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LETTER TO THE EDITOR

Pyostomatitis vegetans following coronavirus disease 2019 vaccination in a patient with ulcerative colitis

Dear Editor,

Pyostomatitis vegetans (PSV) is a rare mucosal dermatosis commonly associated with inflammatory bowel diseases (IBD), particularly ulcerative colitis (UC). It is considered a variant of pyoderma gangrenosum and clinicopathologically overlaps with the immunoglobulin (Ig)A variant of pemphigus vegetans.[1] We present a case of PSV successfully treated with topical tacrolimus.

A 76-year-old man had UC that was stable for over a decade under mesalazine. He presented to our dermatology clinic with a 4-month history of painful, itchy, confluent, vegetated papulopustules on the lips and anus (Figure 1a). The lesions occurred 1 week after Oxford-AstraZeneca vaccination and persisted. Upon further inquiry, he had UC flare-up 7 months ago and was treated with titrated dosage of mesalazine. During the lip eruption, he had stationary frequent stool passages (7–8 times/day) without exacerbation. Further examinations revealed mild peripheral eosinophilia (8.4%), but no virus was isolated from mucosal swab. He had been treated for herpes labialis with unsatisfactory results at local clinics, where repeated Tzanck's smear revealed negative herpetic cytopathy. A skin biopsy specimen showed superficial ulcers covered with purulent crust, epidermal hyperplasia with mild spongiosis, some necrotic basal keratinocytes, and focal dermoepidermal junction separation but without acantholysis. The upper dermis revealed dilated thin-walled vessels and lichenoid infiltrates of lymphohistiocytes, neutrophils, eosinophils, and plasma cells (Figure 1b,c). Direct immunofluorescence (DIF) revealed granular to linear staining of IgG and C3 along the dermoepidermal junction (Figure 1d). Complete remission was achieved after 2 weeks of 0.1% topical tacrolimus, without adverse events or relapse at 1-month follow-up.

The histopathology of PSV is typified by epidermal hyperplasia, focal suprabasilar acantholysis, and intraepidermal and subepidermal eosinophilic/neutrophilic microabscesses.[1] Unlike pemphigus vegetans, in which autoantibodies against desmogleins are the main pathology, DIF usually shows negative findings in PSV. Yet, in our case, there was IgG/C3 staining along the basement membrane, likely caused by the secondary changes of epithelial damage or reflecting the overlap between PSV and autoimmune bullous diseases.[1] PSV may precede IBD development or occur during disease flare-up.[1] However, no link to coronavirus disease 2019 (COVID-19) vaccination has been described. In our patient, PSV developed 1 week after first AstraZeneca vaccination. Though there was temporal relationship, the patient's PSV occurred during UC flare-up. Therefore, the association between two events remains speculative. The pathogenesis of PSV has been linked to interleukin (IL)-6, IL-8, and tumor necrosis factor-α overexpression.[2] Flare-up of IBD has been reported following vaccinations, including influenza and pneumococcus, although the correlation

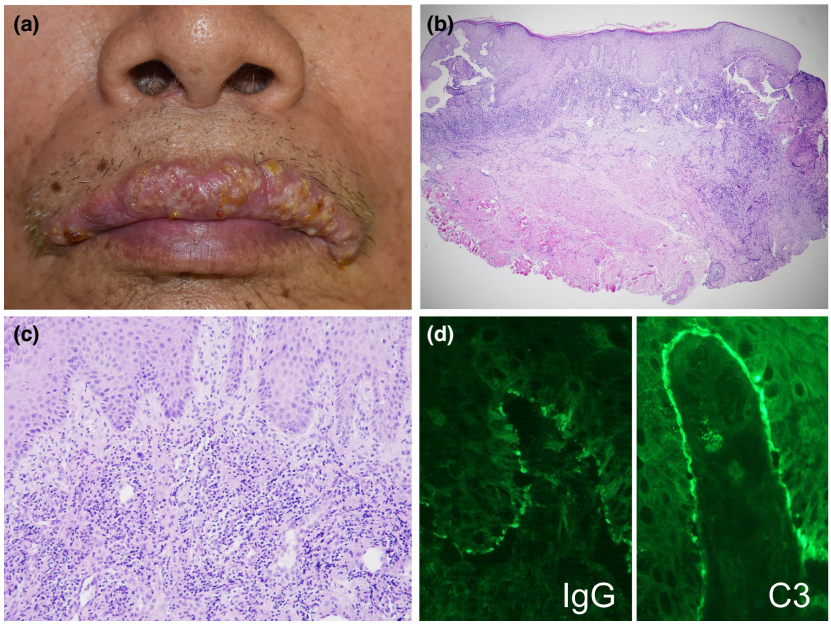

FIGURE 1 Clinical presentation and histopathological examination of the present case. (a) Extensive itchy and mildly painful confluent vegetated papules and multiple tiny pustules over the lips and anus. (b, c) Histopathology shows epidermal hyperplasia and separation at the dermo-epidermal junction. The upper dermis reveals dilated thin-walled vessels and lichenoid infiltration of neutrophils, eosinophils, lymphocytes, plasma cells, and histiocytes (H&E staining; magnification: x40 and x200 in figures b and c). (d) Direct immunofluorescence examination reveals interrupted foci of granular-to-linear staining of IgG and C3 along the dermo-epidermal junction (magnification: x400)

remains speculative.[3] COVID-19 vaccinations stimulate type I interferon transcription, a multifaceted cytokine in IBD,[4] through the endosomal activation of viral nucleic acid sensors and Toll-like receptors within plasmacytoid dendritic cells,[5] which maybe a potential mechanism contributing to PSV development.

Topical/systemic corticosteroid or immunomodulators such as dapsone and azathioprine remains the mainstay treatment for PSV.[1] A few case reports have shown the efficacy of topical tacrolimus.[1] Our case showed that 0.1% topical tacrolimus ointment twice daily was well-tolerated and provided excellent clinical response.

To our understanding, this is the first report of PSV following COVID-19 vaccination. It highlights the importance of early recognition of PSV and the efficacy of topical tacrolimus.

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CONFLICT OF INTEREST

None declared.

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