A diagnosis of TTS was made. We referred the patient to an oral and maxillofacial surgery unit for consideration of epithetic approaches; however, she did not follow our advice. Six years later the defect size on the right ala nasi was significantly increased (Fig. 1f).

The most common cause of TTS (about 75% of cases) is neurosurgical removal of the Gasserian ganglion.[2] In > 80% of cases, the ala nasi and nostrils are affected. However, WS (also known as lateral medullary syndrome or posterior inferior cerebellar artery syndrome) has more rarely been reported to be associated with complications such as TTS and neurotrophic corneal ulcerations.[3–5] Onset of TTS after trigeminal nerve lesions may range from weeks to decades. A female predominance has been documented in the literature. The exact pathogenesis of TTS remains elusive; however, the underlying mechanisms of ulcer formation are rather believed to be traumatic secondary to paraesthesia, burning and/or pruritus. Hence, ulceration may be triggered by unconscious manipulations (e.g. scratching) due to the aforementioned sensations. Unlike with factitial dermatitis, patients with TTS are frequently more ready to report uncomfortable symptoms and propensity for skin-picking and self-mutilation. With respect to drug-based approaches, the most promising treatments (e.g. carbamazepine) are designed to relieve the neuropathic symptoms and thus prevent self-mutilation by the patient. Protection of the ulcer through epithetic rehabilitation may also prevent the patient from unconscious manipulation. Novel approaches, including transplants of autologous epidermal cells, are currently under investigation.[5]

In conclusion, the present case highlights the importance of considering TTS in patients with nonhealing facial wounds and a history of cerebellum/brain stem ischaemia.

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A flare of pre-existing erythema multiforme following BNT162b2 (Pfizer–BioNTech) COVID-19 vaccine

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Dear Editor,

The coronavirus disease (COVID)-19 pandemic has resulted in significant morbidity and mortality worldwide. The emergency use authorization of COVID-19 vaccinations in December 2020 has led to renewed optimism of reducing the prevalence and burden on healthcare systems. Three vaccines have now been granted temporary authorization in the UK: BNT162b2 (Pfizer–BioNTech), ChAdOx1 (Oxford–AstraZeneca) and mRNA-1273 (Moderna).

While urticarial and allergic reactions have been reported post COVID-19 vaccination, *de novo* cutaneous eruptions, or flare of pre-existing cutaneous disorders postvaccination, are scarce.[1] We report a patient developing a flare of biopsy-proven, erythema multiforme (EM) following COVID-19 vaccination with BNT162b2.

A 58-year-old woman presented with a 7-day history of a painful eruption on her hands and feet. A similar eruption had occurred in 2018, with the clinical suspicion of EM being confirmed by a subsequent diagnostic biopsy. The patient experienced recurrent episodes of herpes labialis, with clinical improvement after taking antiviral medication. The EM had been quiescent for 5 months on oral famciclovir. Within 12 h of receiving the first BNT162b2 vaccine, the patient developed a cutaneous eruption consisting of erythematous concentric targetoid plaques on the palms of her hands and soles of the feet bilaterally (Fig. 1). There was no mucous membrane involvement. Prior to the vaccination the patient had been systemically well, with no recent flare of herpes labialis and no recent illness. Her medical history included rheumatoid arthritis for which she was taking abatacept), endometriosis, hypertension and a multinodular thyroid goitre. Her medication was unchanged with no new medication intake around the time of vaccination. A similar eruption occurred 24 h after receiving the second BNT162b2 vaccine (Fig. 2).

Clinical improvement of the EM was obtained with topical clobetasol ointment.

Erythema multiforme is an immune-mediated chronic inflammatory disease affecting the skin and/or mucous membranes, which has been reported in association with

