



# SARS-CoV-2 (COVID-19) associated reactive infectious mucocutaneous eruption with prolonged and treatment-refractory clinical course

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## CASE PRESENTATION

- **38-year-old female** presented to the ED
- 24 hours of **fevers** (up to 103 degrees F)
- **Pruritic papular rash** on the trunk
- Edematous **erosive plaques** on lips and labia minora
- Ulcerative plaques on posterior oropharynx
- Painful photophobic **conjunctivitis**
- Additional symptoms: mild dyspnea, cough, rhinorrhea, mild dysuria, vaginal pruritus
- History of positive COVID-19 PCR 10 days prior, treated with 5-day course of prednisone
- **Previously vaccinated/boosted** for COVID-19
- See **Figure 1** for clinical photographs

## MEDICAL HISTORY

### Past medical history:

- Treated latent tuberculosis

### Recent medications prescribed at outside emergency department for symptoms:

- Doxycycline
- Ibuprofen
- Acetaminophen
- Prednisone

## LABORATORY FINDINGS

### Relevant abnormal findings:

- Platelets 132 (remainder of CBC normal)
- Potassium 3.3 (remainder of BMP normal)
- Positive Mycoplasma IgG (negative IgM)

### Negative tests:

- Respiratory viral panel
- Mononucleosis
- Group A Streptococcus
- Herpes simplex virus
- Urinalysis
- Autoimmune work up (dsDNA, C3, C4, ANA)

## BIOPSY & INITIAL TREATMENT

*Clinical presentation and pathologic findings are most consistent with COVID-19 associated RIME (reactive infectious mucocutaneous eruption)*

Punch biopsies from the chest and back: acute interface dermatitis with many necrotic keratinocytes and prominent adnexal involvement (**Figure 2**)

### Initial treatment in the hospital:

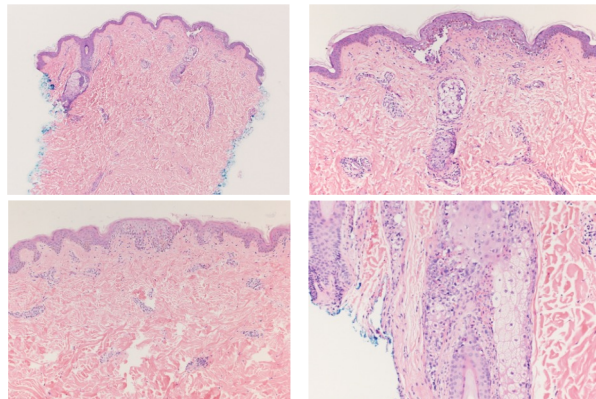
- Consultants: dermatology, ophthalmology, gynecology, otolaryngology
- IV methylprednisolone (1-1.5 mg/kg) for first 2 weeks
- 10-day course of fluconazole for oral thrush
- Topicals for skin/mucous membranes: clobetasol 0.05% ointment, triamcinolone 0.1% ointment, dexamethasone swish and spit, lidocaine 4% ointment
- Amniotic membranes in eyes for corneal epithelial defects

## CLINICAL PHOTOGRAPHS

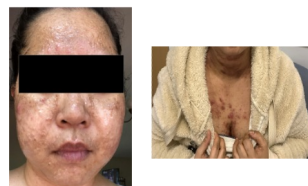
**Figure 1.** Photographs from time of initial clinical presentation.



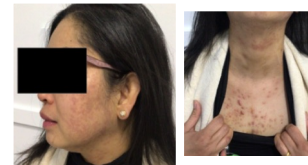
**Figure 2.** Punch biopsy findings, consistent with COVID-19 associated RIME.



**Figure 3.** Photographs from acneiform eruption secondary to cyclosporine.



**Figure 4.** Photographs following cessation of immunosuppressive therapy.



- Following hospital discharge, tapering patient's prednisone to lower than 40 mg daily would flare either cutaneous or ocular symptoms
- Cyclosporine was initiated 1 month after discharge, complicated by a severe acneiform drug eruption (therefore was discontinued) (**Figure 3**)
- 3 months after discharge, IVIg infusions 4 days/months with prednisone were started, which improved mucosal symptoms

- 3 weeks after starting IVIg, mycophenolate was added to the regimen and titrated up to 2500 mg daily
- 6 months after symptom onset, prednisone was tapered off
- 8 months after symptom onset, last dose of immunosuppression was given
- Patient is currently being treated for persistent and recalcitrant post-inflammatory hyperpigmentation and acne scarring (**Figure 4**)

## DISCUSSION

*RIME = a parainfectious inflammatory mucositis classically involving 2 or more surfaces (e.g. oral, ocular, anogenital) with limited skin involvement and evidence of an infectious prodrome*

- Infectious agents known to cause RIME include:<sup>1,2</sup>
  - Mycoplasma
  - Chlamydia pneumoniae
  - Metapneumovirus
  - Parainfluenza virus 2
  - Adenovirus
  - Group A Streptococcus
  - Rhinovirus
  - Influenza A/B
  - Enterovirus
  - SARS-CoV-2

- COVID-19 associated RIME findings typically occur 3 days to 2 weeks post infection, and resolve 5 days to 3 months after diagnosis<sup>3</sup>
- Vaccination status does not prevent patients from experiencing RIME related to COVID-19
- This case is unique in that our patient developed chronic persistent and highly treatment-refractory COVID-19 associated RIME, which has not been well-reported
- Chronic COVID-19 associated RIME may result in major medical morbidity such as ocular scarring, and in rare cases such as this, significant facial scarring
- Interestingly, the patient's facial involvement and biopsy findings both closely mimicked findings typical of acute cutaneous lupus erythematosus
  - Careful evaluation for underlying connective tissue disease (CTD) was performed, with an entirely negative CTD workup

## TREATMENT OPTIONS

*Treatment options for COVID-19 associated RIME are limited in the literature, and include supportive care, systemic corticosteroids, cyclosporine, and IVIg<sup>3</sup>*

*The use of mycophenolate mofetil specifically in COVID-19 associated RIME has not been reported in the literature, though was proven successful in tapering our patient off her immunosuppression*

## REFERENCES

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2. Song A, Nicholson C, Maguiness S. Recurrent reactive infectious mucocutaneous eruption (RIME) in two adolescents triggered by several distinct pathogens including SARS-CoV-2 and influenza A. *Pediatr Dermatol.* 2021 Sep;38(5):1222-1225. Epub 2021 Sep 13. PMID: 34515364.
3. Aw M, Gresham L, Spurr A, Gavigan G. Reactive infectious mucocutaneous eruption following COVID-19 infection in vaccinated patients. *JAAD Case Rep.* 2023 Jan;31:35-41. Epub 2022 Oct 29. PMID: 36340859.

The authors SAK, PD, and DDM have no relevant disclosures to make.