responses.[4] A review of literature identified 10 patients with recalcitrant generalized GA who were treated with oral tofacitinib[4–6] or upadacitinib,[7] JAK1/3 or JAK1inhibitors. Among these 10 patients in literature, four patients (three treated with tofacitinib, one with upadacitinib) achieved complete remission, three patients treated with tofacitinib obtained nearly complete remission and three other patients with tofacitinib achieved partial remission in terms of long-term efficacy. In the current case, baricitinib, a JAK1/2 inhibitor targeting interferon-γ downstream JAK1/2-STAT1 pathway, showed both significant and rapid efficacy with complete remission after 5-month therapy. This indicated that baricitinib might be another potent and efficient option for GA treatment.

Compared with tofacitinib or upadacitinib, better safety of baricitinib has been confirmed by its long-term application in rheumatoid arthritis over years.[8]Furthermore, baricitinib also plays a positive role in the currenting COVID-19 epidemic background.[9,10] To our knowledge, this is the first report about the successful baricitinib utility in GA. Further clinical exploration is needed to verify the long-term effectiveness and safety of baricitinib administration in GA.

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Conflict of interest

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Generalized pustular psoriasis flare in a patient affected by plaque psoriasis after BNT162b2 mRNA COVID-19 vaccine, successfully treated with risankizumab

Editor,

With the widespread use of COVID-19 vaccines, several cutaneous adverse reactions are emerging, including flares of pre-existing dermatoses[1,2]: we describe the case of a 47-year-old female patient, affected by plaque psoriasis since 2001, who presented to our Emergency Department with an exacerbation of psoriasis after the second dose of BNT162b2 COVID-19 vaccine. The patient referred the rapid worsening of her psoriasis, starting from 10 days after the vaccination (Second dose inoculated on 23 May 2021). She was on treatment with ustekinumab 90 mg since 2016, and she skipped the scheduled administration in May 2021. She was also affected by obesity and psoriatic arthritis; she was previously treated with infliximab, discontinued for intolerance. On physical examination, we observed wide erythematous plaques confluent to both the trunk and the four limbs, covered by large scales. The PASI was 29.8 and the involved body surface was more than the 30% of the total area. She had fever (38.2 °C) and arthralgias; blood examinations showed 11 000/mm^3 white cells, C-reactive protein 14.56 mg/dL. After the hospitalization, blood cultures at the febrile peak returned negative; and 2 days later, we observed numerous small pustules

surrounding the erythematous scaling plaques, although the pustular eruption was particularly intense on the cutaneous folds. The clinical appearance was suggestive for a flare of generalized pustular psoriasis (GPP) superimposed on a plaque psoriasis, and we supposed the relationship with the second shot of BNT162b2 COVID-19 vaccine. During the hospitalization, the pustules became larger, coalescent and thicker, involving also patient's palms and soles; few patches began to ulcerate and the scaly plaques involved also the face and the scalp (Figs. 1 and 2a, b). Tumour markers for malignancy were negative. Having considered the risk of a superimposed infection, the comorbidities and the severity of the psoriasis, we therefore decided to start therapy with risankizumab 75 mg/fl with two subcutaneous injections, while an oral therapy with daptomycin 850 mg/day was prescribed. One week after the first dose of risankizumab, the pustular eruption disappeared and after 2 weeks of hospitalization the plaques improved, with only slight erythema. She received the second dose of risankizumab and to date she is still on therapy, having achieved the complete disease control (PASI 0) at Week 16 (Fig. 2c).

