

Sweet Syndrome With Aseptic Splenic Abscesses and Multiple Myeloma

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PRACTICE POINTS

- Sweet syndrome (SS), also known as acute febrile neutrophilic dermatosis, is an inflammatory process characterized by a diffuse dermal neutrophilic infiltrate in the absence of vasculitis.
- A diagnosis of SS warrants further investigation due to its association with malignancy, especially hematologic malignancy.
- Other organs in SS also may have aseptic involvement.

To the Editor:

An 84-year-old man was admitted to the hospital with 5 erythematous cutaneous nodules of several days' duration on the legs ranging in size from 1.0 to 1.5 cm. Upon admission, the patient also had a chest radiograph suspicious for pneumonia. The patient had received sulfamethoxazole/trimethoprim for a urinary tract infection as an outpatient 5 days prior to presentation, but he stopped the medication due to the appearance of the cutaneous nodules. Of note, the patient also reported unintentional weight loss of 15 pounds over the last few months.

New nodules had developed at a rate of 1 to 2 lesions daily in the 3 days prior to presentation and continued to develop after admission to the hospital. The nodules appeared as tender, erythematous lesions that evolved to form pustules and developed overlying crusts in later stages (Figure 1). They were limited to the arms and legs, primarily involving the lower legs. There was no evidence of oral or ocular involvement. A hemoglobin count of 10.9 g/dL (reference range, 14.0–17.5 g/dL), white blood cell count of $8.8 \times 10^9/L$ (reference range, $4.5\text{--}11.0 \times 10^9/L$), and erythrocyte sedimentation rate of 69 mm/h (reference range, 0–20 mm/h) were noted on admission.

The patient was started on ceftriaxone and azithromycin for suspected pneumonia. The differential diagnosis



FIGURE 1. Violaceous nodule with central erosion of less than 24 hours' duration on the left foot in a patient with Sweet syndrome with aseptic splenic abscesses and multiple myeloma (A). After several days, a nodule on the left medial thigh developed crusting secondary to necrosis with surrounding erythema (B).

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for the cutaneous nodules included lymphoma, acid-fast bacilli (AFB) infection, deep fungal infection, pyoderma gangrenosum, Sweet syndrome (SS), panniculitis, erythema elevatum diutinum, and polyarteritis nodosa. A punch biopsy of a nodule on the left foot was performed. Histopathology demonstrated a neutrophilic panniculitis (Figure 2) with an epidermal abscess. No vasculitis was identified, and periodic acid-Schiff and AFB staining of the skin biopsy were negative. These findings were consistent with SS. Computed tomography scans of the chest, abdomen, and pelvis, which were completed early in the course of hospitalization due to concern for underlying malignancy, revealed pericardial and pleural effusions as well as cystic lesions in the lungs, spleen, kidneys, and prostate, with the largest lesion on the spleen measuring 5.6×4.8 cm (Figure 3). Computed tomography scanning was negative for areas of consolidation in the lungs. A splenic biopsy was performed by an interventional radiologist during the patient's hospitalization that identified

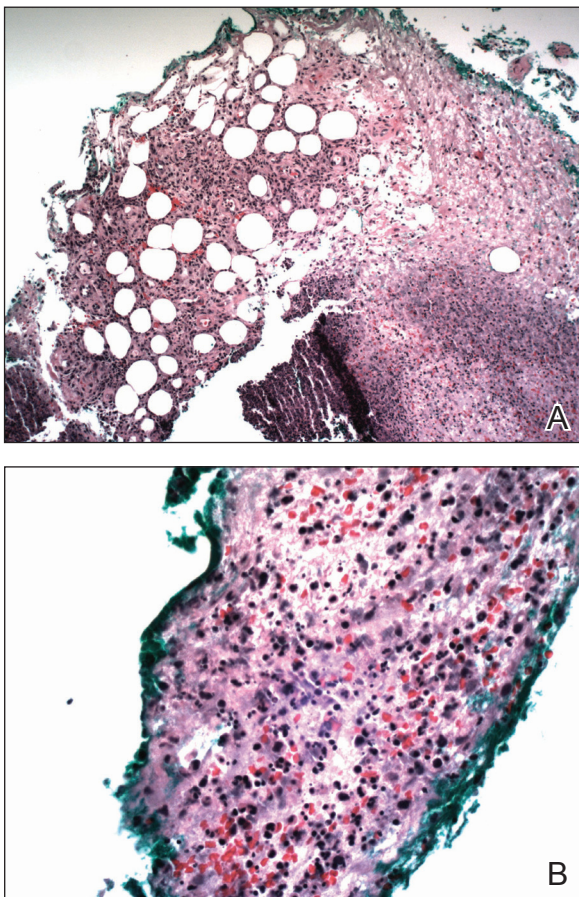


FIGURE 2. Biopsy of the nodule on the left foot in a patient with Sweet syndrome with aseptic splenic abscesses and multiple myeloma showed inflammation in the subcutaneous tissue extending into the reticular dermis with necrosis (A)(H&E, original magnification ×10). The subcutaneous tissue also demonstrated infiltration of neutrophils (B)(H&E, original magnification ×40).

