Pseudocarcinomatous Sweet syndrome

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INTRODUCTION

Pseudocarcinomatous Sweet syndrome (pSS) is a rare histopathologic variant of acute febrile neutrophilic dermatosis that may clinically and histologically mimic squamous cell carcinoma (SCC). This is only the second published case of pSS. Awareness and recognition of this histopathologic variant of Sweet syndrome (SS) is important to reduce the risk of misdiagnosis and treatment delay.

Abbreviations used:

AML:	acute myeloid leukemia
PEH:	pseudoepitheliomatous epidermal hyperplasia
pSS:	pseudocarcinomatous Sweet syndrome
SCC:	squamous cell carcinoma
SS:	Sweet syndrome

CASE REPORT

A 65-year-old female with recurrent acute myeloid leukemia (AML) treated with the FLT3 inhibitor gilteritinib presented to the emergency department with a 4-day history of worsening facial lesions, rapidly increasing in size and number. Thorough review of systems was negative. Examination revealed a large violaceous, crusted plaque on the left cheek, several smaller pinkish-purple crusted papules scattered on the cheek (Fig 1) and left temple, and a firm subcutaneous mass with overlying ill-defined erythema on the left upper chest.

Of note, 1 month prior she was admitted with fever and submandibular erythema and edema, diagnosed as possible differentiation syndrome secondary to gilteritinib, although she did not have enough clinical features to establish the diagnosis.[1] She improved with a 3-week oral dexamethasone taper, which ended 13 days prior to this presentation. When these new facial lesions appeared, oncology admitted her to the hospital for IV dexamethasone and consulted inpatient teledermatology service.

Punch biopsies from the left cheek revealed complex epidermal hyperplasia, initially interpreted as SCC by general pathology. On reevaluation by dermatopathology, a neutrophilic dermal infiltrate with a differential of infectious process versus pSS was diagnosed (Figs 2 and 3). Ultrasound of the subcutaneous mass on the left chest showed solid echogenic nodular focus in the superficial soft tissue. Special stains (periodic acid-Schiff, Grocott methenamine silver, acid fast bacteria, Gram) and tissue cultures were performed, which all ultimately returned negative. Laboratory studies showed no leukocytosis. Urine and serologic studies for blastomycosis, histoplasmosis, and aspergillus were negative, as was a fungal blood culture. Testing for pan-fungal identification by tissue block polymerase chain reaction did not detect any fungal DNA sequences.

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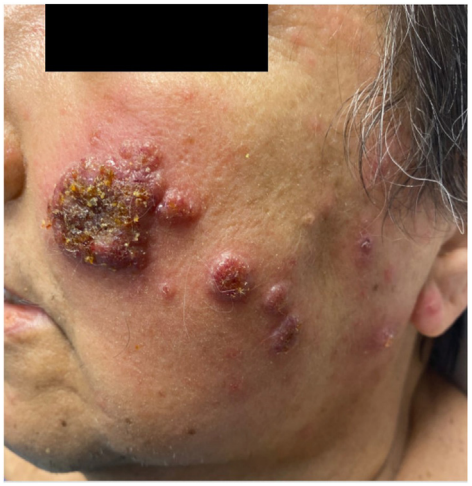

Fig 1. Large violaceous, crusted plaque on the left cheek with several scattered smaller *pink-purple* crusted papules.

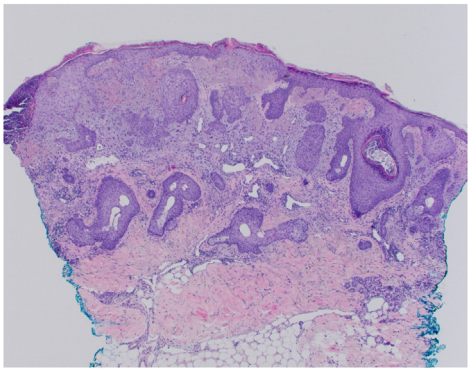

Fig 2. Hematoxylin and eosin stain demonstrating Sweet syndrome with pseudocarcinomatous epidermal hyperplasia (4×).

Dexamethasone was briefly discontinued while awaiting culture results, although the patient's skin lesions had gradually improved. Noting this improvement, and in the absence of an identifiable infection, oral dexamethasone was restarted 2 days later in close collaboration with colleagues in infectious diseases and oncology. After 15 days of treatment, her skin lesions cleared completely and remained clear after stopping oral steroids.

