Manifestation of anterior necrotising scleritis and reactive infectious mucocutaneous eruption after COVID-19: a case report

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Multi-system inflammatory syndrome is a recognised syndrome caused by SARS-CoV-2 (COVID-19).[1,2] Reactive infectious mucocutaneous eruption (RIME) is a relatively recent umbrella term describing post-infectious rash and mucositis.[3] There are increasing reports of COVID-associated RIME[4,5,6,7]—particularly among children and young adults—exhibiting significant mucositis (oral, conjunctival and anogenital) but absent or minimal cutaneous involvement.[5]

Ocular manifestations of COVID-19 occur in 4–11% of patients[8,9] and are most commonly dry eyes and conjunctivitis.[8] Scleritis and posterior segment manifestations are uncommon.[9,10,11] There have only been three prior reported cases of COVID-associated scleritis, none of which had severe systemic manifestations or associated RIME.[10,11]

Case report

A 24-year-old male was admitted to hospital 9 days after testing positive for COVID-19 with a Rapid Antigen Test (RAT). At day 5, he developed generalised oral ulceration, odynophagia and painful red eyes, and was subsequently started on oral amoxicillin 500mg for a possible peritonsillar abscess. He had no past medical history, no regular medications and received his second dose of the Pfizer COVID-19 vaccine 2 months prior.

Examination of the mouth revealed haemorrhagic lip crusting with ulceration and widespread desquamative oral lesions of buccal mucosa, hard and soft palate and floor of mouth, sparing the tongue and genitals (Figure 1, A–D). He was empirically started on IV acyclovir 5mg/kg and following consultation with the dermatology and dental team, the patient was screened for autoimmune and other infectious causes including ACE, ANA, ANCA, Quantiferon TB Gold, FRH (IA), anti-CCP antibodies, skin autoantibodies (pemphigoid, pemphigus), Hepatitis, HIV, herpes virus group DNA, influenza PCR screening, syphilis, chlamydia and gonorrhoea, which all returned negative. There was serological evidence of past cytomegalovirus and Epstein-Barr virus infection. Chest radiograph showed no significant abnormalities. Laryngoscopy was normal and oral biopsies were undertaken.

Worsening ocular pain and conjunctival injection prompted ophthalmology review. Ocular examination revealed normal visual acuity and intraocular pressures, bilateral diffuse conjunctival injection with deep scleral involvement bi-temporally, and pain on retropulsion. The redness remained in the sclera despite topical application of phenylephrine 10% (Figure 2, A–B), and fluorescein examination revealed an epithelial defect consistent with bilateral anterior sectoral necrotising anterior scleritis (Figure 2, C–D). There was no intraocular or posterior segment inflammation. After specialists' consultation, conjunctival swabs were performed for HZV, VZV, and COVID-19, and he was promptly started on 1g IV methylprednisolone daily for 3 days followed by 1mg/kg oral prednisone tapered off over 8 weeks.

Conjunctival viral swabs were negative. Histology from buccal mucosa biopsies confirmed presence of ulceration with underlying granulation tissue, hyperplastic reactive mucosa and lymphohistiocytic infiltrate. Immunofluorescence studies were negative for IgG, IgA, IgM or C3.

The investigation findings were consistent with RIME. Improvement in pain, mucosal ulceration and necrotising scleritis was observed at 36 hours after the initiation of IV methylprednisolone, followed by rapid improvement over the following 4 days. He was discharged from hospital and regularly monitored during his outpatient follow-up with dental and ophthalmology. At his last ophthalmology follow-up 10 weeks after discharge, there were no signs of rebound RIME or scleritis.

Figure 1: Clinical photographs of a) upper and lower haemorrhagic lip crusting and ulceration, and desquamation of b) the palate and c–d) the buccal mucosa.

