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Reactive infectious mucocutaneous eruption: An uncommon dermatological manifestation of *Mycoplasma pneumoniae*: a case report

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Abstract

Mycoplasma pneumoniae is a common respiratory pathogen that causes a wide range of clinical manifestations, from mild upper respiratory tract infections to severe atypical pneumonia. Besides its pulmonary involvement, it can cause several extra-pulmonary complications. Among these, dermatological manifestations such as Stevens-Johnson syndrome, erythema multiforme, and toxic epidermal necrolysis are well recognised. Reactive infectious mucocutaneous eruption is a relatively rare but notable manifestation. This case report describes a 35-year-old man who developed mucosal lesions involving the ocular, oral, and genital areas after a prodrome of respiratory symptoms. Laboratory tests confirmed a high antibody titre of *Mycoplasma pneumoniae*. While initial antibiotic therapy improved the respiratory symptoms, mucosal involvement persisted, necessitating the use of systemic corticosteroids, which led to a significant clinical improvement. This case highlights the importance of timely recognition and correct management of this uncommon manifestation of mycoplasma infection.

Key words: *Mycoplasma pneumoniae,* reactive infectious mucocutaneous eruption, Stevens-Johnson Syndrome, erythema multiforme, *Mycoplasma pneumoniae*-induced rash and mucositis

Introduction

Mycoplasma pneumoniae is a common respiratory tract pathogen that mainly affects children and young adults. Transmission occurs through aerosolised droplets, and clinical manifestations can range from asymptomatic or mild upper respiratory tract infections to severe cases of atypical pneumonia. Although pulmonary symptoms are predominant, *M. pneumoniae* is also associated with a variety of extrapulmonary manifestations, including neurological, hepatic, hematologic, and dermatological complications.

Among these, dermatologic manifestations are particularly notable. Approximately 25% of patients with *M. pneumoniae* infections may show skin or mucosal involvement.[1] Conditions such as Stevens-Johnson syndrome (SJS), erythema multiforme (EM), and toxic epidermal necrolysis (TEN) have been well documented to be associated with this organism. Reactive infectious mucocutaneous eruption (RIME), a more recently defined entity which replaced the term of *Mycoplasma pneumoniae*-induced rash and mucositis (MIRM)[2], usually presents as a triad of mucosal lesions involving the oral, ocular, and genital mucosa, occasionally accompanied by cutaneous eruptions.[3] Targetoid or erythematous skin lesions are less common but may also occur. The hallmark of RIME is its infectious origin, setting it apart from drug-induced conditions like SJS and EM.[4]

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RIME is more commonly seen in the paediatric population but can occasionally occur in adults. Its rarity and clinical similarity to other dermatological syndromes contribute to diagnostic difficulty. Management usually involves both antimicrobial treatment targeting the infection and immunomodulatory therapies, such as corticosteroids, to suppress the exaggerated immune response. RIME associated with *Mycoplasma* has been reported in other countries, but no cases have been documented in Sri Lanka. Here, we present a case of RIME in an adult male with confirmed *Mycoplasma pneumoniae* infection.

Case presentation

A 35-year-old man presented with a one-week history of fever, bilateral periorbital oedema with purulent ocular discharge, and haemorrhagic crusted lip lesions. He also reported experiencing malaise, non-productive cough, sore throat, rhinorrhoea, severe headache, and odynophagia. He also had mucosal lesions in the genital area without any urinary symptoms. There was no dyspnoea, chest pain, haemoptysis, wheezing or gastrointestinal symptoms. He denied any rheumatological symptoms.

He had no significant past medical history and was not taking any medications. There were no known allergies or family history of dermatological conditions. He did not engage in high-risk sexual behaviour but admitted to alcohol use and smoking. He had not recently travelled outside Sri Lanka and denied known exposure to individuals with respiratory illnesses.

On examination, the patient appeared acutely ill and febrile with a temperature of 38.5°C. Vital signs showed a respiratory rate of 16 breaths per minute, a blood pressure of 120/80 mmHg, and a pulse rate of 116 beats per minute. Oxygen saturation was 96% on room air. He had bilateral conjunctivitis with purulent discharge (Figure 1), lip oedema, and haemorrhagic crusting (Figure 2). No cutaneous rashes or lymphadenopathy were observed. Chest auscultation revealed scattered coarse crepitations and occasional wheezes. He also had genital mucosal lesions similar to those in the oral mucosa. Other system examinations were unremarkable.

Initial investigations revealed neutrophilic leucocytosis with a white blood cell count of 11.63 × 10^9/L (81% neutrophils). Haemoglobin was 12.9 g/dL, and platelet count was 221×10^9/L. C-reactive protein (CRP) was elevated at 90 mg/L. Liver and renal function tests were within normal limits. The electrocardiogram demonstrated a sinus rhythm with a normal QT interval. Chest X-ray was unremarkable. Blood and sputum cultures were negative. Serological testing confirmed a significantly elevated *Mycoplasma pneumoniae* antibody titre (1:20,480) by the tenth day of illness. Screening for herpes simplex virus (HSV-1 and HSV-2) and HIV was negative. Urinalysis revealed mild proteinuria and pyuria, with no significant haematuria.

