Mycoplasma pneumoniae infection with rhabdomyolysis in a child

Article *in* Infezioni in Medicina · March 2014

Source: PubMed

CITATIONS
6

READS
207

7 authors, including:

Nicola Pietro Consilvio
Azienda Sanitaria Locale Lanciano-Vasto-Chieti
33 PUBLICATIONS **307** CITATIONS
SEE PROFILE

Daniele Rapino
University of Chieti-Pescara
28 PUBLICATIONS **399** CITATIONS
SEE PROFILE

Alessandra Scaparrotta
Civil Hospital, Pescara
46 PUBLICATIONS **757** CITATIONS
SEE PROFILE

Marina Attanasi
University of Chieti-Pescara
79 PUBLICATIONS **695** CITATIONS
SEE PROFILE

Casi clinici

Case reports

Mycoplasma pneumoniae infection with rhabdomyolysis in a child

Infezione pediatrica da Mycoplasma pneumoniae *associata a rabdomiolisi*

Nicola Pietro Consilvio[1], Daniele Rapino[1], Alessandra Scaparrotta[1], Marina Attanasi[1], Sabrina Di Pillo[1], Francesco Chiarelli[1], Vincenzo Savini[2]

[1]Department of Paediatrics, University of Chieti, Chieti, Italy;
[2]Clinical Microbiology and Virology, "Spirito Santo" Hospital, Pescara, Italy

Mycoplasma pneumoniae is responsible for about 20% of community-acquired pneumonias. Clinical picture onset is gradual; particularly, systemic complaints such as headache, arthalgia, and fever (usually low-grade temperature) represent the most prominent findings, and extrapulmonary complications are common (Table 1) [1, 2].

CASE REPORT

A 7-year-old male child was admitted to the Department of Pediatrics due to cough and fever (up to 40°C). No pathologic findings were observed at standard chest X-ray and clinical examination, white blood cell (WBC) reduction (2,14 x10^3/µl), neutropenia (neutrophils 0,66 x10^3/ul) and normal ESR (erythrocytes sedimentation rate) and CRP (C-reactive protein) were documented. On day 2 (second day of hospitalization), he developed myalgia, hyposthenia, and inability to walk, and could keep the standing position no longer than a few seconds. CPK (creatinphosphokinase) and LDH (lactate dehydrogenase) were increased (5145 U/L and 993 U/L, respectively), therefore a rhabdomyolysis (RM) was diagnosed and saline solution (0.45%) infusion was begun (60 ml/kg/die).
On day 3, values for LDH, CPK, AST (aspartate aminotransferase), ALT (alanine aminotransferase) and myoglobin were (respectively) 2909 U/L, 15986 U/L, 567 U/L, 122 U/L, and 355 mg/dl. Again, although acute renal impairment due to *M. pneumoniae*-related RM has been described (rarely) in the literature, renal function was normal in the studied patient, and no urine alkalinization procedure was therefore established [3]. H1/N1 Influenza Virus PCR (polymerase chain reaction) from a nasopharyngeal swab, along with serology for Adenovirus, Coxsackie-Virus (types A and B), Herpes Simplex 1 and 2, Cytomegalovirus, Rubella, and *Toxoplasma gondii* provided negative results, while anti-*M. pneumoniae* elevated IgM values (49 BU/ml) were documented, in spite of the absence of respiratory alterations. Clarithromycin was started (15 mg/kg/die), leading to full clinical remission on day 10, as well as normalization of laboratory parameters (on day 6).

DISCUSSION

RM is characterized by elevated serum CPK levels (that are directly related to the muscle injury); the clinical picture may be heterogeneous, myalgia and hyposthenia being the most common findings [4]. Incidence, morbidity and mortality are higher in male (adults and children) patients rather than in the women population [5]. In the published literature, infections are associated with 5%-19.4% of cases, and Influenza Virus, Coxsackie Virus, Human Immunodeficiency Virus (HIV), *Legionella* spp., *Streptococcus* spp., *Salmonella* spp., and *Francisella tularensis* are the most commonly involved pathogens [6]. Exceedingly rare pediatric RM episodes have been found to be relat-

Corresponding author
Nicola Pietro Consilvio
E-mail: np.consilvio@gmail.com

Table 1 - Extrapulmonary involvement in *M. pneumoniae* disease

Cardiac complications	Myocarditis, pericarditis, pericardial effusion
Haematologic complications	Hemolytic anemia, thrombocytopenia, splenomegaly, disseminated intravascular coagulation
Enteric complications	Vomiting, diarrhea, pancreatitis
Renal complications	Glomerulonephritis, tubulointerstitial nephritis, IgA nephropathy
Neurological complications	Transverse myelitis, polyradiculopathy, cerebellar ataxia, Guillain-Barrè syndrome sensorineural hearing loss, cranial nerve palsies, aseptic meningitis, encephalitis, meningoencephalitis
Others	Stevens-Johnson syndrome

ed to *M. pneumoniae*; although uncommon, however, such an association is potentially serious, as it can be complicated by Guillain-Barré syndrome or Transverse Myelitis [1, 6-8].

