Rare mucocutaneous manifestations of ulcerative colitis: A case report of pyostomatitis vegetans and Sweet syndrome

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Inflammatory bowel diseases (IBD) are chronic inflammatory disorders of the digestive tract, and they involve systemic inflammatory diseases known as extra-intestinal manifestations (EIMs). Timely and correct diagnosis of mucocutaneous EIMs could assist with detecting and monitoring IBD. We present a case of 52-year-old male patient of ulcerative colitis with 2 rare EMIs together at the same time: pyostomatitis vegetans in the oral cavity and Sweet syndrome on the skin. They presented as multiple small white or yellow pustules on the surface of the hyperemic fragile oral mucosa and abrupt appearance of painful, swollen, and erythematous papules on the skin, respectively. The final diagnosis was made based on clinical manifestations, skin and oral tissue biopsies, and the ulcerative colitis history. This rare case report may remind dentists of rare mucocutaneous EIMs of IBD that might be overlooked. Dentists and dermatologists could contribute to the early diagnosis and management of systematic diseases. (Oral Surg Oral Med Oral Pathol Oral Radiol 2022;134:e256–e260)

Inflammatory bowel diseases (IBD) are known as chronic inflammatory disorders of the digestive tract, primarily comprised of Crohn's disease (CD) and ulcerative colitis (UC).[1] IBD burden is high, with a prevalence of more than 0.3% in North America and most European countries and an increasing incidence rate in Asia.[2,3] The incidence rate and prevalence of UC are slightly higher than CD, with the gastrointestinal tract being the primary target of UC. UC is characterized by continuous superficial mucosal ulceration, with typically presenting symptoms such as rectal bleeding, diarrhea, and abdominal pain.[4] IBD is not restricted to the digestive tract but also involves systemic inflammatory diseases known as extra-intestinal manifestations (EIMs).[5-7] Reportedly, 21% to 47% of IBD patients experience at least 1 EIM episode during their life, and its occurrence increases with the disease duration.[6] Up to one-quarter of IBD patients presented with EIMs before the diagnosis of IBD was made, and among those with oral manifestations, 27.8% of patients were diagnosed with aphthous ulcers before IBD.[8] Some EIMs, including erythema nodosum, Sweet syndrome, and oral lesions, occur parallel to intestinal disease activity.[5] EIMs are also associated with UC disease severity; reportedly, 70% of patients with extensive colitis presented with EIMs, whereas 28% of those with nonextensive colitis experienced EIMs.[9]

We report a male patient with a 20-year history of UC presenting simultaneously with rare oral and skin lesions diagnosed as pyostomatitis vegetans and Sweet syndrome.

CASE REPORT

We present a 52-year-old male patient with more than a 20-year history of UC with intermittent gastrointestinal activity, manifested mostly as diarrhea. The patient complained that the diarrhea had become more severe in the last 10 months. Over the last 2 months, the patient experienced the onset of painful oral erosions and itching lesions on the chest and abdominal skin. The patient claimed no other medications, and no vaccination had been taken for the previous month. The patient also reported concomitant fever (38.5°C) for a few days after the oral lesions appeared. The patient initially presented to a local hospital, was diagnosed with Behcet's syndrome, and was given prednisone 15 mg/d for 1 week. The temperature returned to normal and the mucocutaneous lesions partially healed. However, the condition was aggravated the next month, with severe painful erosions in the mouth

Statement of Clinical Relevance

Extra-intestinal manifestations (EIMs) are common in patients with inflammatory bowel diseases (IBDs), and mucocutaneous EIMs could help to detect and monitor IBD. This rare case report may remind dentists of rare mucocutaneous EIMs of IBD that might be overlooked.

