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Mycoplasma pneumoniae-induced rash and mucositis

SHORT CASE REPORT

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Background

Mycoplasma pneumoniae-induced rash and mucositis is a rare, immune-mediated condition characterised by mucosal inflammation with limited cutaneous involvement. It is increasingly recognised as a distinct clinical entity, separate from erythema multiforme and Stevens-Johnson syndrome.

Case presentation

A young man presented with fever and cough, followed by red, irritated eyes and painful ulcerations of the lips, oral mucosa and genitals. Polymerase chain reaction (PCR) testing of a nasopharyngeal sample confirmed Mycoplasma pneumoniae infection. Dermatologic examination revealed mucositis without cutaneous involvement, and ophthalmologic examination showed bilateral conjunctivitis. A diagnosis of Mycoplasma pneumoniae-induced rash and mucositis was made. Treatment with doxycycline and systemic corticosteroids led to symptom resolution without sequelae.

Interpretation

Mycoplasma pneumoniae-induced rash and mucositis should be considered in patients with mucositis and a preceding M. pneumoniae infection. However, similar reactive infectious mucocutaneous eruptions can also occur with other bacterial or viral respiratory infections in children. Distinguishing reactive infectious mucocutaneous eruptions like Mycoplasma pneumoniae-induced rash and mucositis from erythema multiforme and Stevens-Johnson syndrome is crucial, as the former requires different management and has a more favourable prognosis.

A teenager with a respiratory infection presented to the out-of-hours emergency clinic with painful oral ulcers and red, irritated eyes. The diagnosis proved to be a relatively recently recognised condition requiring multidisciplinary follow-up.

A previously healthy male in his late teens presented at the out-of-hours emergency clinic with red, irritated eyes and painful ulcerations of the mouth and pharynx. He had no prior history of herpes infection, but earlier in the week he had experienced fever and cough. Two days prior, his general practitioner had taken a nasopharyngeal swab, which showed a positive

polymerase chain reaction (PCR) for *Mycoplasma pneumoniae*. Doxycycline 100 mg once daily had therefore been initiated. The on-call dermatologist was consulted, and the patient was assessed the same day.

On examination, the patient appeared unwell but was afebrile, with normal vital signs. Bilateral conjunctival injection was present, along with erosive cheilitis characterised by fibrinous coating and mild crusting of both lips. There were also signs of erosive mucositis involving the gingiva, buccal mucosa and base of the tongue (Figure 1). The remainder of the systemic examination was unremarkable, with no rash. He had no genital symptoms or findings. Blood tests revealed a C-reactive protein concentration of 88 mg/L (< 5) and a lymphocyte count of 0.9×10^9/L ($1.2–3.1 \times 10^9$/L). A bacterial culture and a PCR test for herpes simplex virus were obtained from the oral mucosa, both of which were negative.

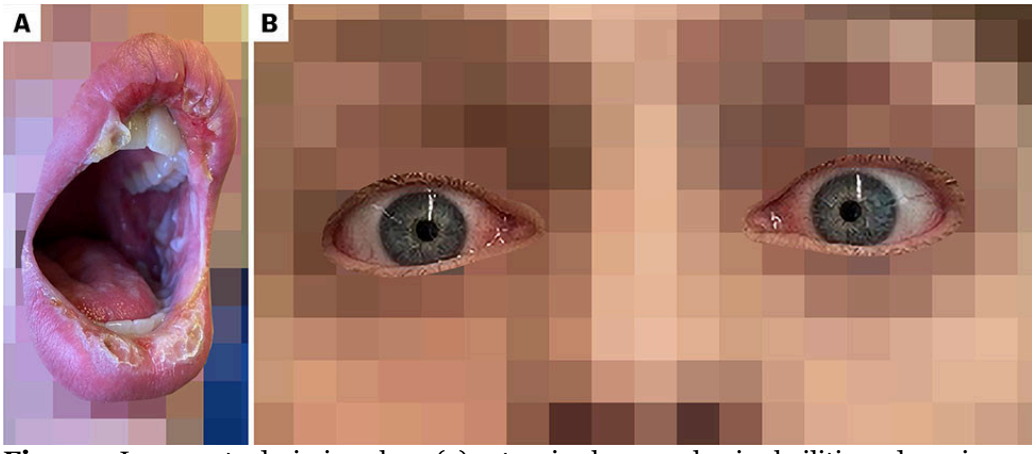

Figure 1 Images at admission show (a) extensive haemorrhagic cheilitis and erosive gingivostomatitis with pseudomembranes and mild crusting, and (b) bilateral conjunctivitis.