Flare-up of plaque psoriasis in the setting of SARS-CoV2 infection[3] and after COVID-19 vaccines is widely described in literature, usually resolving after few weeks but, sometimes, needing rescue therapies.[4–6] D. Pesqué *et al.* suggested a relevant role of COVID-19 vaccines in the re-activation of inflammatory pathways underlying a pre-existing plaque psoriasis.[7] B. Awada *et al.* hypothesized that COVID-19 vaccination (or infection) may lead to an IFN-I-mediated immune response by stimulating the plasmacitoid dendritic cells. It has also been suggested the role of Sars-CoV-2 infection as a trigger to an IFN-driven inflammatory disorder such as GPP in genetically susceptible individuals.[8] D. Perna *et al.* also reported a GPP flare in a patient affected by plaque psoriasis who received the first dose of BNT162b2 vaccine, treated with acitretin.[9] Regarding the therapy, we prescribed risankizumab, a IL-23 inhibitor, since our patient was intolerant to infliximab, previously on optimal therapy with ustekinumab, affected by severe obesity and at risk of superimposed infections. In conclusion, we described GPP flare and exacerbation of psoriasis in a patient who previously received BNT162b2 vaccine: this could probably be a rare

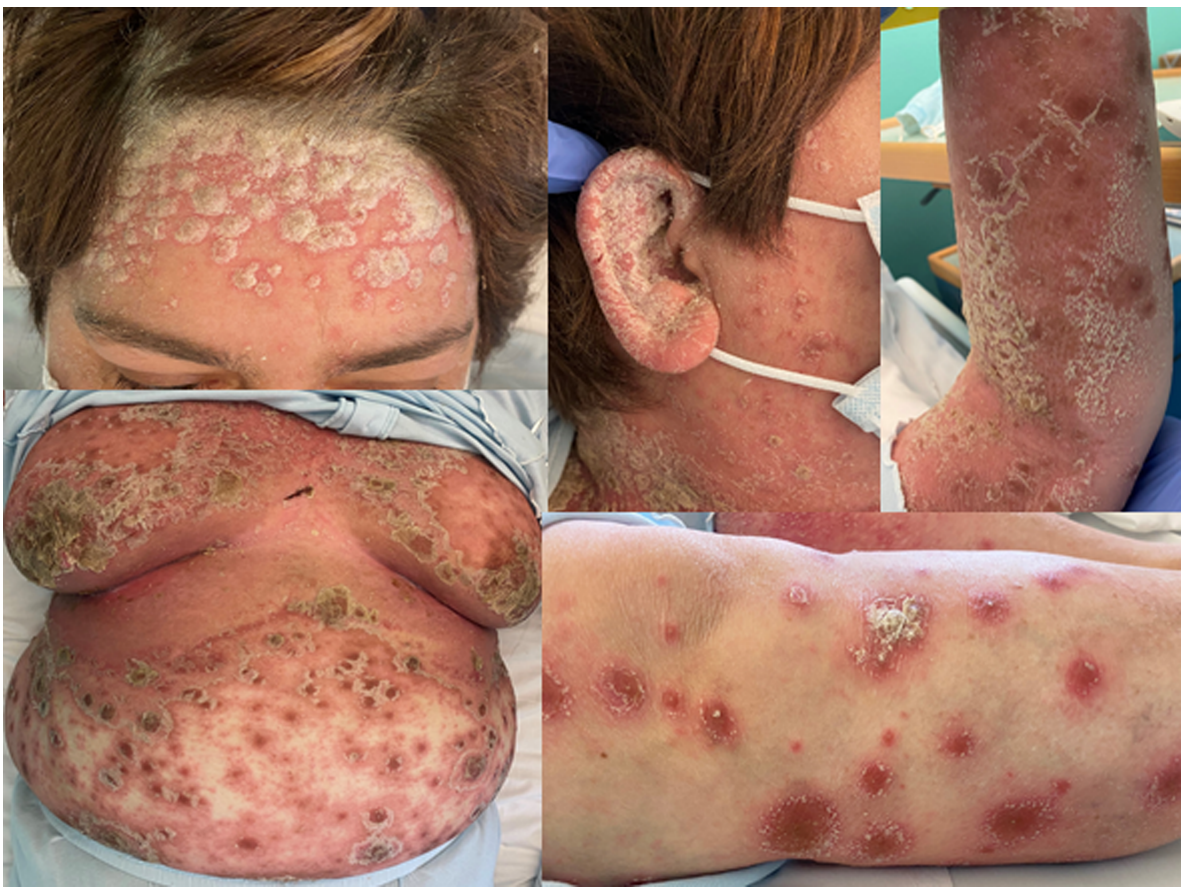

Figure 1 GPP flare presenting in our 47-year-old patient: wide erythematous and scaly plaques surrounded by small non-follicular pustules spreading on the abdomen, both legs and forearms. Scaly and hyperkeratotic plaques involving the face and the scalp.