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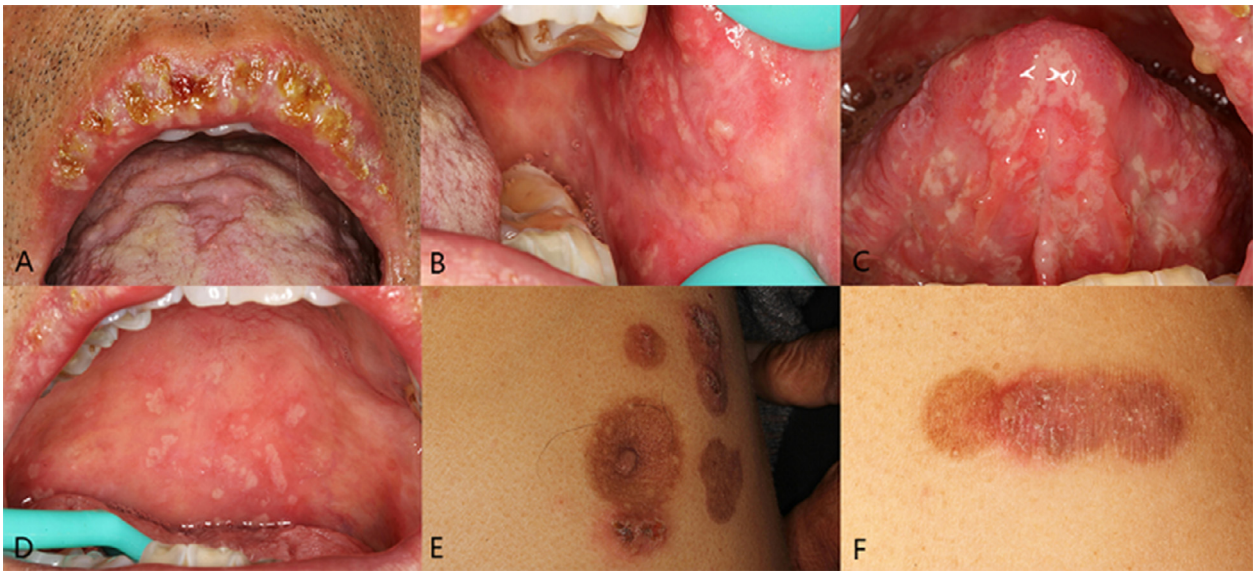

Fig. 1. Physical examination of the oral cavity and skin. **(A)** Yellow pustules with yellow surface crusts on the upper lip. **(B)** Yellow ulcers and pustules on the left buccal mucosa. **(C)** Yellow ulcers and pustules on the tongue ventrum. **(D)** Lesions and "snail-track"-like erosions on the palate mucosa. **(E)** Tender erythematous plaques on the chest skin, with vesicle-like eruptions and crust. **(F)** Tender erythematous plaques on the arm skin.

involving the upper lip, buccal and lingual mucosa, and new skin lesions on his arms.

The patient presented at the Peking University School and Hospital of Stomatology in September 2020. Physical examination revealed multiple upper lip yellow pustules with yellow surface crusts on an erythematous base (Figure 1A). Oral cavity examination showed extensive swelling and erythema of the buccal and lingual mucosa with small yellow ulcers and pustules on the tongue ventrum and buccal mucosa (Figures 1B and 1C). Ruptured ulcers, merged into "snail-track"-like erosions, were observed on the soft palate mucosa (Figure 1D). Furthermore, tender erythematous plaques were noted on the patient's arms and chest, with vesicle-like eruptions and crust (Figures 1E and 1F). Nikolsky's sign was negative. The preliminary clinical impression was of pemphigus vegetans or pyostomatitis vegetans.

The patient's temperature was 36.8˚C. Complete blood count was normal (white blood cell count (WBC) 4.49 $\times$ 10^9/L, eosimophil count was (EOS) 0.5 $\times$ 10^9/L. The C-reactive protein was higher (30.6 mg/L), and erythrocyte sedimentation rate (ESR) was 25 mm/h. No significant abnormalities were observed in the chest and abdominal computed tomography examination, and saliva culture for candida was negative. Enzyme-linked immunosorbent assay (ELISA) testing for anti-desmoglein 1 (DSG1), DSG3, BP180, and BP230 antibodies was negative for all. Indirect immunofluorescent (IIF) antibody tests for IgA, IgG, and C3 deposits were all negative. IIF on rat bladder transitional epithelium was also negative.

