Histiocytoid Sweet syndrome recalcitrant to prednisone causing severe scarring

Kevin P. Lee, BS,[a] Jaime A. Tschen, MD,[b] and Misha V. Koshelev, MD, PhD[c]
Houston, Texas

Key words: acute febrile neutrophilic dermatosis; histiocytoid Sweet syndrome; paraneoplastic; prednisone; scarring; steroids; Sweet syndrome.

INTRODUCTION

Acute febrile neutrophilic dermatosis or Sweet syndrome was first described by Robert Sweet in 1964. Clinically, Sweet syndrome often presents with fever and sudden onset of tender, erythematous, edematous, cutaneous plaques and nodules.[1] More than 50% of Sweet syndrome patients have an identifiable associated disorder, with most such cases associated with malignancy. Sweet syndrome is also associated with inflammatory diseases, pregnancy, and drug-induced etiologies. Histologically, Sweet syndrome has a nodular and diffuse dermal infiltrate of neutrophils with large amounts of papillary dermal edema. A rare variant, histiocytoid Sweet syndrome, shows mononuclear cells that appear like histiocytes. However, the cells have been found to be immature neutrophils.[2] We describe a case of histiocytoid Sweet syndrome that was difficult to control with prednisone and resulted in significant scars. To our knowledge, this was the first case reported of histiocytoid Sweet syndrome causing such severe scarring.

CASE REPORT

A 63-year-old woman presented with fever, conjunctivitis, and a 1-week history of generalized erythematous, edematous papules and plaques (Fig 1). Her medical history was positive for rectal cancer, which was treated with mitomycin C and 5-fluorouracil and field radiation. Her treatment ended 6 months before presentation without any evidence of recurrence. The patient denied any symptoms of upper respiratory infections or arthritis, a history of connective tissue disease, and recent travel. The patient also denied a history of keloids or hypertrophic scarring. The patient did not admit to picking, manipulating, or traumatizing any of the sites to induce scar formation. Her medications included sertraline and trimethoprim-sulfamethoxazole for a urinary tract infection. The urinary tract infection resolved, and the trimethoprim-sulfamethoxazole was discontinued 3 days after presentation. Laboratory tests found leukocytosis and neutrophilia. Complete blood count showed a white blood cell count of 10.7 K/mm^3 (normal, 4.4-10.5) with 71% neutrophils (normal, 36%-70%) and 17% bands (normal, 0%-6%). A biopsy specimen was obtained from her back, which revealed leukocytoclastic neutrophilic and mononuclear infiltrates without vasculitis in the dermis. Immunohistochemistry was positive for CD43, CD68, and myeloperoxidase. Because of her lack of response to prednisone, a second biopsy from the axilla was performed to confirm the diagnosis of histiocytoid Sweet syndrome

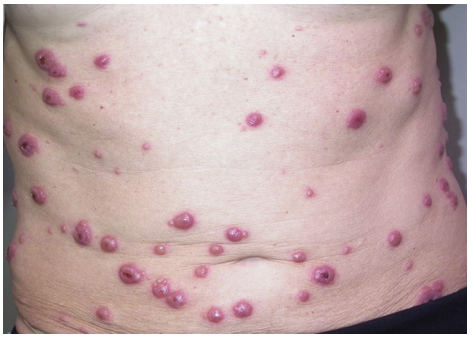

Fig 1. Erythematous, edematous plaques and papules on the abdomen.

From McGovern Medical School[a]; St Joseph Dermpath[b]; and the Department of Dermatology, University of Texas Health Science Center at Houston.[c]
Funding sources: None.
Conflicts of interest: None disclosed.
Correspondence to: Kevin Lee, BS, McGovern Medical School, 6431 Fannin St, Houston, TX 77030. E-mail: kevin.p.lee@uth.tmc.edu.

JAAD Case Reports 2019;5:937-9.
2352-5126

https://doi.org/10.1016/j.jdcr.2019.09.006

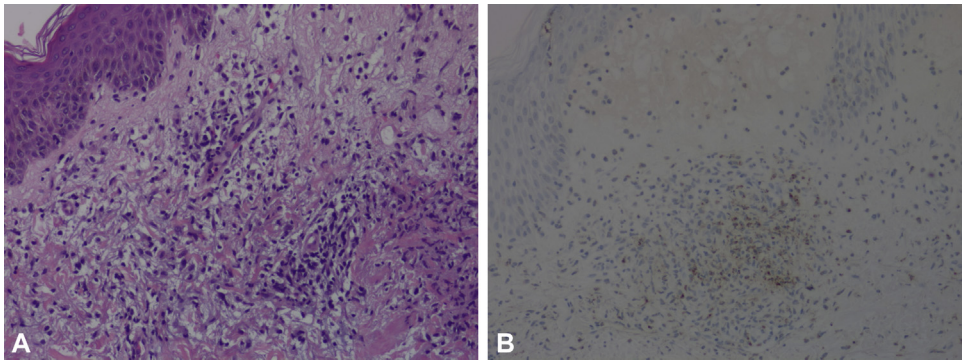

Fig 2. A, Leukocytoclastic neutrophilic and mononuclear infiltrates in the dermis. **B**, Myeloperoxidase-positive mononuclear cells in the dermis. (**A**, Hematoxylin-eosin stain; original magnification: ×100. **B**, Myeloperoxidase stain; original magnification: ×100.)

