



Erythema multiforme secondary to *Mycoplasma Pneumoniae* infection in an adolescent female: A case report

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Abstract

Background: Erythema multiforme (EM) is an acute immune-mediated mucocutaneous disorder characterized by targetoid skin lesions and variable mucosal involvement. Infections account for the majority of cases, with herpes simplex virus being the most common trigger. *Mycoplasma pneumoniae* is another important infectious cause, particularly in children and adolescents, where it may present with prominent mucosal involvement.

Case Presentation: A 14-year-old female presented with fever, cough, throat pain, wheezing, and progressive swelling of the lips associated with painful blisters. She had received oral paracetamol and amoxicillin-clavulanic acid prior to presentation. On examination, she was tachycardic, mildly tachypneic, hypoxemic, and had bilateral rhonchi with significant lip edema and vesiculobullous lesions involving the oral mucosa. Chest radiography revealed features suggestive of bronchopneumonia. Dermatological evaluation confirmed erythema multiforme secondary to underlying respiratory infection, most likely *Mycoplasma pneumoniae*-associated. The patient was treated with oxygen supplementation, bronchodilators, corticosteroids, antihistamines, macrolide antibiotics, and supportive local care. Significant clinical improvement was observed, and she was discharged after five days.

Conclusion: *Mycoplasma pneumoniae*-associated erythema multiforme should be considered in children presenting with respiratory symptoms and acute mucosal lesions. Early recognition and prompt treatment of the underlying infection, along with supportive care, contribute to favorable outcomes and prevent progression to severe mucocutaneous syndromes.

Keywords: Erythema multiforme, *Mycoplasma pneumoniae*, Mucositis, Bronchopneumonia, Adolescent, Hypersensitivity reaction

Introduction

Erythema multiforme (EM) is an acute, self-limiting, immune-mediated mucocutaneous disorder characterized by the appearance of typical target lesions involving the skin and mucous membranes. It is commonly triggered by infections, medications, and, less frequently, autoimmune conditions. Among infectious etiologies, herpes simplex virus remains the most frequently implicated pathogen, whereas *Mycoplasma pneumoniae* represents a significant cause in the pediatric and adolescent population.

Mycoplasma pneumoniae-associated erythema multiforme is increasingly recognized as a distinct clinical entity characterized by respiratory symptoms followed by mucosal and cutaneous manifestations. The pathogenesis is believed to involve a cell-mediated immune response and molecular mimicry resulting in epithelial injury. The spectrum ranges from mild oral ulceration to extensive mucocutaneous disease overlapping with Stevens–Johnson syndrome.

We report a case of erythema multiforme in a 14-year-old female presenting with respiratory tract infection and severe oral mucosal involvement, highlighting the importance of early recognition and multidisciplinary management.

Case Presentation

A 14-year-old previously healthy female presented to the Pediatric Department with complaints of fever, cough, sore throat, wheezing, and progressive swelling of both lips

associated with painful blisters. The symptoms had been present for approximately four days prior to admission.

The patient initially developed fever and upper respiratory symptoms, for which she received oral paracetamol and amoxicillin-clavulanic acid from a local practitioner. Subsequently, she developed swelling of the lips with vesiculobullous lesions, difficulty in oral intake, and worsening respiratory symptoms, prompting hospital admission.

There was no history of similar episodes in the past, recurrent herpes infection, recent vaccination, food allergy, autoimmune disease, or known drug allergy. Family history was unremarkable.

On examination, the patient was conscious and oriented. Her vital signs were as follows:

- **Heart rate:** 108 beats/minute
- **Respiratory rate:** 22–24 cycles/minute
- **Blood pressure:** 110/70 mmHg
- **Oxygen saturation:** 91% on room air
- **Capillary refill time:** <3 seconds

Systemic examination revealed bilateral rhonchi on chest auscultation suggestive of lower respiratory tract involvement. Examination of the oral cavity demonstrated marked edema of both lips with hemorrhagic crusting and multiple vesiculobullous lesions involving the mucosal surfaces. No significant skin lesions were noted elsewhere on the body.

Laboratory investigations demonstrated evidence of infection (insert exact values). Chest radiography showed radiological features suggestive of bronchopneumonia.