DISCUSSION

Approximately 20% of all SS cases are associated with malignancy, most commonly AML.[1] pSS is a rare subtype of SS characterized by pseudoepitheliomatous epidermal hyperplasia (PEH). To our knowledge, only 1 other case of pSS has been reported.[2]

A diagnosis of SS is established when 2 major criteria (abrupt onset of painful lesions and dense neutrophilic infiltrate) and 2 of 4 minor criteria (fever, underlying malignancy or other inflammatory/infectious condition, excellent response to systemic steroids, and 3 of 4 defined abnormal lab values) are met.[3] Our patient had sudden, rapid onset of her skin lesions, underlying AML, and a brisk response to oral steroids. Though her histology was not classic for SS due to the extent of the epidermal hyperplasia, it was still characterized by a neutrophil-predominant infiltrate without keratinocyte atypia or clinical history consistent with cutaneous malignancy. Therefore, a diagnosis of SS with PEH was made.

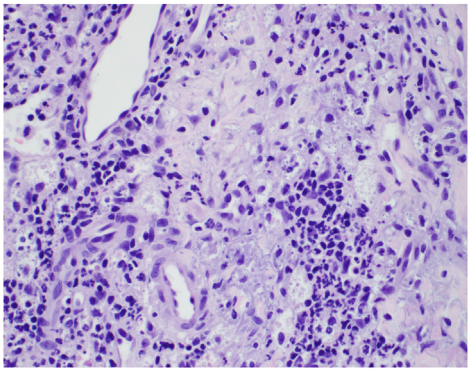

Fig 3. Hematoxylin and eosin stain demonstrating a predominately neutrophilic mixed dermal inflammatory infiltrate (20×).

Pseudocarcinomatous hyperplasia is a reactive epidermal hyperplasia characterized by elongated, thickened, and broad rete ridges.[4,5] It is generally associated with infection (especially deep fungal infection), chronic inflammation, hypersensitivity reactions, and malignancy.[2,4-6] Histologically, PEH may closely resemble SCC, especially in biopsy specimens with insufficient dermis.[5] However, unlike SCC, the pathology of pSS lacks nuclear atypia, abundant or abnormal mitoses, and prominent dyskeratosis.[5,7] Clinicopathological correlation is important in differentiating PEH from SCC.

A diagnosis of exclusion, pSS, requires a histopathologic examination with special stains and tissue cultures to rule out infection and systemic workup to exclude other underlying conditions. Our patient's histopathologic findings, although very rare for SS, correlated with the complete clearance of her skin lesions with systemic corticosteroids, highlighting the importance of recognizing this entity and treating appropriately after thorough history and lab evaluation have been completed.

Conflicts of interest

None disclosed.

REFERENCES

1. Kondo T, Onozawa M, Fujisawa S, et al. Myelomonocytic differentiation of leukemic blasts accompanied by differentiation syndrome in a case of *FLT3*-ITD-positive AML treated with gilteritinib. *Hematology*. 2021;26(1):256-260.
2. Wipf A, Wipf H, Miller D. Sweet syndrome with pseudocarcinomatous hyperplasia: a case report and review of the literature. *J Cutan Pathol*. 2019;46(7):520-527.
3. Von den Driesch P. Sweet syndrome (acute febrile neutrophilic dermatosis). *J Am Acad Dermatol*. 1994;31(4):535-556.
4. Zayour M, Lazova R. Pseudoepitheliomatous hyperplasia: a review. *Am J Dermatopathol*. 2011;33(2):112-126.
5. El-Khoury J, Kibbi AG, Abbas O. Mucocutaneous pseudoepitheliomatous hyperplasia: a review. *Am J Dermatopathol*. 2012;34(2):165-175.
6. Wilkerson A, King R, George PB, Page RN, Fulk CS. Sweet syndrome-like blastomycosis. *Am J Dermatopathol*. 2003;25(2):152-154.
7. Fu X, Jiang D, Chen W, Sun Bs T, Sheng Z. Pseudoepitheliomatous hyperplasia formation after skin injury. *Wound Repair Regen*. 2007;15(1):39-46.