an aseptic, neutrophilic process. Fungal, bacterial, and AFB cultures of the splenic tissue and cystic contents were negative. Bilateral pleural effusions also were identified, and a thoracentesis was performed. The pleural fluid indicated rare mesothelial cells in the background of acute inflammation with no growth of the bacterial, fungal, or AFB cultures.

Due to the association of hematologic malignances with SS, a bone marrow biopsy was performed, which revealed multiple myeloma. Serum protein electrophoresis demonstrated monoclonal gammopathy of κ light chains. During the course of his hospitalization, new skin lesions continued to develop on the hands, face, and trunk. The patient was discharged from the hospital shortly after diagnosis to receive outpatient treatment for multiple myeloma with lenalidomide and dexamethasone. Upon follow-up with the patient's family via telephone 3 weeks into treatment, his son confirmed that the nodules were resolving.

Our case could be consistent with either drug-induced or malignancy-associated SS. Sweet syndrome initially was described in 1964 in 8 female patients with leukocytosis and cutaneous plaques infiltrated by neutrophils.¹ The skin lesions typically are red and painful, ranging in size from 0.5 cm to 12.0 cm, and can last weeks to years if not treated.² Variations of skin lesions include bullous and pustular morphologies.³

Diagnostic criteria for SS have been established.⁴ Both of the major criteria must be met as well as 2 of 4 minor criteria. Major criteria include abrupt onset of tender erythematous plaques and nodules; secondly, a dense neutrophilic infiltrate without evidence of leukocytoclastic vasculitis must be seen on histopathology. Minor criteria include pyrexia, association with underlying condition (malignancy, pregnancy, drug exposure, inflammatory disorder), responsiveness to systemic steroids, and abnormal



FIGURE 3. Computed tomography scan of the abdomen with splenic abscess (arrow) in a patient with Sweet syndrome and multiple myeloma.

laboratory values (erythrocyte sedimentation rate, white blood cell count, C-reactive protein, neutrophilia).⁴

Sweet syndrome can be divided into 3 classifications: classical or idiopathic, drug-induced, or malignancy-associated.⁴ Classical SS most commonly is seen in middle-aged women after an upper respiratory or gastrointestinal infection. Drug-induced SS most often is associated with granulocyte-stimulating factor colony therapy⁴; however, it has been associated with use of trimethoprim/sulfamethoxazole.⁵ Malignancy-associated SS most commonly is seen in individuals with hematologic malignancy, specifically acute myeloid leukemia. Although its association with multiple myeloma is not as frequent, cases of malignancy-associated SS identifying this association have been reported.^{6,7} Mucosal involvement in the form of aphthouslike lesions more frequently is seen in malignancy-associated SS.⁸ Differing from classical SS, which has a female predilection of around 4:1, the malignancy-associated disorder has a 1:1 female-to-male ratio.⁴

In the majority of cases of SS, the neutrophilic infiltrate is in the papillary and upper reticular dermis; however, if the neutrophilic infiltrate is predominately in the subcutaneous tissue (known as subcutaneous SS), there is a strong association with malignancy.⁹ The histopathology in our case demonstrated a neutrophilic infiltrate in the subcutaneous tissue.

Fever is the most common systemic manifestation of SS and is present in 54% to 65% of patients.^{8,10} Besides the skin, the most common site affected is the eye, with 13% to 75% of patients reporting ocular involvement, usually conjunctivitis.^{4,10} Although infrequent, extracutaneous SS has been identified in the bones, central nervous

system, kidneys, heart, liver, spleen, lungs, ears, eyes, and intestines.⁴ A case of SS with splenic involvement in the form of sterile abscesses also was reported.¹¹ This case was related to parvovirus B19.

Sweet syndrome is a condition characterized by tender, erythematous cutaneous lesions with histopathology demonstrating neutrophilic infiltrate in the absence of vasculitis. We report a case of suspected extracutaneous SS in the form of splenic cysts in a patient whose SS was associated with malignancy and/or drug ingestion.

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