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DERMATOLOGIC THERAPY WILEY

LETTER

De novo severe pemphigus vulgaris following SARS-CoV-2 vaccination with BBIBP-CorV

Dear Editor,

Pemphigus vulgaris (PV) is a rare, potentially life-threatening IgG-mediated autoimmune disease of stratified squamous epithelia of skin and mucosa. IgG autoantibodies produced against desmoglein 3 and 1, the components of intraepithelial desmosomes, lead to acantholysis causing blisters and erosions.[1] PV is a multifactorial disorder with unknown genetic and environmental factors.[2] Several reports indicated the association of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection and new-onset PV or aggravation of already existing PV.[3] Recently, a few reports associated PV with either Moderna or Pfizer vaccines administration.[4–6] Here, we describe a case of severe new-onset PV following Sinopharm COVID-19 (BBIBP-CorV) vaccination.

A 76-year-old female patient presented with widespread mucosal erosions and milder cutaneous blisters one month after receiving the second shot of the Sinopharm vaccine. She was a known case of diabetes mellitus, hyperlipidemia, and ischemic heart disease with no history of skin disorder. Her drug history included Glibenclamide, Metformin, Atorvastatin, Metoprolol, and Nitrocontin with no dosage

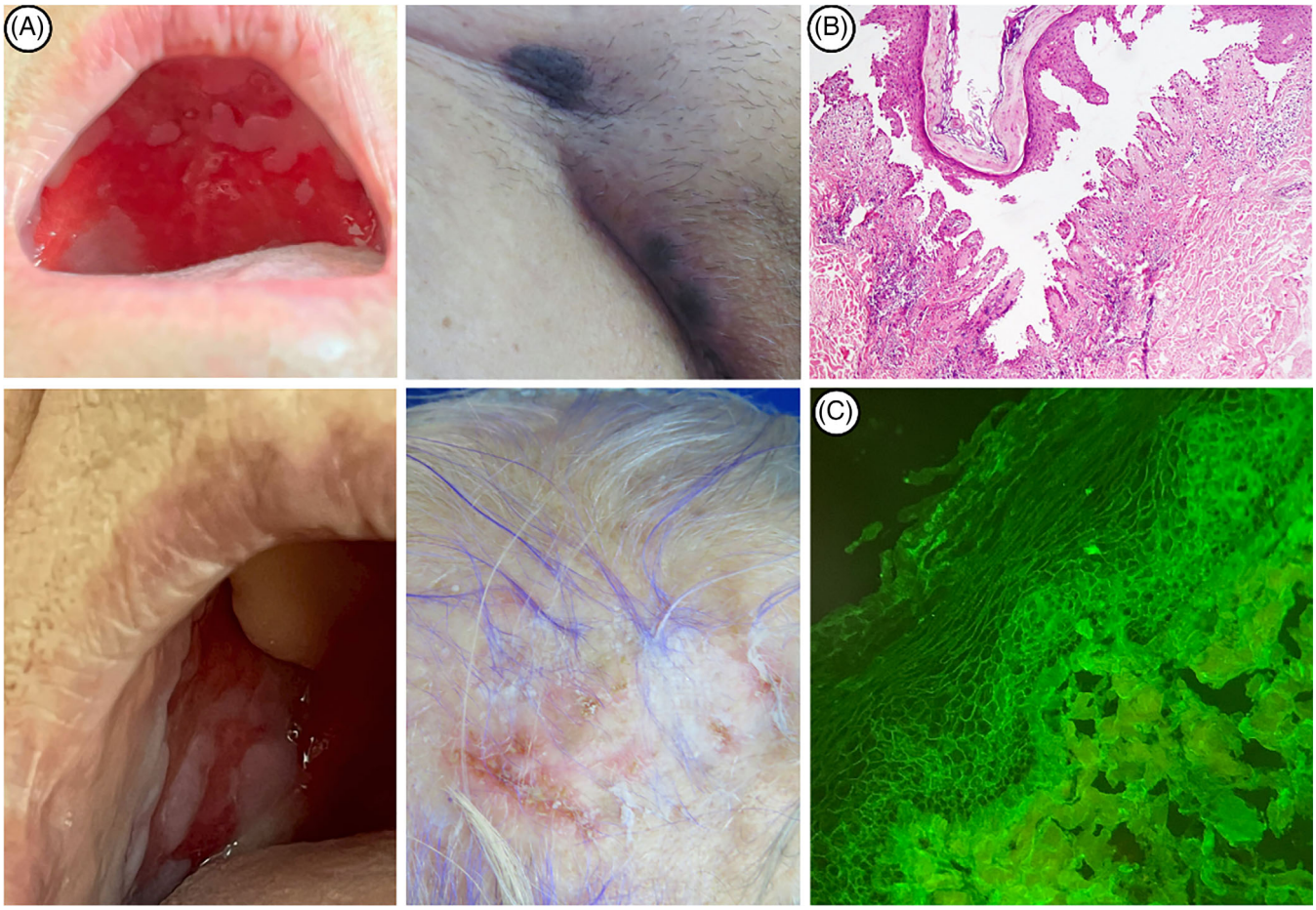

FIGURE 1 Clinical features, histology, and pathology findings in patients with pemphigus vulgaris, following SARS-CoV-2 vaccination with BBIBP-CorV. (A) Severe and extensive painful erosions of the oral mucosa, vegetative lesions of pemphigus vulgaris in the inguinal region, and crusted erosions on the scalp were evident. (B) Microscopic appearance of pemphigus vulgaris with suprabasal acantholysis and characteristic tomb-stone feature retained basilar keratinocytes and villi-like papillary dermis (Hematoxylin and Eosin, ×100 original magnification). (C) Immunofluorescence of IgG with intercellular network pattern is intensely stronger near the base (×100 original magnification)

change for at least three years. She did not recall taking any new medication or supplement to trigger the reaction. She complained of severe odynophagia with decreased oral intake. She was afebrile, and her vital signs were within normal range. On physical examination, multiple erosions were noticeable on her oral mucosa, including bilateral buccal, hard and soft palate mucosa (Figure 1A). Glazed erythema and minor erosions were observed on her genital mucosa. Small flaccid blisters and crusted erosions were present on her upper trunk and scalp. After obtaining informed consent, two biopsies were performed from the lesional and perilesional skin. Histopathologic examination of skin biopsy shows suprabasal bullae with acantholysis of keratinocytes and tomb-stone characteristic pattern of the papillary dermis with retained basalis keratinocytes (Figure 1B). Papillary dermis with congested blood vessels resembling villi-like projections is