SKIN

BRIEF ARTICLE

More Than Meets the Eye: Localized Bullous Eruption After Transfusion

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ABSTRACT

Sweet syndrome, also known as acute febrile neutrophilic dermatosis, is a neutrophilic dermatosis characterized by the presence of painful erythematous plaques and nodules with a sterile neutrophilic infiltrate on histology. However, the clinical manifestations of sweet syndrome can vary widely. Additionally, Sweet syndrome is often associated with underlying systemic diseases. In this case report, we present the case of a 72-year-old female who developed bullous sweet syndrome with oral involvement following a blood transfusion. Serology revealed an elevated p-ANCA level and systemic manifestations consistent with granulomatosis with polyangiitis. There have been approximately 50 reported cases of concurrent neutrophilic dermatoses occurring with ANCA-associated vasculitis. Relapse is common in these patients, with all reported cases involving the ears, nose, and throat (ENT) region. Ultimately, the concomitant presentation of ANCA-associated vasculitis and neutrophilic dermatoses is rare. Dermatologists should be aware that testing for ANCA in cases of neutrophilic dermatoses is appropriate, and if positive, close monitoring for signs of systemic vasculitis is warranted.

INTRODUCTION

Sweet syndrome (SS), also known as acute febrile neutrophilic dermatosis, is a neutrophilic dermatosis characterized classically by the presence of painful erythematous plaques and nodules with a sterile neutrophilic infiltrate on histology. It is often associated with underlying systemic diseases.[1,2] However, a rare association has been shown to exist between neutrophilic dermatoses and concomitant ANCA-associated vasculitis, most commonly being pyoderma gangrenosum and granulomatosis with polyangiitis (GPA).[3] In this case report, we present a 72-year-old female who developed bullous Sweet syndrome localized to her bilateral antecubital (AC) fossa with oral involvement following a blood transfusion. Serology revealed an elevated p-ANCA level and systemic manifestations consistent with granulomatosis with polyangiitis.

CASE REPORT

A 72-year-old woman with a history of Type II DM presented to the ED with melena and was diagnosed with a gastrointestinal (GI) bleed. After receiving 2 units of packed red blood

cells, the patient developed erythematous lesions localized to the bilateral AC fossa, where the intravenous (IV) lines had been placed. Within 24 to 48 hours, the lesions evolved into painful agminated localized bullous eruptions (**Figure 1, 2**). She further developed significant extracutaneous ulcerations on her tongue and oral mucosa (**Figure 3**), along with pronounced injection of both left and right conjunctivae. There was no prior history of such lesions.

Serum laboratory tests revealed notable findings: ANA positive, low C3, an elevated erythrocyte sedimentation rate (ESR) of 50, elevated c-reactive protein (CRP) of 5.2, as well as an elevated pANCA titer of 1:10,240, and elevated MPO titer. At the time of hospitalization, the patient was also found to have a diagnosis of acute kidney injury (AKI) on chronic kidney disease (CKD) based on increasing creatinine levels, peaking at 1.46 from a baseline of 1.19, and a CT chest that showed signs of pulmonary edema, and bilateral ground glass opacities. Her GI bleed was later found to be secondary to bleeding duodenal lymphangiectasias.

A punch biopsy was performed demonstrating a dense diffuse neutrophilic infiltrate predominately in the papillary and reticular. The epidermis was acanthotic with formation of vesicles and subcorneal bullae (**Figure 4**). Direct immunofluorescence (DIF) testing revealed no positive findings. An ophthalmological evaluation confirmed benign subconjunctival hemorrhages, which resolved by the third day of admission.

Based on these clinical and histopathologic findings, a diagnosis of Sweet Syndrome was made. The patient was started on intravenous corticosteroids and transitioned to oral administration. Within three days of treatment initiation the skin lesions resolved. However, the oral ulcers persisted. A clinical diagnosis of GPA was based on the clinical manifestations seen including mucosal ulcerations, gastrointestinal lymphangiectasias, as well as skin, renal, pulmonary, and cardiac involvements. These findings along with the positive serology aligned with the diagnostic criteria for GPA. Methotrexate was added to the treatment regimen along with oral prednisone. After two weeks of therapy, the patient's oral ulcers improved, and her p-ANCA levels decreased from 1:10,240 to 1:640.

