An Unusual Skin Manifestation by *Mycoplasma Pneumoniae* without Pulmonary Infection

Hsuan-Hsiang Chen^{1*}

¹Department of Dermatology, National Taiwan University Hospital and National Taiwan University College of Medicine, Taipei, Taiwan

***Corresponding Author:** Hsuan-Hsiang Chen, MD, Department of Dermatology, National Taiwan University Hospital, 7, Chung-Shan South Road, Taipei, Taiwan; E-mail: beauty101@gmail.com

Received Date: 15-10-2020; **Accepted Date:** 05-11-2020; **Published Date:** 13-11-2020

Copyright© 2020 by Chen HH. All rights reserved. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

Pulmonary infections are often caused by *Mycoplasma pneumoniae*. However, extra pulmonary manifestations are also reported. *Mycoplasma pneumoniae* associated severe mucositis with relative few skin rash has recently been described as a new clinical disease named *Mycoplasma Pneumoniae*-Induced Rash and Mucositis (MIRM). A 14-year-old girl who developed exuberant mucositis, as well as multiple tense bullae and several targetoid lesions were found on the face, trunk and 4 limbs, but no obvious pulmonary manifestation was found. The laboratory examinations showed elevated *M. pneumoniae* IgM antibodies. Due to this unique clinical presentation, MIRM was considered and differentiated from Toxic Epidermal Necrolysis (TEN), Stevens-Johnson Syndrome (SJS), or Erythema Multiforme (EM). MIRM may be reconsidered as a specific cutaneous manifestation with or without pulmonary infection.

Keywords

Mycoplasma Pneumoniae; Mucositis; Erythema Multiforme

Introduction

M. pneumoniae is a common pathogen of pulmonary infections, but extra pulmonary manifestations are also reported. The *M. pneumoniae*-related cutaneous presentations include urticaria, pityriasis rosea, anaphylactoid purpura, thrombotic thrombocytopenic purpura, erythema nodosum, Raynaud's disease, leukocytoclastic vasculitis, Kawasaki disease, sub corneal pustular dermatosis, Sweet's syndrome, TEN, SJS, and EM [1-3]. Canavan et al., described a new disease named MIRM recently, distinct from TEN, SJS or EM [4]. Herein, the author presented a case of a young girl with an unusual presentation of severe mucositis and various type of skin rash without obvious pulmonary manifestations. MIRM should be considered even no obvious respiratory infection was found.

Case Report

A 14-year-old girl went to the dermatology clinic because of mild fever with ulcerative and erosive yellowish exuberant mucositis of the oral mucosa and lip (Fig. 1). This young girl received a cosmetic tattoo over her left forearm 5 days before these symptoms developed. She had taken oral acyclovir for 5 days, but the lesions progressed with more variously sized tense bullae and some targetoid lesions over her face, trunk, and 4 limbs (Fig. 2 and 3). No conjunctival or genital lesion was found. She did not have other systemic or autoimmune disorders and denied drug exposure history during the previous days. No cough or other respiratory symptoms or signs were noted before admission.

The laboratory examinations of the blood revealed an elevated procalcitonin (PCT, 0.3 ng/ml) and C-reactive protein (CRP, 8.7 mg/dl), respectively. Influenza A and B, enterovirus type 71, adenovirus and Dengue fever virus were ruled out. However, the *M. pneumoniae* IgM antibody was positive, indicating recent infection. Treatment with systemic steroids and antibiotics was then given.

Figure 1: Ulcerative and erosive yellowish exuberant mucositis of the oral mucosa and lip.

Chen HH | Volume 1; Issue 3 (2020) | JDR-1(3)-013 | Case Report

Citation: Chen HH. An Unusual Skin Manifestation by *Mycoplasma Pneumoniae* without Pulmonary Infection. J Dermatol Res. 2020;1(3):1-5.

DOI: <http://dx.doi.org/10.46889/JDR.2020.1303>

Figure 2: Various sized tense bullae over face, neck and upper trunk.

Figure 3: Various sized tense bullae and some targetoid lesions over the upper limb.