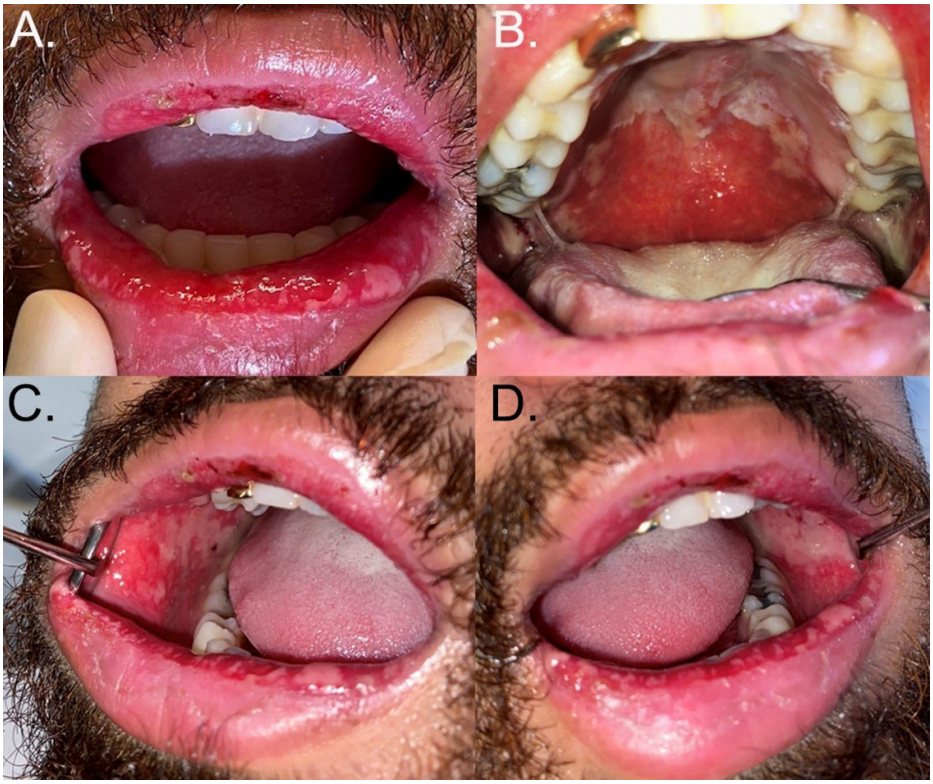
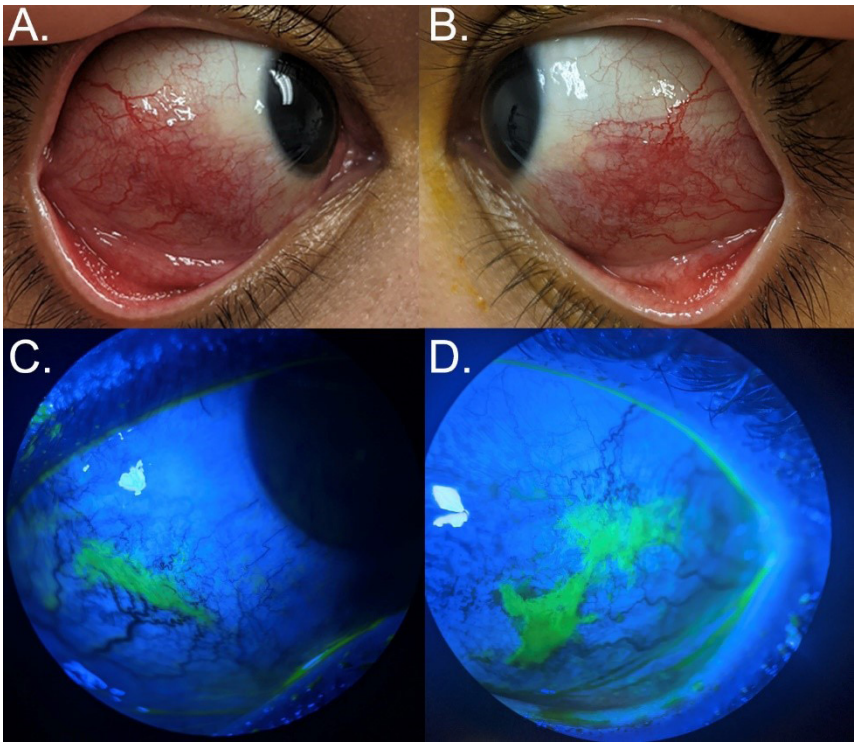


Figure 2: Clinical photographs after topical phenylephrine 10% illustrating deep scleral injection of the temporal globes of a) the right eye, b) left eye; and cobalt blue filter illustrating the corresponding areas of fluorescein uptake at epithelial defects of c) the right eye, and d) left eye.



Discussion

This is the first reported case of COVID-associated bilateral anterior necrotising scleritis in a patient that was double-vaccinated against the virus, highlighting that severe ocular complications can still occur. This is also the first reported case of necrotising scleritis co-presenting with RIME.

RIME is defined by evidence of an infectious trigger in the preceding 7–10 days, a non-contributory medication history and erosive mucositis or vesiculobullous lesions affecting two or more sites.[3] In this case, the investigation findings implicate COVID-19 as the trigger for RIME and bilateral anterior necrotising scleritis.

Anterior scleritis should be considered by all clinicians when a patient presents with ocular pain and erythema following or during COVID-19 infection. Careful consideration must be taken to avoid automatically dismissing such cases as conjunctivitis. Initiation of high-dose systemic steroids for necrotising scleritis is required to prevent severe complications such as perforation. When such sight-threatening diseases do not respond to IV methylprednisolone, there is the potential need to rapidly escalate treatment to anti-TNF or tocilizumab.

This case highlights two differing non-respiratory systemic manifestations of COVID-19 during the convalescent phase. Consequently, it underlines the importance of collaboration among specialists when faced with multisystem involvement.

COMPETING INTERESTS
Nil.

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