DISCUSSION

Sweet syndrome (SS), also known as acute febrile neutrophilic dermatosis, belongs to the group of neutrophilic dermatoses (ND) characterized by sterile infiltration of the skin with neutrophils.[1,2] SS often presents with deep edematous plaques and nodules.[1] The unique symmetric localized distribution in our patient was likely secondary to pathergy induced by manipulation of her AC fossa during catheter insertion. Bullae occasionally occur in SS and are often associated with underlying malignancy.[1] However, all NDs are known to be associated with systemic diseases, particularly malignant blood disorders, inflammatory bowel diseases, and primary autoimmune disorders.[1,2]

To date, approximately 50 cases of ND associated with Antineutrophil cytoplasmic antibody (ANCA)-associated vasculitis (AAV) have been reported.[3] The most common ND associated with AAV is pyoderma gangrenosum, while the most common AAV associated with ND is GPA.[3] Out of the 50 reported cases, 12 patients had SS, but the presence of bullous lesions was inconsistently mentioned. It is also worth noting that both SS and GPA can cause oral ulcerations. Considering the refractory nature of her ulcers to steroids, this patient's oral

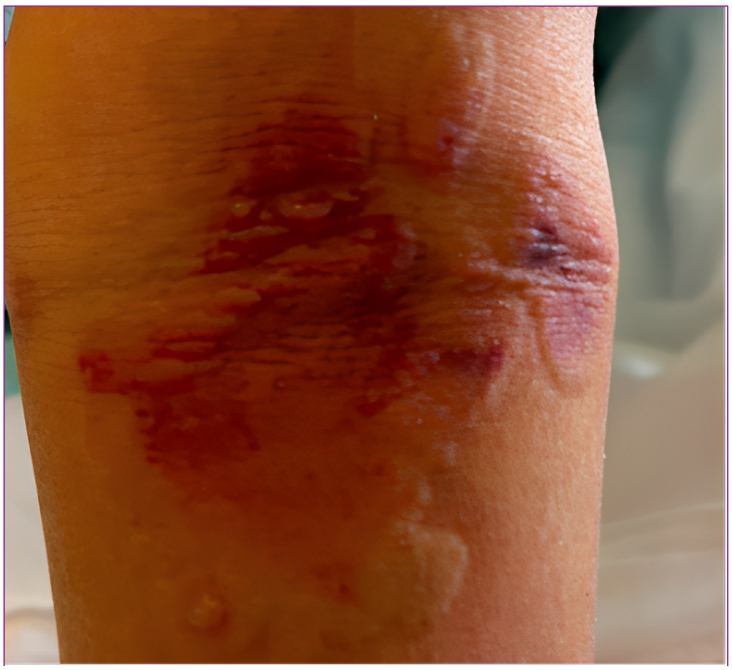

Figure 1. Development of pruritic and painful erythematous lesions in the antecubital fossa at the site of previous catheter insertion.

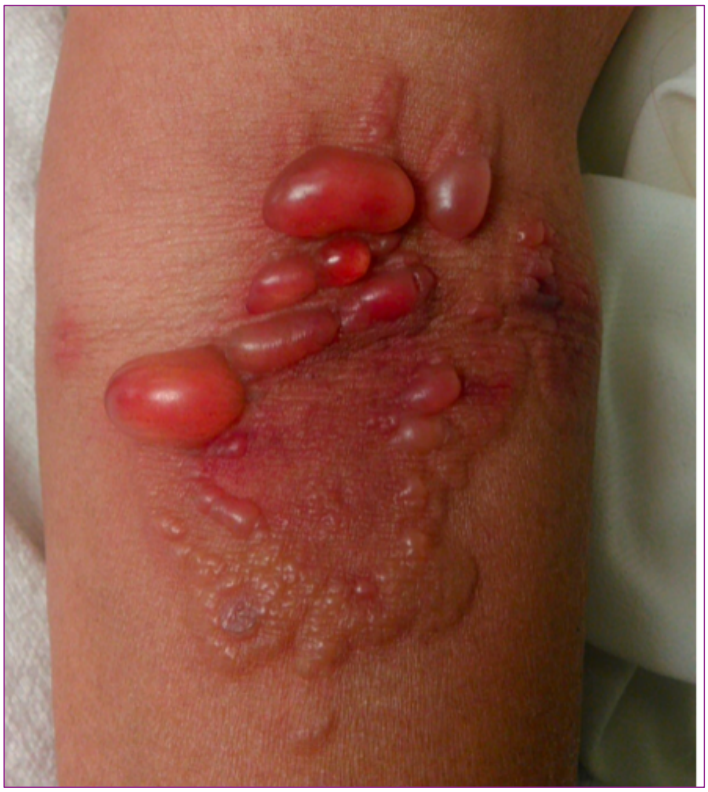

Figure 2. Subsequent formation of painful bullous eruptions in the antecubital fossa.