evident and inflamed by lymphocytes and eosinophils. Direct immunofluorescence study reveals intercellular network pattern of immunoreactants (IgG and C3c) (Figure 1C). The anti-desmoglein 1 and 3 antibodies serum levels were negative. Her clinical and histological findings were consistent with PV. In order to determine the causality of this reaction with the previous administration of the BBIBP CorV vaccine, we applied the widely used Naranjo Adverse Drug Reaction (ADR) Probability score. The score result was 5, which corresponds with probable ADR. She partially responded to systemic corticosteroid treatment. Subsequently, she was given 2 g of Rituximab. Since then, she experienced remission, and the dose of prednisolone has been tapered.

Skin eruptions have frequently appeared in Covid-19 patients with an overall frequency of 5.95%.[3] Afterward, with the initiation of COVID-19 mass vaccination, numerous mucocutaneous symptoms have been reported, presumably induced by these vaccines. These manifestations can either be de novo or exacerbation of previous dermatological disorders.[7] The types 1 and 4 hypersensitivities have been suggested for urticaria and injection site reactions, respectively.[8] The major reported trigger factors for pemphigus include drugs, vaccines such as influenza, rabies, tetanus, hepatitis B, infections, malignancies, and other autoimmune disorders.[9]

To date, a few cases of PV have been reported after the COVID-19 vaccines. The first report was the development of oral PV in a woman following the first dose of the AZD1222 vaccine that was completely controlled by topical corticosteroids.[6] Solimani et al.[4] reported a 40-year-old woman with new-onset PV following BNT162b2, which was controlled by prednisolone and Azathioprine. Koutlas et al.[5] reported a 60-year-old man who developed oral PV after receiving the second dose of mRNA-1273 and was treated with prednisolone and Rituximab. COVID-19 vaccines induce the production of neutralizing antibodies against SARS-CoV-2 spike protein. Molecular mimicry is proposed pathogenesis for autoimmune disorders induced by COVID-19 vaccines.[8] Cross reaction between spike protein of SARS-CoV-2 virus antibody and tissue proteins like Transglutaminase 2 & 3 and S100B may play a role in developing Bullous pemphigoid and Linear IgA bullous dermatosis following COVID-19 vaccination.[10] Although there is no definite link between COVID-19 vaccines and autoimmune blistering disorders, the temporal association of these events can suggest a causative relationship.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

Rana Samii wrote the manuscript. Rana Samii, Zahra Saffarian, Alireza Ghanadan, and Hassan Vahidnezhad completed and approved the final version. Experimental data were obtained and collected by Rana Samii, Zahra Saffarian, and Alireza Ghanadan.

DATA AVAILABILITY STATEMENT

Data sharing will be available upon request from the corresponding author.

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