Considering the association of respiratory infection with acute mucosal lesions, dermatology consultation was sought. Based on the clinical presentation and examination findings, a diagnosis of erythema multiforme secondary to respiratory infection, most likely *Mycoplasma pneumoniae*-associated erythema multiforme, was established.

Management

The patient was admitted and managed with a multidisciplinary approach.

Treatment included:

- Oxygen supplementation
- Nebulized salbutamol
- Nebulized ipratropium bromide
- Intravenous hydrocortisone
- Intravenous dexamethasone
- Intravenous pheniramine (Avil)
- Intravenous clarithromycin
- Intravenous paracetamol
- Local glycerine application for oral lesions

Supportive measures including hydration, nutritional support, and monitoring for progression of mucosal involvement were provided.

Over the course of hospitalization, the patient showed gradual improvement. Lip swelling decreased significantly, respiratory distress improved, oxygen saturation normalized, and oral intake became adequate. Bilateral rhonchi and crepitations diminished progressively.

The patient was discharged after five days of hospitalization in stable condition with complete symptomatic improvement and advice for follow-up.

Discussion

Erythema multiforme is a hypersensitivity reaction mediated predominantly by cytotoxic T lymphocytes directed against keratinocytes expressing foreign antigens. While herpes simplex virus is responsible for most cases, *Mycoplasma pneumoniae* accounts for a significant proportion of pediatric and adolescent cases.

The association between *Mycoplasma pneumoniae* infection and mucocutaneous disease has been increasingly recognized. Respiratory symptoms generally precede mucosal lesions by several days. The pathogen stimulates immune activation through production of immune complexes and induction of T-cell-mediated epithelial injury. Cross-reactivity between microbial antigens and epithelial tissues contributes to mucosal damage.

Our patient demonstrated several features consistent with *Mycoplasma*-associated erythema multiforme:

1. Preceding respiratory infection with cough and fever.
2. Radiological evidence of bronchopneumonia.
3. Predominant oral mucosal involvement.
4. Rapid response to macrolide therapy and supportive treatment.

Differential diagnoses included:

Stevens–Johnson Syndrome (SJS)

SJS typically presents with widespread epidermal detachment and extensive skin involvement. Our patient had

predominant mucosal involvement without extensive epidermal necrosis.

Drug-Induced Erythema Multiforme

Although the patient had received amoxicillin-clavulanic acid, the temporal association with respiratory infection and the clinical picture favored an infection-triggered process.

Herpetic Gingivostomatitis

The absence of characteristic herpes lesions and preceding lower respiratory tract symptoms made this diagnosis less likely.

Allergic Angioedema

Lip swelling alone could suggest angioedema; however, the presence of vesicubullous mucosal lesions and respiratory infection supported erythema multiforme.

Management of *Mycoplasma*-associated erythema multiforme primarily focuses on treatment of the underlying infection and supportive care. Macrolides remain first-line therapy in children. Corticosteroids are frequently used in moderate to severe disease, although their efficacy remains controversial. Adequate hydration, analgesia, and mucosal care are essential components of management.

The prognosis is generally favorable, with most patients experiencing complete recovery within two to four weeks. However, close monitoring is warranted due to the potential progression to severe mucocutaneous disorders such as Stevens–Johnson syndrome.

Typical and Atypical Features in the Present Case

Typical Features

- Fever and respiratory tract infection preceding mucosal lesions.
- Oral mucosal involvement with lip edema and blistering.
- Association with probable *Mycoplasma pneumoniae* infection.
- Good response to macrolide therapy and supportive treatment.
- Favorable clinical outcome.

Atypical Features

- Predominant mucosal involvement with minimal or absent cutaneous target lesions.
- Initial presentation mimicking allergic reaction due to marked lip swelling.
- Presence of wheezing and bronchospasm along with erythema multiforme.
- Development of lesions shortly after antibiotic exposure, creating diagnostic confusion between infectious and drug-induced etiologies.

Conclusion

associated erythema multiforme should be considered in children and adolescents presenting with respiratory symptoms and acute mucosal lesions. Early recognition, prompt initiation of appropriate antimicrobial therapy, and supportive multidisciplinary management can result in rapid clinical improvement and prevent progression to severe mucocutaneous disease. Awareness of atypical presentations with predominant mucosal involvement is crucial for timely diagnosis and treatment.

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