(Fig 2, *A* and *B*). The patient was started on 40 mg prednisone daily. She took prednisone for approximately 2 years with dosages ranging from 10 to 60 mg/d. She was recalcitrant to prednisone therapy despite being on prednisone for 2 years in conjunction with trials of multiple other medications including topical steroids, dapsone, indomethacin, azathioprine, cyclosporine, mycophenolate mofetil, and methotrexate. The patient's disease was eventually controlled on colchicine, but severe hypertrophic scars developed on the buttocks and lower extremities (Fig 3). Clinically, the scars appeared to be keloidal. However, a biopsy of a scar from the left buttock showed hypertrophic scarring.

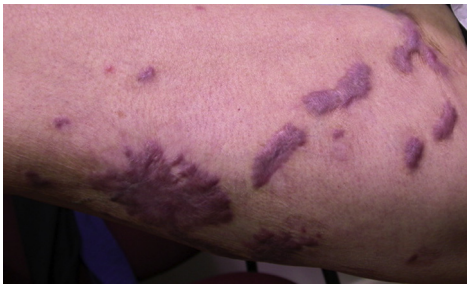

Fig 3. Hypertrophic scarring on the medial proximal leg.

DISCUSSION

Sweet syndrome is in the category of neutrophilic dermatoses. It is usually accompanied by fever, neutrophilia, leukocytosis, and tender erythematous papules, nodules, or plaques. The disease is extremely responsive to systemic steroids. The differential diagnoses include rheumatoid neutrophilic dermatosis, bullous pyoderma gangrenosum, neutrophilic eccrine hidradenitis, erythema multiforme, leukemia cutis, erythema elevatum diutinum, and erythema nodosum (if lesions are only on the lower extremities). The classic Sweet syndrome pathology findings show a predominantly neutrophilic dermal infiltrate without vasculitis.[3]

Histiocytoid Sweet syndrome is a rare variant that presents with a clinical picture similar to that of classic Sweet syndrome but is differentiated by its pathology. Histiocytoid Sweet syndrome is characterized by a predominate infiltrate of mononuclear cells that have a histiocytic appearance and stain positive for CD68 and myeloperoxidase. A variable number of neutrophils may be present.[4]

This patient was unusual in that the course of her disease was persistent with new lesions over two years despite adequate therapy with prednisone during this time. According to the criteria of Su and Liu,[5] one of the minor criteria of Sweet syndrome is an excellent response to systemic corticosteroids. The recommended normal dose is prednisone 0.5 to 1 mg/kg/d.[6] Sweet syndrome usually has an excellent response to oral corticosteroids, as was confirmed by a recent study that showed 100% of patients had significant clinical improvement.[7] Although unusual, there have been reports of cases in which patients did not respond to systemic corticosteroids.[8] Her case was also complicated by numerous scars. Mild scarring has been reported rarely in classic Sweet syndrome.[9,10] Cutis laxa and anetoderma have also been described.[11,12] This is the first patient, to our knowledge, reported to have severe hypertrophic scar formation caused by histiocytoid Sweet syndrome.

REFERENCES

1. Requena L, Kutzner H, Palmedo G, et al. Histiocytoid Sweet syndrome: a dermal infiltration of immature neutrophilic granulocytes. *Arch Dermatol*. 2005;141(7):834-842.
2. James WD, Elston DM, Treat JR, Rosenbach MA, Neuhaus IM. *Andrews' Diseases of the Skin: Clinical Dermatology*13th ed. Philadelphia, PA: Elsevier; 2019.:145-147.

3. Fernandez-Torres RM, Castro S, Moreno A, Alvarez R, Fonseca E. Subcutaneous histiocytoid Sweet syndrome associated with Crohn disease in an adolescent. *Case Rep Dermatol Med*. 2014;2014:954254.
4. Abate MS, Battle LR, Emerson AN, Gardner JM, Shalin SC. Dermatologic urgencies and emergencies: what every pathologist should know. *Arch Pathol Lab Med*. 2019;143:1-24.
5. Su WP, Liu HH. Diagnostic criteria for Sweet's syndrome. *Cutis*. 1986;37:167-174.
6. Nelson CA, Stephen S, Aschyan HJ, James WD, Micheletti RG, Rosenbach M. Neutrophilic dermatoses: pathogenesis, Sweet syndrome, neutrophilic eccrine hidradenitis, and Behcet disease. *J Am Acad Dermatol*. 2018;79:987-1006.
7. Nelson CA, Noe MH, McMahon CM, et al. Sweet syndrome in patients with and without malignancy: a retrospective analysis of 83 patients from a tertiary academic referral center. *J Am Acad Dermatol*. 2018;78(2):303-309.
8. Chavan RN, Cappel MA, Ketterling RP, et al. Histiocytoid Sweet syndrome may indicate leukemia cutis: a novel application of fluorescence in situ hybridization. *J Am Acad Dermatol*. 2014;70(6):1021-1027.
9. Kato T, Kawana S, Takezaki S, Kikuchi S, Futagami A. Case of Sweet's syndrome with extensive necrosis and ulcers accompanied by myelodysplastic syndrome. *J Nippon Med Sch*. 2008;75(3):162-165.
10. Imhof L, Meier B, Frei P, et al. Severe Sweet's syndrome with elevated cutaneous interleukin-1ß after azathioprine exposure: case report and review of the literature. *Dermatology*. 2015;230(4):293-298.
11. Loyal J, Shagalov DR, Vatanchi M, et al. Bullous sweet syndrome healing with prominent secondary anetoderma. *Pediatr Dermatol*. 2018;35(6):e416-e417.
12. Timmer-DE Mik L, Broekhuijsen-VAN Henten DM, Oldhoff JM, DE Geer DB, Sigurdsson V, Pasmans SG. Acquired cutis laxa in childhood Sweet's syndrome. *Pediatr Dermatol*. 2009;26(3):358-360.