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LETTER TO THE EDITOR

A constellation of dermatological findings in a COVID-19 positive patient

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Dear Editor,

With its multisystem effects, we are seeing increasing associations and causations being made with SARS-CoV-2 every day. The relationship between viruses and urticaria is well-described in the literature [1]. Therefore, it is unsurprising that this challenging coronavirus may prove to be a perpetrator of dermatological presentations.

A 19-year-old female presented with a widespread erythematous pruritic cutaneous eruption on a background history of mild flexural atopic dermatitis. Her initial swab for SARS-CoV-2 was negative. She was admitted overnight and treated for an infective eczema exacerbation. She received intravenous (IV) steroids, antibiotics and antihistamines, and was discharged on oral prednisolone and flucloxacillin.

Five days later, she presented to the Emergency Department (ED) with the emergence of a new non-productive cough, new pruritic cutaneous eruption and marked facial oedema.

On clinical examination, urticarial papules and plaques were most noticeable on her lower abdomen and back. She had excoriated eczematous patches on her lower limbs and scattered pustules on her left cheek. She had striking facial oedema also involving the lips and periorbital regions. Her vitals were stable.

A repeat swab for SARS-CoV-2 returned as positive. Viral and bacterial swabs of the pustules were taken, growing heavy growth of MSSA (methicillin-sensitive *Staphylococcus aureus*) and detecting HSV-1 (herpes simplex virus-1). Her connective tissue disease screen, vasculitis screen and complement levels were all within normal range.

Treatment commenced with IV hydrocortisone 100 mg four times daily, IV acyclovir 5 mg/kg three times daily (TDS), IV co-amoxiclav 1.2 g TDS and oral fexofenadine 180 mg TDS. Significant clinical improvement was seen within twenty four hours. The overall impression was an infective eczema exacerbation with superimposed herpes and impetigo, urticaria and facial angioedema with co-existing SARS-CoV-2 infection. The patient's symptoms had fully resolved within four weeks.

As we have seen with SARS-CoV-19, angioedema can represent an important prodrome to the systemic signs of infection [2]. A delay in recognising this can lead to delays in diagnosis. A similar case of urticaria and angioedema has been described in a 40-year-old male but whose systemic symptoms of COVID-19 superseded those cutaneous manifestations by 4 days [3].

One hypothesis for manifestations of angioedema and urticaria is the ACE2 (angiotensin-converting enzyme 2) receptor. SARCS-CoV-2 uses this to enter cells consequently downregulating the receptor. ACE2 also has a role in inhibiting bradykinin. By inhibiting ACE2, excess activation of bradykinin occurs with resultant vascular permeability and angioedema [4].

This is an unusual presentation in the setting of SARS-Cov19 infection. Facial angioedema has been documented albeit rarely in association with COVID-19, and in this case may have presented as the prodrome until confirmation of infection.

Learning points
Association of COVID-19 with urticaria and angioedema
Dermatology complaints as possible presentations of COVID
Management of urticaria and angioedema

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Data availability All data generated or analysed during this study are included in this published article and its references.

Declarations

Informed consent Patient consent was obtained for the publication of the information and photos in this manuscript.

Conflict of interest The authors declare they have no conflicts of interest.

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