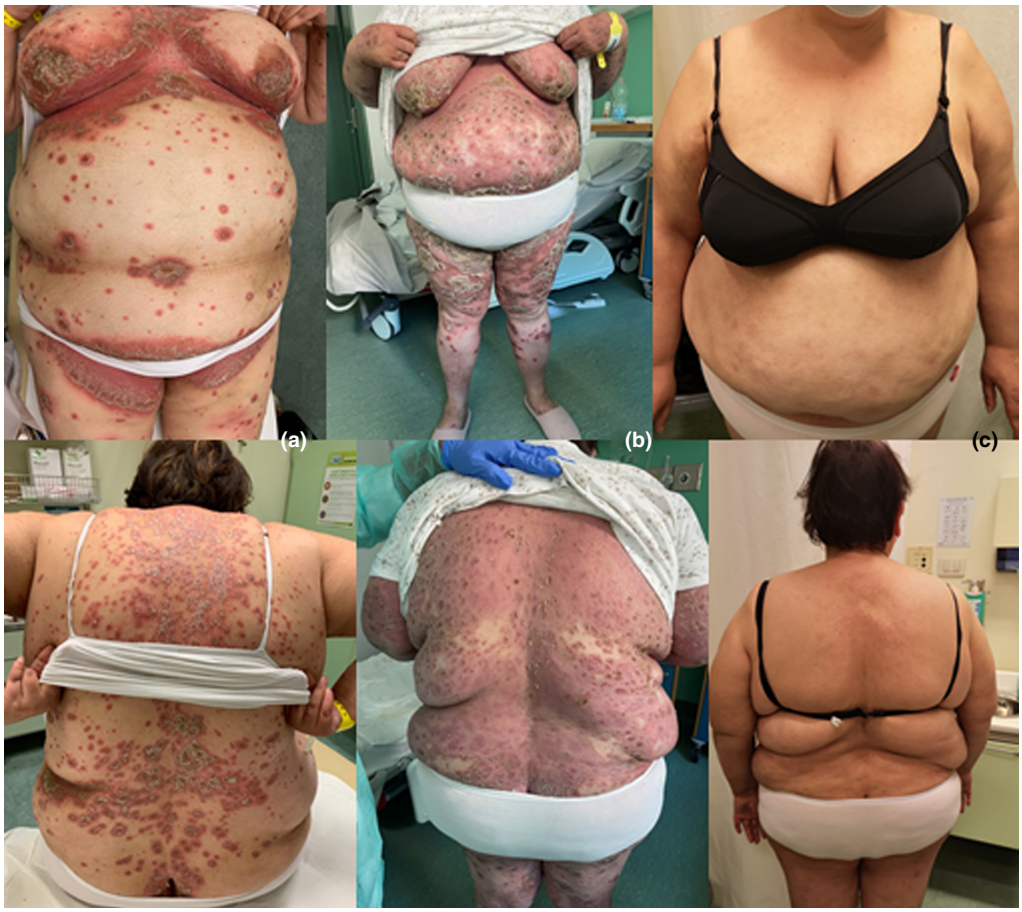

Figure 2 Clinical presentation at the first access in our Emergency Department (a), at the baseline before starting treatment with risankizumab 75 mg/fl (b) and finally after 16 weeks (c): for each time point both the anterior and posterior surface of the body are shown.

adverse reaction related to COVID-19 vaccine, in a patient who interrupted the biological therapy. Since the high rate of comorbidities in psoriatic patients, the vaccination should be strongly recommended in this population. On the other hand, dermatologists should keep in mind the possibility of rare flare-up of pre-existing dermatoses or the onset of new cutaneous manifestations in genetically predisposed patients. No guidelines are currently available concerning the management of a GPP flare after COVID-19 vaccine, and further cases should be collected to deepen our knowledge.