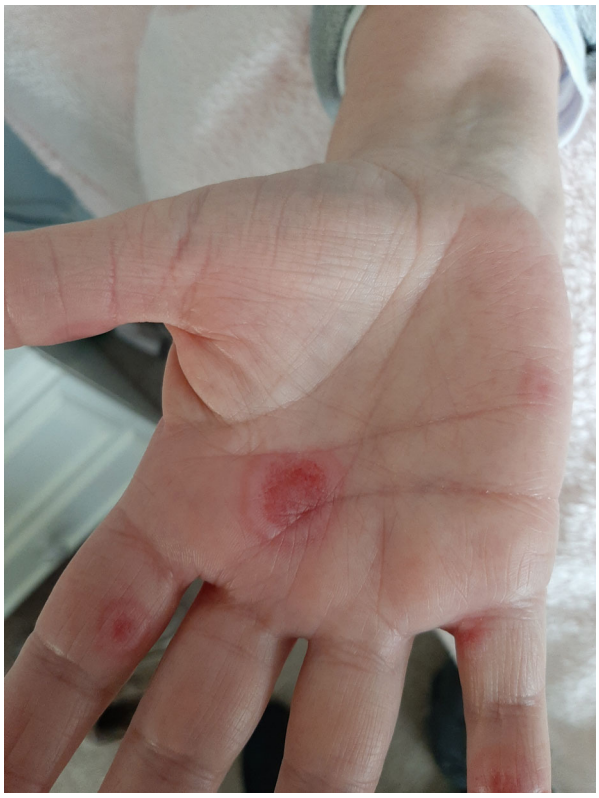

Figure 1 Erythema multiforme manifesting as erythematous concentric targetoid plaques on the palm of the hand.

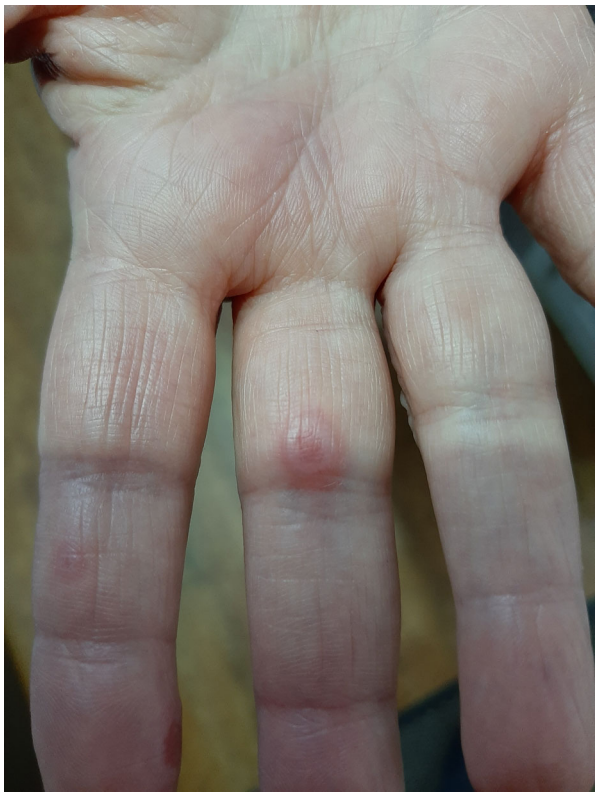

Figure 2 Erythema multiforme on the right second finger after receiving the second BNT162b2 vaccine.

COVID-19, predominantly in the paediatric population. This is believed to occur either due to the prothrombotic state or due to immune dysregulation.[2]

To our knowledge, there have been no cases of EM occurring post COVID-19 vaccination; however, there are reports of EM occurring after other vaccinations.[3] The hypotheses for EM following infection and vaccines share a similar aetiology. EM associated with herpes simplex virus (HSV) infection is thought to be due to a cell-mediated immune reaction. Following HSV infection, the viral DNA undergoes phagocytosis by macrophages and other antigen-presenting cells. The viral DNA is transported to the skin and is expressed on basal keratinocytes, which leads to activation of T-helper cells and consequent production of cytokines such as interferon-γ, which are responsible for the pathological inflammatory response leading to EM.[4] Similarly, the reason for vaccine-induced cutaneous hypersensitivity reactions is thought to be due to antigens present in the vaccine being expressed on the surface of keratinocytes, leading to a T-lymphocyte immune response against the cells of the epidermis, and ultimately cell death and detachment at the dermoepidermal junction. At present, the specific vaccine antigen component that promotes this reaction is unknown.[5]

New reports of cutaneous manifestations related to COVID-19 continue to emerge. As more people receive the COVID-19 vaccinations, it is possible that *de novo* cutaneous eruptions or flares of pre-existing cutaneous diseases will.

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Ivermectin in dermatology: why it 'mite' be useless against COVID-19

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Misinformation has been a major global challenge in the COVID-19 pandemic. Several therapies relevant to dermatology, including hydroxychloroquine[1] and ultraviolet radiation,[2] have been falsely touted as beneficial. More recently, ivermectin has been advocated for both prophylaxis and treatment of COVID-19. Although ivermectin has been shown to inhibit the replication of severe acute respiratory syndrome coronavirus (SARS-CoV)-2 at supratherapeutic doses *in vitro*,[3] no benefit has been seen in real-world treatment of COVID-19.[4] We review the basic pharmacology of ivermectin, its clinical applications in dermatology, and explain why it is unlikely to be useful against SARS-CoV-2.

