other known reason, considering that *M. pneumoniae* may be responsible, a quick response may be achieved in treatment and the symptoms may be eliminated more rapidly by adding macrolide to the treatment according to the positive result of *M. pneumoniae* specific IgM.

As a result, *Mycoplasma pneumoniae* shall be remembered as a factor encephalitis during childhood.

Conflict of interest

We declare that we have no conflict of interest.

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