This report describes the case of a RM child with severe muscular injury and functional compromission, complicating a mild *M. pneumoniae* upper airway infection. Diagnosis was based on clinical findings and anti-*M. pneumoniae* serum IgM; also, other causes such as toxins and medications, trauma, muscle ischaemia, excessive muscular activity, electrolytes and endocrine disorders, and connective tissue diseases were excluded [3]. Pathogenesis of RM in patients with *M. pneumoniae* illnesses is poorly understood and proposed mechanisms include immune-mediated reactions, myotoxin-mediated muscular impairment and/or bacterial invasion of affected muscles [3]. RM can be an invalidating syndrome; particularly, daily life of children may be seriously affected by such a disorder, that may also cause parents' anxiety. Some main messages may be therefore captured from this case; RM uncommonly develops as a complication of microbial diseases; in this context, *M. pneumoniae* has been rarely reported as the trigger for the muscular injury in the adult population, and even more uncommonly in children [3]. Serum anti-*M. pneumoniae* IgM antibodies should be therefore searched in all pediatric patients with muscular disorders of unknown origin, especially when unexplained fever and/or airway symptoms are present. Cough and fever in a child should always receive attention, then, as even mild respiratory diseases may be complicated by serious sequelae, such as *M. pneumoniae*-related RM.

Keywords: *Mycoplasma pneumoniae*, rhabdomyolysis

SUMMARY

We report the history of a seven-year-old male boy with cough and fever, who developed rhabdomyolysis concomitant to with *Mycoplasma pneumoniae* infection.
The association between this organism and the muscular injury is rarely described in paediatric patients. This case then emphasizes that even seemingly mild *M. pneumoniae* airway infections may be complicated by invalidating neuromuscular sequelae.

RIASSUNTO

Il presente lavoro descrive il caso di un bimbo di 7 anni con tosse e febbre che sviluppa rabdomiolisi in concomitanza con un'infezione da Mycoplasma pneumoniae.
L'associazione tra questo microrganismo e il danno muscolare è riportata raramente in pazienti pediatrici. Questo caso enfatizza dunque il messaggio che le infezioni da M. pneumoniae*, anche apparentemente miti da un punto di vista clinico, possono essere complicate da sequele muscolari invalidanti.*

REFERENCES

[1] Berger R.P., Wadowksy R.M. Rhabdomyolysis associated with infection by *Mycoplasma pneumoniae*: a case report. *Pediatrics* 105, 433-436, 2000.

[2] Waites K.B., Talkington D.F. *Mycoplasma pneumoniae* and its role as a human pathogen. *Clin. Microbiol. Rev.* 17, 697-728, 2004.

[3] Khan F.Y., Sayed H. Rhabdomyolysis associated with *Mycoplasma pneumoniae* pneumonia. *Hong Kong Med. J.* 18, 247-249, 2012.

[4] Poels P.J.P., Gabreëls F.J. Rhabdomyolysis: a review of the literature. *Clin. Neurol. Neurosurg.* 95, 175-192, 1993.

[5] Singh U., Scheld W.M. Infectious etiologies of rhabdomyolysis: three case reports and review. *Clin. Infect. Dis.* 22, 642-649, 1996.

[6] Blanco J.R., Zabalza M., Salcedo J., Echeverria L., García A., Vallejo M. Rhabdomyolysis of infectious and noninfectious causes. *South Med. J.* 95, 542-544, 2002.

[7] Weng W.C., Peng S.S., Wang S.B., Chou Y.T., Lee W.T. *Mycoplasma pneumoniae* associated transverse myelitis and rhabdomyolysis. *Pediatr. Neurol.* 40, 128-130, 2009.

[8] Minami K., Maeda H., Yanagawa T., Suzuki H., Izumi G., Yoshikawa N. Rhabdomyolysis associated with *Mycoplasma pneumoniae* infection. *Pediatr. Infect. Dis. J.* 22, 291-293, 2003.