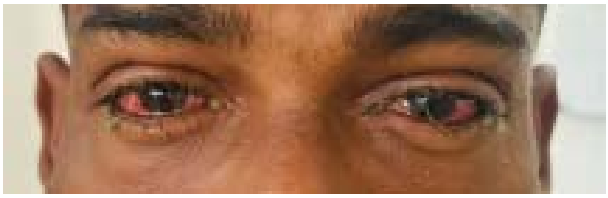

Figure 1. Bilateral eyes showing conjunctivitis with discharge.

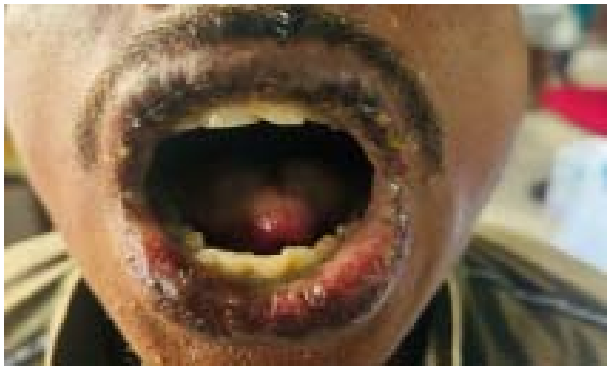

Figure 2. Hemorrhagic, crusted, oedematous lips.

Considering the combination of systemic symptoms and mucosal involvement, an initial working diagnosis of *Mycoplasma pneumoniae*-associated mucocutaneous eruption was established. He was started on oral azithromycin 500 mg daily and intravenous ceftriaxone 1 g twice daily with supportive treatments. Despite appropriate antibiotic therapy, the patient remained febrile for the first four days of hospitalisation. His respiratory symptoms began to resolve, but ocular and mucosal lesions persisted. The differential diagnosis of HSV-associated erythema multiforme was considered, but the combination of respiratory prodrome, mucosal involvement, and high *Mycoplasma* titres supported a diagnosis of RIME. Corticosteroid therapy was initiated with oral prednisolone 15 mg twice daily.

Ophthalmological assessment confirmed bilateral conjunctivitis, and topical therapy was initiated. Over the next few days, the patient showed significant improvement in mucosal lesions and ocular inflammation. His lip and genital lesions gradually resolved,

and systemic inflammation subsided. He was discharged on oral prednisolone with outpatient follow-up scheduled with dermatology and ophthalmology outpatient clinics.

Discussion

Mycoplasma pneumoniae is primarily known for causing respiratory tract infections; however, it can also trigger immune-mediated extrapulmonary manifestations. Dermatological involvement in the form of RIME is a rare but clinically significant manifestation, especially in adult patients, where its presentation may be unexpected.

The pathogenesis of RIME is thought to be immune-mediated, involving molecular mimicry and cytokine-driven mucosal damage. Unlike SJS and EM, which are often drug-induced hypersensitivity reactions, RIME is directly associated with an underlying infectious cause, most notably *Mycoplasma pneumoniae*. This patient firmly denied any previous drug use. This distinction is crucial, as treatment approaches can vary significantly.

Compared to SJS, which involves widespread epidermal necrosis with a preceding flu-like prodrome starting on the trunk and spreading rapidly over hours to days onto the face and limbs, and EM, which presents with classical target lesions on the skin with or without mucosal membrane involvement, RIME associated with *Mycoplasma pneumoniae* is characterised by prominent mucositis with minimal or no cutaneous involvement.[5,6] Skin and mucosal biopsy cannot reliably differentiate these conditions.[7] Our patient exhibited classic features of RIME-mucosal involvement of the eyes, mouth, and genitalia-following an upper respiratory tract infection. The absence of cutaneous lesions such as targetoid rashes, although atypical, does not exclude the diagnosis.[8]

RIME following infections such as *Chlamydia pneumoniae*, influenza B, parainfluenza virus, adenovirus, norovirus, and COVID-19 have also been implicated.[5] However, the most reported cases are associated with *Mycoplasma* infection. In our case, a higher clinical probability of mycoplasma infection was considered, which was confirmed through serological testing. Herpes simplex serology was negative, and other viral microbiological testing was not performed due to financial constraints.

Initial antibiotic management resolved the respiratory infection; however, the persistence of mucosal symptoms required systemic corticosteroids, emphasising the importance of immune modulation in RIME treatment.[8,9] Corticosteroids are believed to mitigate immune-mediated mucosal damage, and their effectiveness in this patient highlights their role as a key therapeutic option. Although RIME is uncommon in adults, clinicians should maintain a high index of suspicion in patients presenting with mucocutaneous symptoms following respiratory infections.

Conclusion

This case highlights the importance of recognising RIME as a potential extrapulmonary complication of *Mycoplasma pneumoniae*, especially in adult patients presenting with mucosal involvement in the absence of drug exposure. The diagnostic challenge stems from overlapping features with other mucocutaneous syndromes, such as SJS and EM. But both SJS and EM are characterised by varying degrees of skin involvement, whereas RIME primarily affects mucous membranes, with sparse or absent cutaneous lesions. Prompt diagnosis, supported by clinical judgment and serology, is crucial for initiating timely management. The use of systemic corticosteroids, in combination with appropriate antibiotic therapy, may result in favourable outcomes.

Author declaration

Conflict of interests

The authors declare that they have no known competing interests.

Consent for publication

Informed consent was obtained from the patient for publication of this case report and accompanying images.

Criteria for authorship

The manuscript was prepared jointly by all authors. They all contributed to revising the manuscript and approved the final version. All authors had full access to clinical data.

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