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Mycoplasma pneumoniae-induced rash and mucositis: two case reports and literature review

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Abstract

Mycoplasma pneumoniae is one of the most prevalent pathogens involved in respiratory infections. A new syndrome characterized by prominent mucositis and sparse cutaneous involvement related to the infection has recently been described. We report two clinical cases from our Dermatological Department.

Introduction

Mycoplasma pneumoniae, transmitted by aerosol and droplets in close contact, is one of the most prevalent respiratory pathogens, responsible for more than 40% of community-acquired pneumonia in children above the age of five[1] and over 10% in adults.[2] This pathogen, aside from the pulmonary involvement, in more than 25% of the affected patients causes extrapulmonary manifestations such as mucocutaneous lesions.[3,4] In the literature, several cases of mucositis of varying severity with mouth mucosa involvement, conjunctivitis, and genital mucosal lesions without skin lesions or severe life-threatening skin disease such as Stevens-Johnson syndrome (SJS) are described.[5] A new entity with skin and mucosal lesions associated with a good prognosis was recognized in 2014: *M. pneumoniae*-induced rash and mucositis (MIRM).[6]

Case Reports

Case 1

An 8-year-old Caucasian boy was admitted to the Pediatric Department with a 5-day history of fever and cough associated with a rapid onset of diffuse stomatitis. He showed multiple erosions of the oral mucosa and fissures on the lips, covered by hemorrhagic crusts, which severely limited oral food intake. There was also genital mucosa involvement with erosions of the scrotum, foreskin, and glans penis, as well as vesicular lesions on erythematous ground at the perianal region. The eyes showed palpebral erythema with a single erosion on the right lower lid, with minor signs of inflammation of the conjunctiva. Scattered targetoid lesions with central bulla were located on the neck, forearm, back, and abdomen, with sparing of palmoplantar and acral (Figure 1). Nikolski's sign was negative. The patient was hospitalized, and a skin biopsy, laboratory analyses, chest X-ray, and polymerase chain reaction (PCR) smear from the nose for respiratory pathogens were performed. The PCR smear was positive for *M. pneumoniae*; radiographic examinations showed parenchymal shadowing on the right basal lobe. The patient was treated with azithromycin 500 mg/day and corticosteroids 1 mg/kg. As local therapy, we applied topical fusidic acid ointment on the mucosal erosions, moisturizing them with a lipophilic soft rich gel containing vitamin E acetate. To ease food ingestion, we used an anesthetic spray before eating.

Histopathological examination showed a moderate chronic perivascular inflammatory infiltrate with the absence of epidermis. Immunofluorescence examination was negative. Based on the clinical and serological results, a diagnosis of *M. pneumoniae*-induced rash and mucositis (MIRM) was set. After five days of treatment, along with the resolution of pulmonary symptoms, the targetoid skin lesions evolved into hyperpigmented areas, while the erosive lesions in the perianal region and conjunctiva gradually resolved. After 10 days of hospitalization, the patient was discharged. The oral and genital lesions had fully healed approximately two weeks after discharge. The corticosteroid therapy was stopped after 19 days due to complete cutaneous resolution.

Case 2

A 53-year-old Caucasian woman presented to our Dermatological Department due to painful lesions on the tongue, hard palate, and lips, accompanied by redness of the conjunctiva, erosions at the outer nasal cavity, and sparse single-target lesions on the lower limbs (Figure 2). Upon admission, the patient was afebrile; she reported a dry cough. Physical examination revealed the presence of basal rhonchi on pulmonary auscultation. The patient was diagnosed with acute bronchitis the previous week, for which she was prescribed azithromycin, which she did not take. We hospitalized the patient for 6 days, and we administered intravenous corticosteroids at 1 mg/kg for 5 days, with a tapering dose after improvement of the oral mucosal lesions. As local therapy, we applied fusidic acid ointment twice per day. To reduce oral mucosal inflammation and facilitate food intake, the patient performed twice-daily rinses with 1 g of a glucocorticoid solution. During hospitalization, we performed serology with a high suspicion of *M. pneumoniae* infection. The results showed IgM positivity, and we were able to set the diagnosis of MIRM. Systemic antibiotic therapy was not administered, as the patient was asymptomatic. After discharge, the corticosteroid therapy was given orally for 9 more days in a tapering dose. We continued local application of vitamin E-containing oil until complete resolution of the mucosal lesions. The single cutaneous targetoid macule resolved, leaving a post-inflammatory hyperpigmentation.