Additionally, a right tongue ventrum biopsy was performed for histopathology and a direct immunofluorescence (DIF) test. Histopathology demonstrated epithelial hyperplasia, intraepithelial eosinophilia, proliferation and mitosis in the stratum basale, and stratum spinosum microabscesses of eosinophils and neutrophils (Figures 2A and 2B). Negative DIF staining for IgA and IgG was noted for the epithelial cell surface. The patient was referred to a dermatologist for further diagnosis. Thorax skin biopsy showed severe papillary dermal edema with lichenoid lymphocytic infiltration and neutrophil and eosinophil infiltration in the dermis (Figures 2C and 2D).

Based on the history, clinical oral mucosa and skin presentation, laboratory results, and histopathologic findings, the final diagnosis was oral cavity pyostomatitis vegetans and Sweet syndrome.

The patient was given 0.2 mg/10 mL dexamethasone sodium phosphate oral rinse for 2 minutes 3 times a day and 0.03% dexamethasone ointment for the oral and skin lesions. Two weeks later, the patient reported almost complete remission. On examination, we found that the upper lip and oral cavity lesions had almost completely recovered (Figure 3). Consultations with gastrointestinal and dermatology specialists were recommended for further treatment.

DISCUSSION

UC and CD are a group of chronic diseases of unknown origin.[1] About 22% to 75% of patients with CD and 5% to 11% of those with UC present with mucocutaneous manifestations.[6] Reportedly, the most common

