

A Case of Sweet's Syndrome with Extensive Necrosis and Ulcers Accompanied by Myelodysplastic Syndrome

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Abstract

A 43-year-old woman presented with a persistent high fever of 39°C and edematous erythema accompanied by pustules on the face, trunk and extremities. Conjunctivitis and nodules were also observed in the right eye. On the basis of the clinical symptoms and histopathological findings, Sweet's syndrome was diagnosed. Eruptions quickly progressed to extensive necrosis and ulcers, mimicking clinical features of pyoderma gangrenosum. A bone marrow biopsy indicated myelodysplastic syndrome. Oral administration of 50 mg/day of prednisolone induced epithelialization of ulcers, with remaining scarring and pigmentation. Six months later, myelodysplastic syndrome had progressed to acute myelogenous leukemia.

(J Nippon Med Sch 2008; 75: 162–165)

Key words: Sweet's syndrome, pyoderma gangrenosum, necrosis, myelodysplastic syndrome

Introduction

Sweet's syndrome is often associated with myeloproliferative disorders, inflammatory bowel disease, and rheumatoid arthritis as underlying diseases¹⁻³. Such cases have a higher frequency of mucous membrane lesions, lesions at sites of trauma, vesicobullous changes, and ulceration¹. We describe an atypical case of Sweet's syndrome associated with myelodysplastic syndrome (MDS) with development of extensive necrosis and ulcers on erythematous lesions. Diagnosis required differentiation from other neutrophilic skin diseases, such as pyoderma gangrenosum (PG).

Case Report

A 43-year-old woman presented with persistent high fever of 39°C and multicentric erythema and pustules on the face, trunk, and extremities. These symptoms had been treated with antibiotics by a rheumatologist for 1 month, but they showed no improvement.

Edematous erythema of approximately 10 mm in diameter and pustules on the periphery of the lesions were observed on the face, trunk, and extremities. Erosive lesions were also present on the oral mucous membrane. The area of eruption spread and progressed to multiple and bloody blisters in a few days (**Fig. 1a, b**). The skin lesions continued to

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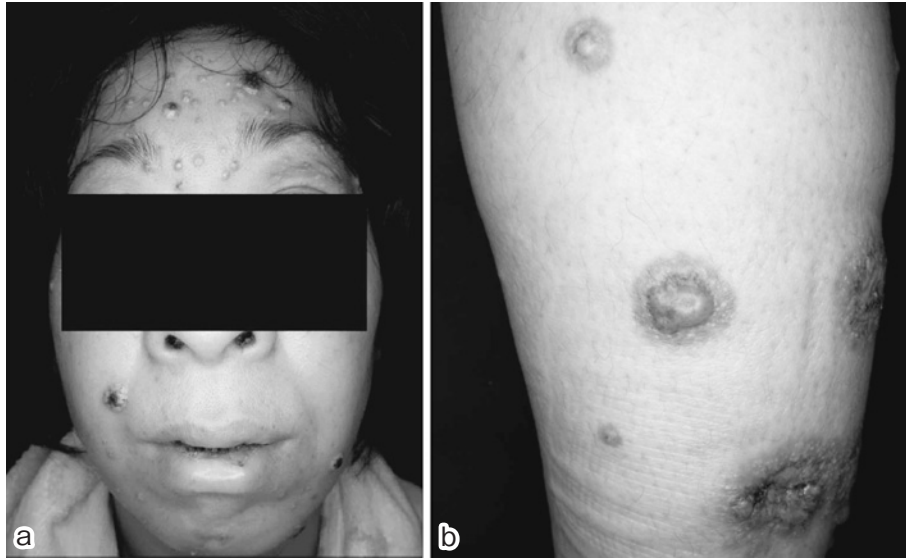


Fig. 1 Multicentric erythema with blisters and pustules appeared on the face (a) and left thigh (b). Ulcers were seen on the lower lip (a).

extend through fusion and progressed to ulcers on the legs. At the same time, conjunctival injection of the right eye developed with the appearance of nodules (**Fig. 2a**). Histologic examination of the ocular mucosa showed neutrophilic infiltration and fibrin clots in dilated vascular lumens and surrounding tissue (**Fig. 2b**). Cervical, axillary, and inguinal lymph nodes were swollen.

Laboratory tests revealed significant increases in the white blood cell count (12,400 / μ L; 88.4% neutrophils, 9.2% lymphocytes, 1.9% monocytes, 0.3% eosinophils, and 0.2% basophils) and in the level of C-reactive protein (35.4 mg/dL). Bacterial cultures from pustules and peripheral blood were negative.