The condition was interpreted as *Mycoplasma pneumoniae*-induced rash and mucositis. The patient was admitted to the dermatology ward, where he was treated with prednisolone tablets 75 mg daily (1 mg/kg/day) while continuing doxycycline. He received intravenous fluids and was advised to use a lidocaine-cream mixture before and after meals, alongside a soft diet. Assessment by an ENT specialist revealed ulcerating mucositis in the nasal cavity and normal mucosa in the epipharynx and on the epiglottis. Ophthalmology review, repeated every third day, showed marked and increasing conjunctival injection. This was treated with dexamethasone eye drops four times daily and ointment once daily, in addition to artificial tears. There were no signs of corneal involvement or symblepharon formation.

Two days after admission, the patient developed dysuria and erosive lesions on the glans penis, which responded to treatment with fluocinolone acetonide/clioquinol cream twice daily. Increasing cheilitis and mucositis were observed during treatment with prednisolone 1 mg/kg/day. The dose was increased to 1.2 mg/kg/day, and subsequently to 1.5 mg/kg/day for six days due to worsening conjunctival injection.

Within a few days, rapid re-epithelialisation of the lip and intraoral lesions occurred, and prednisolone was tapered by 10 mg every four days. After a total of three weeks of treatment, there was near-complete resolution of the intraoral

and genital findings, although some residual conjunctival injection remained. The patient was discharged with prednisolone 60 mg once daily, with a plan for tapering over six weeks. At follow-up ten weeks later, he felt well, and findings were satisfactory with no evidence of symblepharon or synechiae formation.

Discussion

In the autumn of 2024, a large outbreak of *M. pneumoniae* was observed in Norway, primarily affecting children and adolescents (1). Such infections can lead to various complications, and extrapulmonary manifestations, such as cutaneous and mucosal symptoms, arthritis, haemolytic anaemia and pericarditis, occur in approximately 25 % of cases (2). Cutaneous and mucosal manifestations of *M. pneumoniae* infection have previously been considered variants of erythema multiforme or Stevens–Johnson syndrome, which remain the two main differential diagnoses.

The term *Mycoplasma pneumoniae*-induced rash and mucositis was proposed in 2015 as a distinct disease entity, separate from erythema multiforme and Stevens–Johnson syndrome (3). In recent years, the broader and less specific designation 'reactive infectious mucocutaneous eruption' has gained acceptance, encompassing similar cutaneous and mucosal symptoms triggered by other infectious agents, including several viral pathogens (4). *Mycoplasma pneumoniae*-induced rash and mucositis, however, is specifically associated with *M. pneumoniae* and occurs simultaneously with, or approximately one week after, the onset of respiratory symptoms, suggesting a direct immune response to the infection (3). Proposed pathophysiological mechanisms include tissue injury followed by the release of inflammatory cytokines and deposition of immune complexes with accompanying complement activation (4). The condition is characterised by marked mucosal involvement at a minimum of two sites: oral, ocular and/or genital mucosa, with painful ulcerations. Cutaneous rash is not obligatory, and when present, is often less prominent and nonspecific (frequently vesiculobullous) (3). The condition predominantly affects boys, with a median age of 12 years (4).

Erythema multiforme is a delayed hypersensitivity reaction, typically following herpes simplex virus infection in adults aged 20–40 years (5), but it can also be triggered by *M. pneumoniae*, particularly in children (6). The rash is variable, but typically affects the distal extremities and is characterised by classic target lesions. Stevens–Johnson syndrome is an acute, life-threatening cutaneous disorder, characterised by fever, rash and mucosal involvement. It is almost always drug-induced, with mortality up to 25 %, and can occur at any age (7).

Both *Mycoplasma pneumoniae*-induced rash and mucositis and erythema multiforme are managed by addressing the underlying trigger, with antibiotic or antiviral therapy as appropriate. Ocular involvement should be assessed early, as scarring can lead to sequelae (8). In cases of extensive mucosal involvement, immunosuppressive therapy with systemic corticosteroids is often administered; however, studies of erythema multiforme suggest minimal benefit and, in the worst case, a potential for prolonged or chronic disease (3, 5,

9). No studies have evaluated the efficacy of immunosuppression in *Mycoplasma pneumoniae*-induced rash and mucositis (3), although case reports describe potentially faster recovery (4, 10). Our patient received high-dose systemic corticosteroids with apparent clinical benefit and no complications. Nevertheless, we emphasise that there is insufficient evidence regarding optimal corticosteroid dosing or the role of such treatment given the generally benign course of the condition.

M. pneumoniae has a tendency to cause epidemics, and several cases of reactive mucocutaneous eruptions have been reported in association with such infections. Internationally, both terms – *Mycoplasma pneumoniae*-induced rash and mucositis (MIRM) and reactive infectious mucocutaneous eruption (RIME) – are used, and both are referenced in recent textbooks and knowledge bases. Which term will ultimately become standard remains uncertain. In clinical practice, however, it is crucial to recognise that patients with bacterial or viral respiratory infections may develop mucosal involvement with or without a rash, and to differentiate between a reactive infection-triggered condition and a drug-induced reaction, as management strategies and prognosis differ substantially.

The patient has consented to publication of the article.

The article has been peer-reviewed.

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