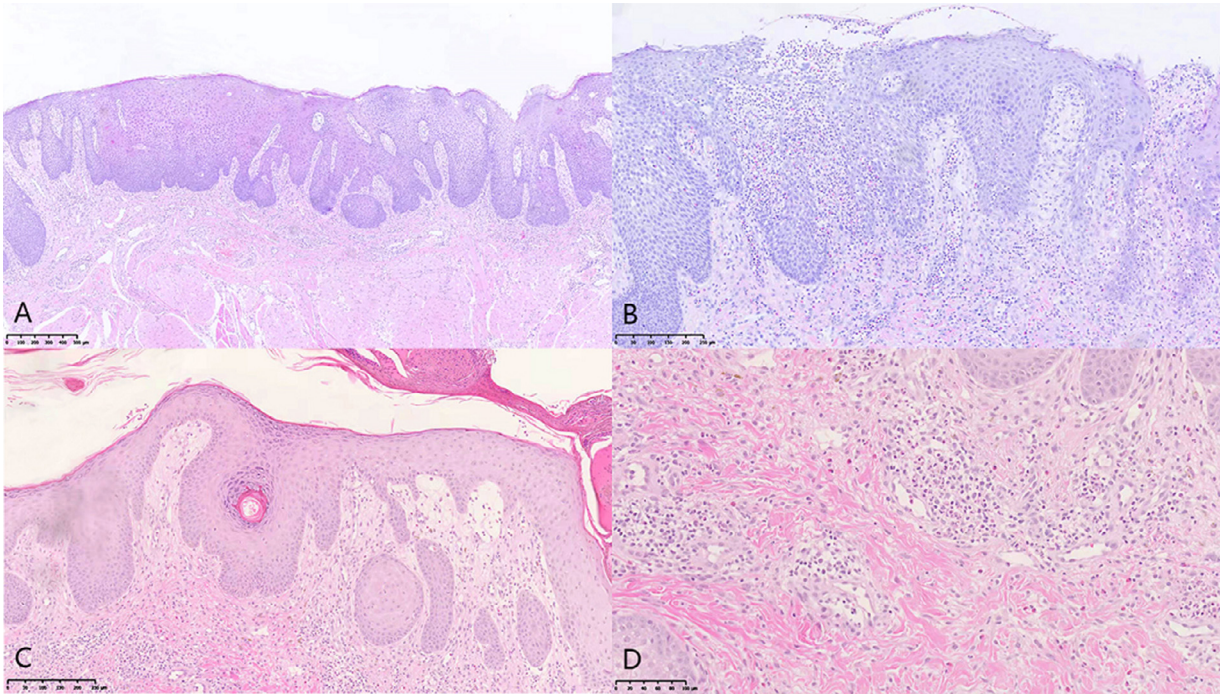

Fig. 2. Hematoxylin-eosin stained tongue ventrum biopsy show **(A)** epithelial hyperplasia and intraepithelial eosinophilia (original magnification 40 ×), and **(B)** stratum spinosum microabscesses of eosinophils and neutrophils (100 ×). A high-resolution version of this slide for use with the Virtual Microscope is available as eSlide: VM06651. Biopsy from chest skin with hematoxylin-eosin staining showed **(C)** severe papillary dermal edema, with lichenoid lymphocytic in the dermis (100 ×), and **(D)** neutrophil and eosinophil infiltration in the dermis (200 ×). A high-resolution version of this slide for use with the Virtual Microscope is available as eSlide: VM06652.

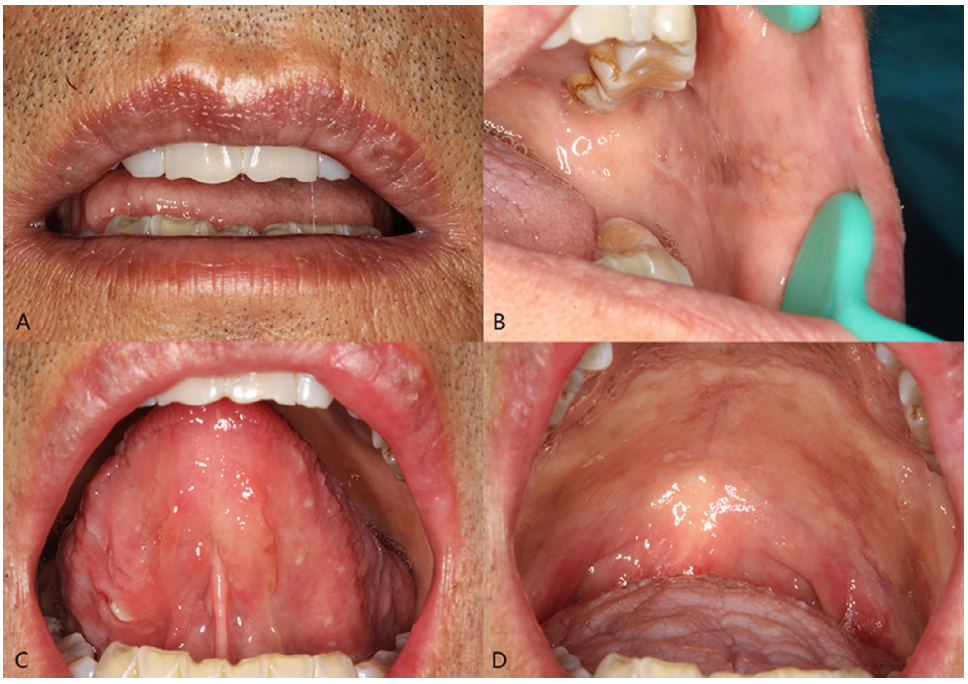

Fig. 3. Physical examination at the 2-week follow-up visit. **(A)** The upper lip lesions had disappeared. **(B)** The left buccal mucosa lesions have recovered. **(C)** The tongue ventrum lesions showed partial remission. **(D)** The palate lesions have almost healed.

cutaneous EIMs include erythema nodosum, pyoderma gangrenosum, Sweet syndrome, and psoriasis.[5-7] Sweet syndrome, also known as acute febrile neutrophilic dermatosis, is a rare dermatologic inflammatory disorder characterized by the abrupt appearance of painful, swollen, erythematous papules, plaques, or nodules on the skin and neutrophilic dermal infiltration without leukocytoclastic vasculitis.[10,11] Sweet syndrome diagnosis requires 2 major and at least 2 minor of the following criteria. The 2 major criteria are abrupt onset of tender, painful erythematous plaques or nodules and predominantly neutrophilic dermal infiltrate without leukocytoclastic vasculitis.[10] Minor criteria include the following: (1) fever (>38°C); (2) preceded by a nonspecific respiratory or gastrointestinal tract infection or vaccination, or associated with inflammatory diseases, malignancy, or pregnancy; (3) abnormal laboratory values such as erythrocyte sedimentation rate >20 mm/h; and (4) excellent response to treatment with systemic corticosteroids. The clinical and pathologic skin lesion manifestations in this patient were consistent with these diagnostic criteria. Sweet syndrome could be drug-induced or associated with malignancy.[10,11] We performed chest and abdominal computed tomography to rule out malignancies.