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Additional data are available on request to the corresponding author.

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Erythema nodosum leprosum post-COVID-19 vaccination: endemic while pandemic

Editor

Leprosy is an important global health concern. Erythema nodosum leprosum (ENL) is a type 2 immunological reaction, indicative of bacterial-rich leprosy. We report a case of ENL arising following Pfizer BNT162b2 mRNA COVID-19 Vaccine.

A 32-year-old man, born in Thailand, who had been living in Israel for 4 years, was referred to the ER due to the appearance of a diffuse nodular rash across his trunk and extremities (Fig. 1a). The man was in good general health, with no family history of dermatological diseases. The rash appeared 14 days following the first dose of Pfizer's BNT162b2 mRNA COVID-19 vaccine. On physical examination (Fig. 1a), erythematous nodules were present in a general distribution over his trunk, extensor surfaces of both upper and lower extremities and face. A few hyperpigmented patches were present on the back. There were no systemic symptoms, lymph nodes were not enlarged, and sensory loss or nerve thickening were not observed. Blood

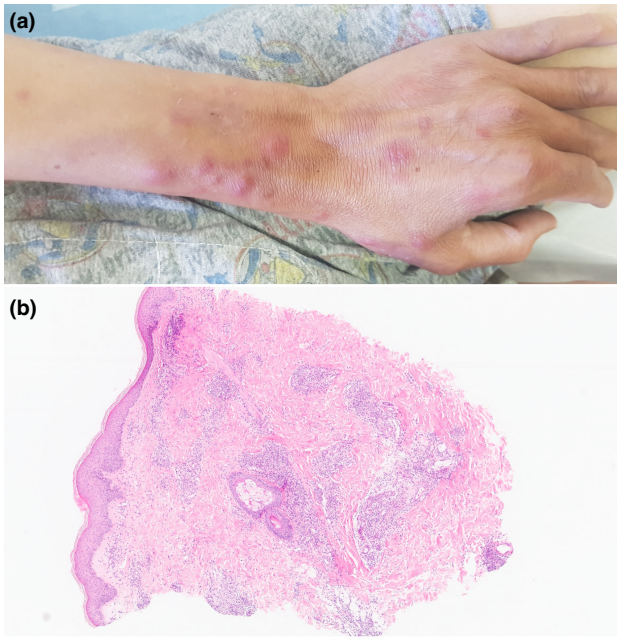

Figure 1 Clinical (a) and histological (b) aspect of ENL developed after Pfizer BNT162b2 mRNA COVID-19 vaccination.

examination showed mild leucocytosis 11.8K with neutrophils 9.9K (83.9%), haemoglobin 12.7 gr% (13.9–17.7 gr%) and elevated CRP 8 mg/dL (normal range 0–0.5 mg/dL).

Differential diagnosis included erythema nodosum, subcutaneous Sweet syndrome and other panniculitides. Biopsies for pathology and tissue culture were taken. H&E staining showed preserved epidermis, oedematous papillary dermis and superficial and deep perivascular and diffuse mononuclear infiltration with numerous neutrophils and several small clusters of histiocytes, forming mainly indistinct granulomas. One clearer granuloma without necrosis was also observed (Fig. 1b). Alcian blue and PAS stains were negative. Ziel Neelsen stain showed many acid fast bacilli. Skin smears sampled from several locations, including ears, elbows and knees, as well as from the nodular lesions, were examined by PCR for *Mycobacterium leprae* bacilli and found to be highly positive. Based on these findings, the case was diagnosed as erythema nodosum leprosum, and WHO-MDT (multi-drug therapy), including rifampicin, clofazimine and dapsone, was initiated.

Leprosy (Hansen's disease) is caused by two types of acid-fast positive bacilli, *M. leprae* or *M. lepromatosis*. Immunological reactions, type 1 and 2, are systemic inflammatory complications that may occur before, during or even years after treatment has been completed. ENL type 2 reaction is characterized by a sudden eruption of numerous painful nodules, typically on the extensor surfaces of the extremities and on the face. They last for a few days and are replaced by crops of new lesions. Histology shows neutrophilic infiltration