Discussion

MIRM is most seen in children and young adults, though it can affect individuals of any age. The mean age of affected patients is 11.9 years, with a higher incidence in men (66%). The disease occurs in association with a preceding respiratory tract infection, which may be subtle or subclinical. Pathogenesis is not fully understood but is thought to be caused by infection-related immune activation that leads to the production of polyclonal B cells and antibodies, which cause cutaneous immune complex deposition and complement activation.[7] Another possibility is the molecular

mimicry between *M. pneumoniae* adhesion molecules and keratinocytes, inducing mucosal damage due to cytotoxic T-cells with subsequent separation of the epidermis from the dermis.[8] The association between a respiratory prodrome and the onset of mucositis with sparse cutaneous findings is an important diagnostic clue, although the timing and severity are variable. To date, relatively few cases have been documented in the literature, and these are summarized in Table 1.[9-16] The diagnosis of MIRM is primarily clinical, based on the recognition of characteristic mucosal involvement, typically oral, ocular, and urogenital, in the setting of confirmed or suspected *M. pneumoniae* infection. Laboratory confirmation is therefore mandatory to rule out other pathogens. It can be obtained through PCR, serological assays (especially specific IgM), or, less commonly, culture of respiratory samples, although culture is rarely used due to the organism's slow growth. The differential diagnosis includes epidermolytic disorders such as Stevens-Johnson syndrome (SJS), erythema multiforme (EM), toxic epidermal necrolysis (TEN), and severe drug reactions. SJS/TEN are frequently accompanied by systemic symptoms (fever and malaise) and often involve multiple organ systems. Their cutaneous lesions are more extensive, progressing from erythema to vesicles, bullae, and confluent epidermal detachment, affecting up to 10% of body surface area in SJS and more than 30% in TEN. Mucosal involvement is seen in up to 90% of SJS/TEN cases, often with severe ocular disease and long-term sequelae.[16] By contrast, MIRM typically exhibits less severe mucosal disease, which tends to resolve without scarring and limited cutaneous involvement, usually described as scattered vesiculobullous lesions with targetoid morphology. This distinct clinical pattern supports emerging views that MIRM represents a separate entity from SJS/TEN rather than a mild form of either condition.

Conclusions

MIRM is a recently identified complication of a common infection. Early identification of this syndrome is crucial for prompt and appropriate management.

References

1. Kumar S. Mycoplasma pneumoniae: A significant but underrated pathogen in paediatric community-acquired lower respiratory tract infections. Indian J Med Res 2018;147:23.
2. Hammerschlag MR. Mycoplasma pneumoniae infections. Curr Opinion Infect Dis 2001;14:181-6.
3. Poddighe D. Extra-pulmonary diseases related to Mycoplasma pneumoniae in children: recent insights into the pathogenesis. Curr Opin Rheumatol 2018;30:380-7.
4. Frantz, GF, McAninch SA. Mycoplasma pneumoniae-Induced Rash and Mucositis (MIRM). In StatPearls. StatPearls Publishing, 2024.
5. Vujic I, Shroff A, Grzelka M, et al. Mycoplasma pneumoniae-associated mucositis--case report and systematic review of literature. J Eur Acad Dermatol Venereol 2015;29:595-8.
6. Canavan TN, Mathes EF, Frieden I, Shinkai K. Mycoplasma pneumoniae-induced rash and mucositis as a syndrome distinct from Stevens-Johnson syndrome and erythema multiforme: a systematic review. J Am Acad Dermatol 2015;72:239-45.
7. Al-Zaidy SA, MacGregor D, Mahant S, et al. Neurological complications of PCR-Proven M. pneumoniae infections in children: prodromal illness duration may reflect pathogenetic mechanism. Clin Infect Dis 2015;61:1092-8.
8. Ashtekar CS, Jaspan T, Thomas D, et al. Acute bilateral thalamic necrosis in a child with Mycoplasma pneumoniae. Dev Med Child Neurol 2003;45:634-7.
9. Santos RP, Silva M, Vieira AP, Brito C. Mycoplasma pneumoniae-induced rash and mucositis: a recently described entity. BMJ Case Rep 2017;2017:bcr-2017
10. Kucharek I, Bednarz K, Sybilski AJ. Unique presentation of Mycoplasma pneumoniae-Induced Rash and Mucositis with Salivary Gland Inflammation in a Pediatric Patient: A Case Report. J Clin Med 2024;13:4587.
11. Brazel D, Kulp B, Bautista G, Bonwit A. Rash and mucositis associated with Mycoplasma pneumoniae and Chlamydophila pneumoniae: A Recurrence of MIRM? J Pediatric Infect Dis Soc 2021;10:220-4.
12. Zão I, Ribeiro F, Rocha V, et al. Mycoplasma pneumoniae-associated mucositis: A Recently Described Entity. Eur J Case Rep Intern Med 2018;5:000977.
13. Bowling M, Schmutzler T, Glick S. Mycoplasma pneumoniae-induced mucositis without rash in an 11-year-old boy. Clin Case Rep 2018;6:551-2.
14. Curtiss P, Melnick L, Sicco KL, Liebman TN. Mycoplasma pneumoniae, more than a lung disease. Dermatol Online J 2018;24:13030/qt8w993185.