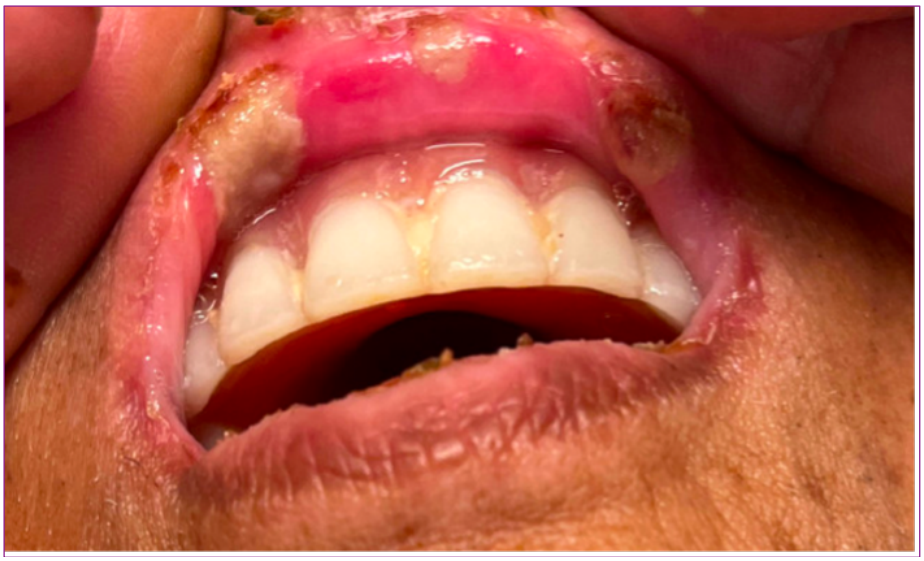

Figure 3. Extracutaneous ulcerations on the patient's tongue and oral mucosa were witnessed developing in the following 24 hours.

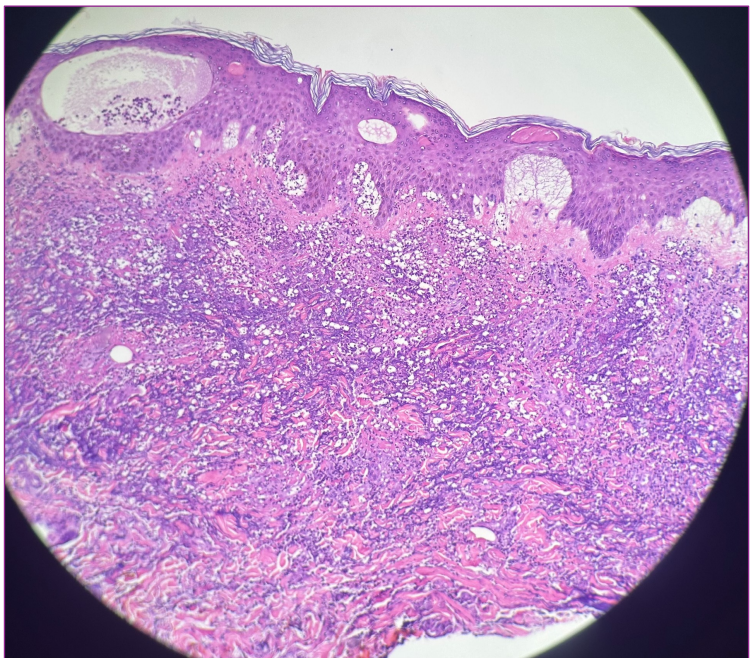

Figure 4. Punch biopsy demonstrating a dense diffuse neutrophilic infiltrate in the dermis, as well as an acanthotic epidermis with formation of subcorneal bullae.

involvement was likely associated with underlying GPA. This clinical association was based on 7 cases of relapse in AAV's with ENT involvement.[3] Interestingly, our patient experienced a GI bleed, and the gross findings from EGD were consistent with previously reported cases of GI involvement in GPA.[4] However, GI biopsy did not reveal evidence of vasculitis.

Treatment for ND-AAV patients involves systemic corticosteroids combined with immunosuppressant therapy such as cyclosporine and methotrexate.[3] Targeted therapies like rituximab and infliximab have been reported to be effective.[1,3,4,5] The prognosis for patients with ND-AAV is favorable, with most patients experiencing complete resolution after treatment. However, relapse is common, occurring in one-third of reported cases with a median follow-up time of 32 months.[3]

CONCLUSION

Sweet Syndrome can manifest with various morphologies, displaying a range of different clinical presentations. There is a rare but well-established association between ND and AAV. Dermatologists should be aware of this association. In cases of ND, it may be appropriate to test for antineutrophil cytoplasmic antibodies (ANCA). A positive ANCA result should prompt further evaluation with close monitoring for the development of systemic vasculitis.

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