Discussion

MIRM is usually characterized by prominent mucositis with skin lesions. Isolated severe mucositis with oral and urogenital lesions without skin rash is also quite common [5]. The clinical presentation is mostly found in young adolescents and children. Patients with TEN or SJS-like mucosal lesions associated with less skin involvement or urticarial-like non-specific rashes should be suspected to be MIRM. Canavan et al. proposed four diagnostic criteria for MIRM:

1. Less than 10% body surface area of skin detachment
2. Two mucosal sites or more
3. Scattered atypical targets
4. Evidence of *M. pneumoniae* infection [4]

Our case clinically presented with various morbilliform and annular targetoid lesions with some tense bullae and profound mucositis. Although our patient did not have two mucosal sites or conjunctival/urethral lesion, the clinical manifestation is similar to the presentation of MIRM described previously [3]. In our case, the evidence of atypical pneumonia or respiratory symptoms caused by *M. pneumoniae* is not obvious, but the laboratory investigations revealed the increase of *M. pneumoniae* IgM antibodies. Our case is likely a case of MIRM presented with minimal pulmonary infection and profound clinical cutaneous manifestations.

The challenge of MIRM diagnosis is that their clinical features overlap with those of TEN, SJS, or EM. Traditionally, TEN or SJS is usually induced by medication, while EM is commonly associated with herpes simplex virus infection. The proposed pathophysiology of TEN, SJS, and EM involves a delayed-type type IV hypersensitivity and cytotoxic reaction through the Fas-ligand interaction [6,7]. The underlying pathophysiology of MIRM is still under investigation. It was hypothesized that *M. pneumoniae* infection may induce antibody formation, deposition of immune complex and activation of complement, which result in diffuse damage of the mucocutaneous membranes [2,8]. It is also possible that the molecular similarity between Mycoplasma adhesion molecules and the keratinocyte antigen produced secondary immune responses. The route of infection in our case is not clear. Whether the contamination of the tools used during a cosmetic tattoo is the source of *M. pneumoniae* transmission is still unknown.

Conclusion

In conclusion, the clinical manifestation of MIRM is likely a spectrum from mucositis, skin rash with targetoid lesions, flaccid bullae to even TEN, SJS or EM, with or without respiratory symptoms and atypical pneumonia. The proposed criteria of MIRM diagnosis by Canavan et al. may be modified and re-defined as profound mucositis with various skin manifestations

under the evidence of *M. pneumoniae* infection, regardless of the extent of body surface area, or numbers of the mucosal lesion. Further research is mandatory to prove this concept and revised diagnostic criteria.

References

1. Zão I, Ribeiro F, Rocha V, Neto P, Matias C, Jesus G. *Mycoplasma pneumoniae*-associated mucositis: a recently described entity. Eur J Case Rep Internal Med. 2018;5(11).
2. Narita M. Classification of extrapulmonary manifestations due to *Mycoplasma pneumonia* infection on the basis of possible pathogenesis. Front Microbiol. 2016;7:23.
3. Martínez-Pérez M, Imbernón-Moya A, Lobato-Berezo A, Churruca-Grijelmo M. *Mycoplasma pneumoniae*-induced mucocutaneous rash: a new syndrome distinct from erythema multiforme? Report of a new case and review of the literature. Actas Dermosifiliogr. 2016;107(7):e47-51.
4. 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(2):239-45.
5. Poddighe D, Bruni P. *Mycoplasma pneumoniae*-Induced Rash and Mucositis (MIRM): an unusual mild skin rash associated with severe mucosal involvement. BMJ Case Rep. 2017;2017:bcr2017220749.
6. Santos RP, Silva M, Vieira AP, Brito C. *Mycoplasma pneumoniae*-induced rash and mucositis: a recently described entity. BMJ Case Rep. 2017;2017:bcr2017220768.
7. Ramien M, Goldman JL. Pediatric SJS-TEN: Where are we now? F1000Research. 2020;9.
8. Schalock PC, Dinulos JG. *Mycoplasma pneumoniae*-induced cutaneous disease. Int J Dermatol. 2009;48:673-81.