15. Song H, Huang JT, Tan JK. Mycoplasma-Induced Rash and Mucositis in a father and son: A Case Report. Pediatr Infect Dis J 2018;37:e205-6.
16. Sandhu R, Mareddy C, Itskowitz M, et al. Mycoplasma-induced rash and mucositis in a young patient with red eyes, oral mucositis, and targetoid cutaneous vesicles. Lancet Infect Dis 2017;17:562.

Figure 1. A) Erosion on the right lower lid, nares, and lips; **B**) bulla on the forearm.

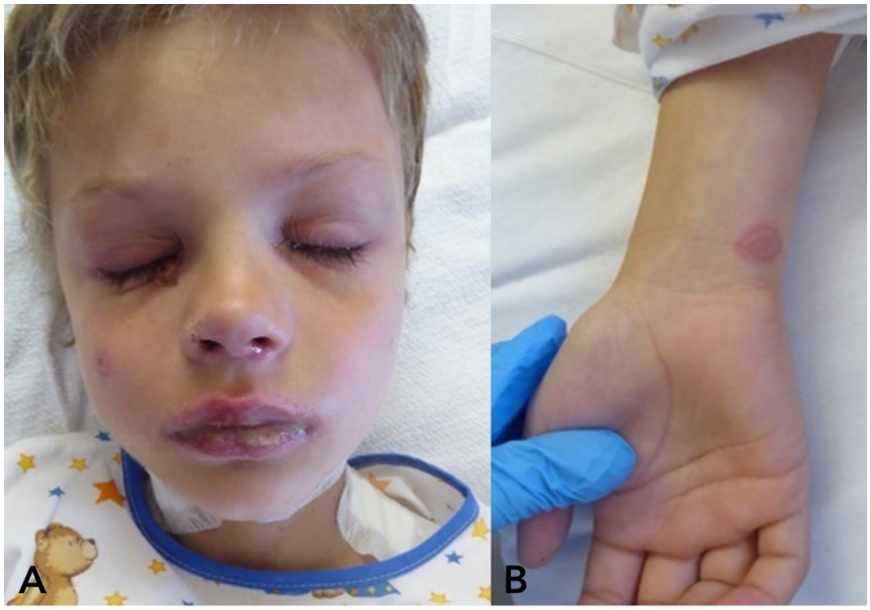

Figure 2. A) Erosions with hemorrhagic crusts of the lips and tongue; **B**) targetoid lesions of the lower limbs.

