

Reactive infectious mucocutaneous eruption in a young-adult with COVID-19

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ABSTRACT

In this case report, we detail the case of a young adult with a recurrent case of Reactive Infectious Mucocutaneous Eruption (RIME) in the setting of Sars-COV-2 infection, the second time this has been reported in the literature. We review the more common causes of RIME, including *Chlamydomphila pneumoniae*, metapneumovirus, parainfluenza, rhinovirus, enterovirus, and influenza; and we discuss patient characteristics in other reported cases of RIME secondary to COVID-19 and the features of recurrent RIME seen in patients reported in the literature. Our patient had the characteristic severe mucosal involvement seen with RIME, and was treated with supportive care alone and experienced rapid improvement in symptoms.

Key words: COVID-19; SARS-CoV-2; Mucositis; Mouth Mucosa

INTRODUCTION

Reactive Infectious Mucocutaneous Eruption (RIME) is a relatively novel term used to describe a characteristic, severe mucocutaneous eruption most frequently seen in children and young adults with an infectious trigger. RIME has been reported most commonly with *Chlamydomphila pneumoniae*, metapneumovirus, parainfluenza, rhinovirus, enterovirus, and influenza infections [1]. Recently Sars-COV-2 infection has been reported as a trigger. While mucositis is prominent and can affect oral, genital, and ocular mucosa, there is variable cutaneous involvement [2,3]. Some courses may be mild and resolve with supportive treatment while some may require ICU level care secondary to respiratory or esophageal involvement [3]. Here we discuss a case of suspected recurrent RIME secondary to Sars-COV-2 infection.

CASE REPORT

A 23-year-old African American male presented with a one-week history of progressively worsening oral lesions

causing significant pain, lip edema, and poor oral intake. He reported subjective fevers and chills four days prior to development of oral lesions. The patient reported a similar episode of mucosal lesions three years prior to presentation that resolved with topical and oral treatment, though he did not recall which treatments specifically. Past medical history was significant for asthma, schizoaffective disorder, and unspecified seizure disorder. Notable medications included levetiracetam, valproic acid, olanzapine, and quetiapine which he had been on for greater than six months with no recent dosage changes. He denied the use of any other medications, supplements, illicit drugs, or herbs.

On physical exam, he appeared non-toxic, but had severe upper and lower lip edema. His buccal mucosa had sloughing with purulent exudate, and diffuse erosions throughout the oral mucosa (Figs. 1a and 1b). There was mild anterior cervical lymphadenopathy with tenderness to palpation. He had no other cutaneous involvement and ocular and genital mucosa were also clear.

The patient's labs were notable for a mild leukocytosis (11.4K cells/mm³) and elevated Erythrocyte

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Figure 1: (a) Initial presentation of mucositis with painful erosions, honey-crusting, and edema. (b) Mucositis on hospital day 1 immediately after treatment.

sedimentation rate (30 mm/hr) and C-reactive protein (40.8 mg/L). His nasal Sars-COV-2 polymerase chain reaction (PCR) test was positive. Other negative infectious workup included HIV antibody titer, RSV PCR, influenza PCR, and Herpes simplex virus PCR swabs. Bacterial wound swab from the lower lip was positive for gram positive cocci, consistent with his exam findings suggesting secondary impetiginization. Mycoplasma IgG titer was elevated, but IgM titer was within normal range, consistent with a history of prior mycoplasma infection. All other routine lab studies were within normal limits.

Supportive treatment was implemented with 2% lidocaine/12.5 mg diphenhydramine/nystatin 500,000-unit mouthwash and topical triamcinolone 0.1% ointment twice daily. Within one day, the patient demonstrated considerable improvement in edema, erythema, and crusting, and reported less pain with talking and eating. He was discharged in stable condition.

DISCUSSION

Because our patient had a mucocutaneous eruption and a history of taking multiple medications commonly associated with drug-induced Steven Johnson Syndrome (SJS), we included this diagnosis on our differential; however, his drug timeline was not consistent with SJS. The patient lacked targetoid lesions, making erythema multiforme unlikely. Given the patient's recent Sars-COV-2 infection, severe mucositis, and the rapid resolution of symptoms with topical therapy alone and no recent change to his drug regimen, the patient was given a diagnosis of RIME secondary to COVID-19.

Dermatologic manifestations of COVID-19 have been well documented and include morbilliform, urticarial, vesicular, and potentially pemphig-like lesions in more mild disease, as well as retiform purpura in critically ill patients [4].

Of the cases of RIME secondary to COVID-19 reported in the literature, the majority of patients are male (4 of 5) and all are either teenagers or young adults [5-7], as was the case with our patient. None of the cases reported had severe respiratory illness related to Sars-COV-2 infection, including our own. Severity of RIME was generally mild, resolving completely after oral or IV corticosteroids, IVIG, or cyclosporine. One patient required total parenteral nutrition due to the severity of oral lesions and prolonged disease course [7].

Of patients with RIME secondary to Sars-COV-2 infection, only one patient had a previous history of RIME [5]. In patients with recurrent RIME but different initial pathogenic trigger, courses tend to be less severe than the initial presentation with involvement of fewer mucosal sites [2,8].

CONCLUSIONS

RIME is a relatively newly described diagnosis and has an expanding list of pathogens reported to trigger it. We report a case of recurrent RIME secondary to COVID-19 in a young adult who experienced a different trigger for his first episode of RIME. More research is needed to elucidate the pathogenesis of RIME and to characterize which patients are predisposed to recurrent RIME and why in some exposure to the same pathogen triggers the disease while in others differing pathogens can trigger the eruption. In the setting of the COVID-19 pandemic, clinicians should be aware that RIME may be triggered by Sars-COV-2 infection and include this in the panel of tests being used to determine the underlying cause. We suggest in a patient with RIME that work-up include testing for COVID-19 in addition to a thorough drug history, and testing for mycoplasma pneumoniae, Chlamydia pneumoniae, metapneumovirus, parainfluenza, rhinovirus, enterovirus, and influenza.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

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