Ivermectin is a synthetic derivative of a class of antiparasitics known as avermectins, discovered by the Irish Nobel Prize winner William Campbell in 1978. Ivermectin has broad-spectrum activity against a variety of endoparasites and ectoparasites. It selectively binds to parasitic neurotransmitter receptors, inducing paralysis in the targeted parasite. It blocks trans-synaptic chemical transmission through glutamate-gated anion channels (Fig. 1), which are not present in vertebrates. At higher concentrations, ivermectin can interact with other ligand-gated chloride channels.

Ivermectin is approved to treat several parasitic infestations with cutaneous tropism, in both oral and topical formulation (Table 1). It is commonly used in the treatment of resistant or crusted scabies, as a second-line strategy in cases of suspected permethrin resistance, or when topical treatment is not feasible. Ivermectin also has activity against human body, head and pubic lice. *Demodex folliculorum*, a human skin commensal, can cause facial or disseminated demodecidosis, and is responsive to ivermectin. Ivermectin is also commonly used in a topical formulation to treat papulopustular rosacea, given

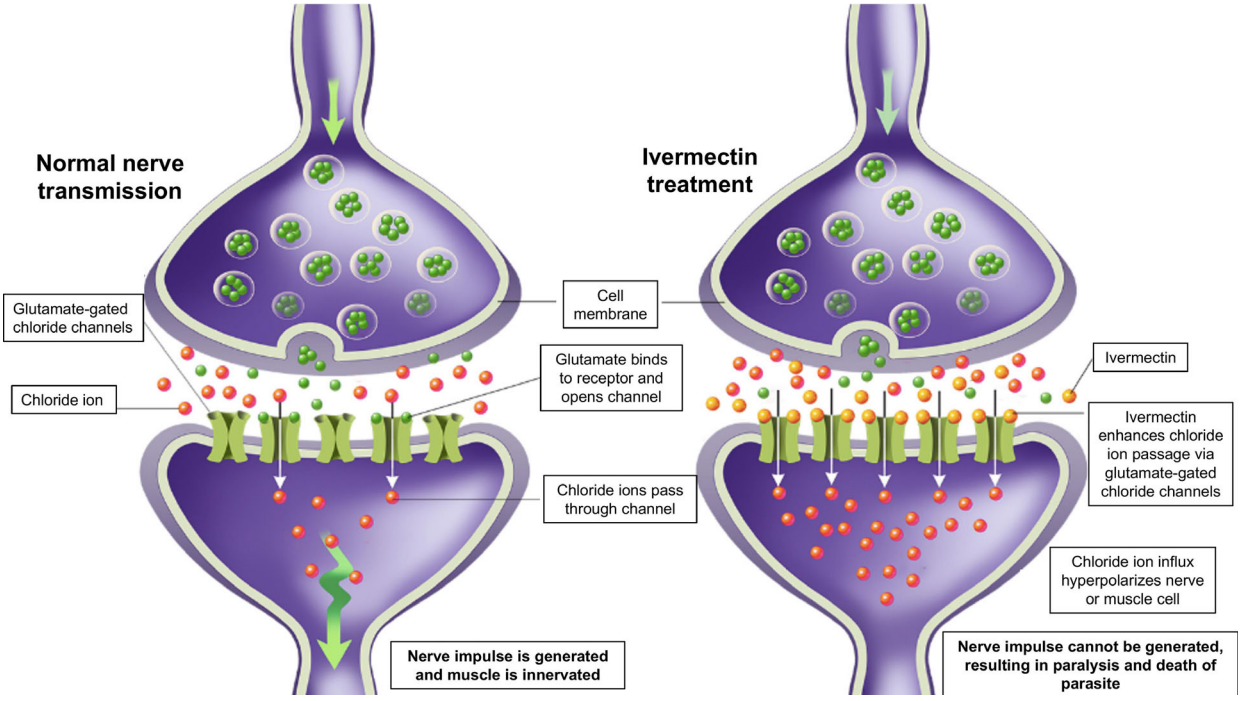

Figure 1 Mechanism of action comparing a normal parasitic nerve synapse and a parasitic nerve synapse inhibited by ivermectin. Ivermectin induces hyperpolarization of the neuron and death of the parasite.