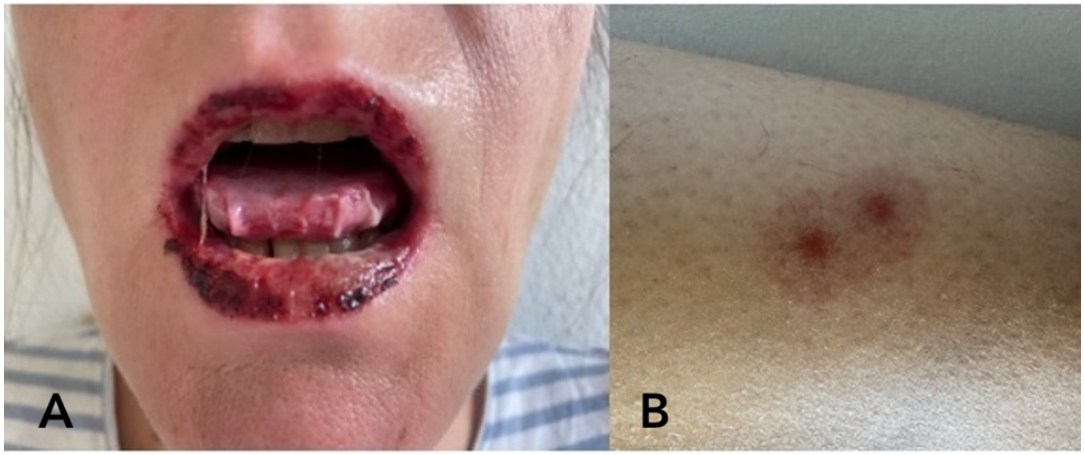

Table 1. Clinical cases in literature.

Age	Gender	Type of cutaneous and non-cutaneous finding	Treatment	Reference
8	M	• Erosions of lips and mucosa • Bilateral conjunctival hyperemia • Erythema and edema of the penis and prepuce • Erythematous papules and atypical target lesions on lower limbs and face	• Intravenous immunoglobulins at a dosage of 1 g/kg/day for 3 days • Ophthalmologic treatment: topical oxytetracycline ointment • Oral suspension of sucralfate for oral mucosa and an ointment containing prednisolone acetate, neomycin sulfate and sodium sulfacetamide • Supportive care	Santos *et al.*[9]
7	F	• Stomatitis • Conjunctivitis • Erythematous rash on face, trunk, lower extremities with disc-like on the upper extremities • Fever	• Clarithromycin (15 mg/kg/day for 10 days) and amoxicillin with clavulanic acid (90 mg of amoxicillin/kg/day for 7 days) • Methylprednisolone (1 mg/kg/day for 7 days)	Kucharek *et al.*[10]
12	F	• Multiple ulcerated lesions with bullae formation on hard and soft palates, posterior oropharynx, and buccal mucosa • Sore throat, cough, and fever	• Azithromycin (10 mg/kg oral administration ×1, then 5 mg/kg oral administration daily ×4) • IVIG (a total dose of 2 g/kg divided over 3 days) • Methylprednisolone at 1 mg/kg/day (for 4 days) • Ophthalmologic treatment: topical steroid drops, erythromycin, and artificial tears	Brazel *et al.*[11]
46	M	• Mucositis • Bilateral conjunctival hyperemia with superficial punctate keratitis • Fever, malaise, headache, rhinorrhea, mildly productive cough and odynophagia	• Azithromycin 500 mg/day • Systemic corticosteroid therapy with methylprednisolone 1 mg/kg/day • Oral suspension of nystatin and lidocaine • Gentamicin/dexamethasone eye drops (3/1 mg/ml) four times per day • Supportive care	Zão *et al.*[12]
11	M	• Hemorrhagic crusts of the nasal mucosa, swollen lips with erosions of the buccal mucosa • Conjunctivitis • Low-grade fever and cough	• Antibiotics • Systemic corticosteroids • Supportive care	Bowling *et al.*[13]
15	M	• Erosions of the tongue, oropharynx, and lips • Crusting at the urethra • Hemorrhagic conjunctivitis • Erythematous papulovesicular lesions on the forehead, wrist, and abdomen • Fever and cough	• Azithromycin • Supportive care	Curtiss *et al.*[14]
42	M	• Erosions of the oral and genital mucosa • Bilateral conjunctivitis • Oval atypical targetoid papules and plaques on the trunk	• Azithromycin • Supportive care	Song *et al.*[15]
15	M	• Buccal erosions, and vesicles on the hard palate • Bilateral conjunctivitis • Targetoid papules on the extremities and trunk	• Azithromycin and 2 g/kg • IVIG	Song *et al.*[15]

18	M	• Mucositis over the lips, and buccal mucosa • Bilateral conjunctivitis • Cutaneous targetoid vesicles on the face, torso, extremities, penile meatus, and glans penis • Fever, sore throat, and cough	• Azithromycin (500 mg daily) and 21 days of tapered • Oral prednisone (40 mg daily for 5 days with tapering dose over 16 following days)	Sandhu *et al.*[16]