Oral lesions might be present in 10% of the IBD patients, more commonly in patients with CD than UC. The most commonly reported manifestations are aphthous stomatitis and periodontitis.[6,7] Pyostomatitis vegetans is rare and severe and presently accepted as a specific oral manifestation of IBDs, more frequently in patients with UC.[12,13] It presents as multiple small white or yellow pustules on the surface of fragile hyperemic mucosa. On histopathology, intraepithelial eosinophil and neutrophil infiltration with stratum spinosum microabscesses of eosinophils and neutrophils are noted.[12-14] Pyostomatitis vegetans needs to be differentially diagnosed with pemphigus vegetans, pemphigus vulgaris, Celiac disease and Behcet's disease before the final diagnosis is made.

Celiac disease is a common hereditary disorder affecting susceptible individuals related with the ingestion of gluten. Classic symptoms are abdominal pain, chronic diarrhea, and weight loss.[15,16] It may also present with lesions in the oral cavity and on the skin. Dermatitis herpetiformis, which presents with chronic, itchy, and blistering rash, is the most common manifestation of the skin, and skin biopsy can confirm the diagnosis of dermatitis herpetiformis.[16] Dental enamel defects and recurrent aphthous ulcers (RAS) are reported related with celiac disease.[16,17] The manifestations and biopsy, when necessary, can differentiate RAS from pyostomatitis vegetans.

Behcet's disease usually involves the oral and genital mucosa, eye, and skin. Mucosal manifestations include recurrent oral aphthous and genital ulcers, and skin lesions might appear as erythema nodosum, papulopustular lesions, and thrombophlebitis.[18] The diagnosis is made based on the clinical manifestations after excluding other known diseases.

Bullous diseases, including pemphigus vegetans, pemphigus vulgaris, and paraneoplastic pemphigus, had to be differentiated from pyostomatitis vegetans. In histopathology, suprabasilar clefting and acantholysis are typical in pemphigus vegetans and pemphigus vulgaris, whereas accompanying tumors can be found in paraneoplastic pemphigus.[19] Detection of serum autoantibodies against the epithelial cell surface could be made by IIF and/or ELISA.[19] In this case, the negative IIF and ELISA test results, UC history, oral mucosal manifestations, and oral biopsy helped make the final diagnosis of pyostomatitis vegetans.

Patients with pyostomatitis vegetans may have skin lesions called pyodermatitis vegetans, which may present with vesicular, pustular, and vegetating plaques, with similar histopathologic appearance.[13] In this case, the skin lesions and biopsy confirmed the diagnosis of Sweet syndrome. These 2 diseases are both rare manifestations of IBD and more rarely appear together.

Mucocutaneous lesions could be associated with intestinal disease activity, and in most cases, the bowel disease precedes the onset of the skin and oral lesions.[5-7] In our case, the patient was diagnosed with UC 20 years before, with no regular follow-up or treatment since. This was the first time the patient experienced such oral and skin lesions, suggesting active or even aggravated UC. We referred the patient to the gastrointestinal department for further assessment and treatment after making the final diagnosis. But the patient did not follow up as we recommended, which is also the limitation of this case report.

CONCLUSION

In conclusion, we reported a UC case with 2 rare EIMs, pyostomatitis vegetans and Sweet syndrome. Multidisciplinary collaboration was needed to diagnose and treat such patients. Dentists and dermatologists could contribute to the early and correct diagnosis and management of systematic diseases.

DECLARATIONS OF INTEREST

The authors declare that they have no competing interests.

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