Histological examination of the erythema and pustules showed dense infiltration containing numerous neutrophils with some mononuclear cells and eosinophils in the upper and middle dermis. Edema and aggregates of neutrophils were common in the epidermis and the upper dermis, but there was no apparent findings suggesting vasculitis (**Fig. 3a, b, c**).

On the basis of the clinical and histological findings, Sweet's syndrome was suspected. PG was also considered as a differential diagnosis because of the rapid development of extensive necrosis and ulcers (**Fig. 4**). Treatment with 50 mg/day of prednisolone was started. Within several days the

high fever resolved and the formation of new eruptions ceased, followed by a marked improvement of eruptions; after 1 month only pigmentation remained. The final diagnosis of Sweet's syndrome was based on the widespread distribution of skin lesions, the general symptoms, such as continuous high fever, relatively shallow ulcers healing with mild scarring, and rapid effects of the therapeutic intervention.

An association with a hematological disorder, such as MDS, was suspected on the basis of the observation of anemia and thrombocytopenia in the peripheral blood (red blood cell count, 202×10^4 / μ L; hemoglobin, 6.1 g/dL; platelet count, 140,000 / μ L) and widespread atypical eruptions. A diagnosis of MDS was established with bone marrow biopsy, which showed a hyperplasia (4.0% myeloblasts, 2.0% promyelocytes, 20.0% myelocytes, 23.6% metamyelocytes, 17.6% staff cells, and 16.8% segmented neutrophils). Marked dysmyelopoiesis was present, but ringed sideroblasts were not observed. Therefore, as refractory anemia, the mildest category of the French-American-British (FAB) classification⁴ was diagnosed, and treatment was not considered necessary. Six months later, fever recurred, and a bone marrow biopsy showed a marked increase of myeloblasts (39.2%), leading to diagnosis of acute myelogenous leukemia.

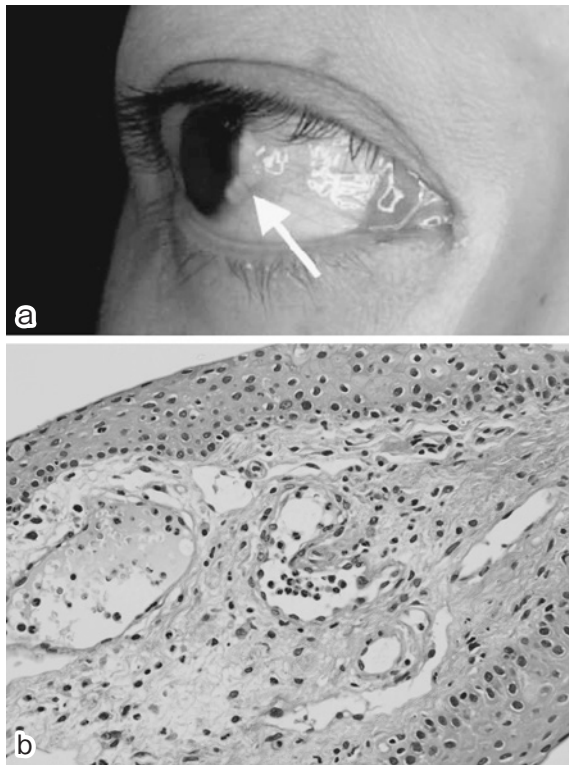


Fig. 2 Conjunctival injection and yellowish nodules (→) were seen in the right eye (a). Histological examination of the nodule showed neutrophils and fibrin clots in dilated vascular lumens and edema in the surrounding tissue (b). (hematoxylin and eosin staining, original magnification $\times 100$)

Discussion

Sweet's syndrome is an aseptic disease with heavy infiltration of neutrophils in the dermis. It is characterized by persistent fever, peripheral neutrophilia, and painful erythematous plaques, or nodules, particularly on the face, neck, and extremities⁵. The symptoms are often associated with ulcerative colitis, Crohn's disease, rheumatoid arthritis, MDS, and other myeloproliferative disorders⁶⁻⁹.

MDS is characterized by decreased cell counts in the peripheral blood resulting from impairment of cell differentiation and maturation in bone marrow due to qualitative abnormalities of bone marrow cells⁴.

When Sweet's syndrome is associated with myeloproliferative disorders, eruptions often become atypical or more severe than in cases of Sweet's

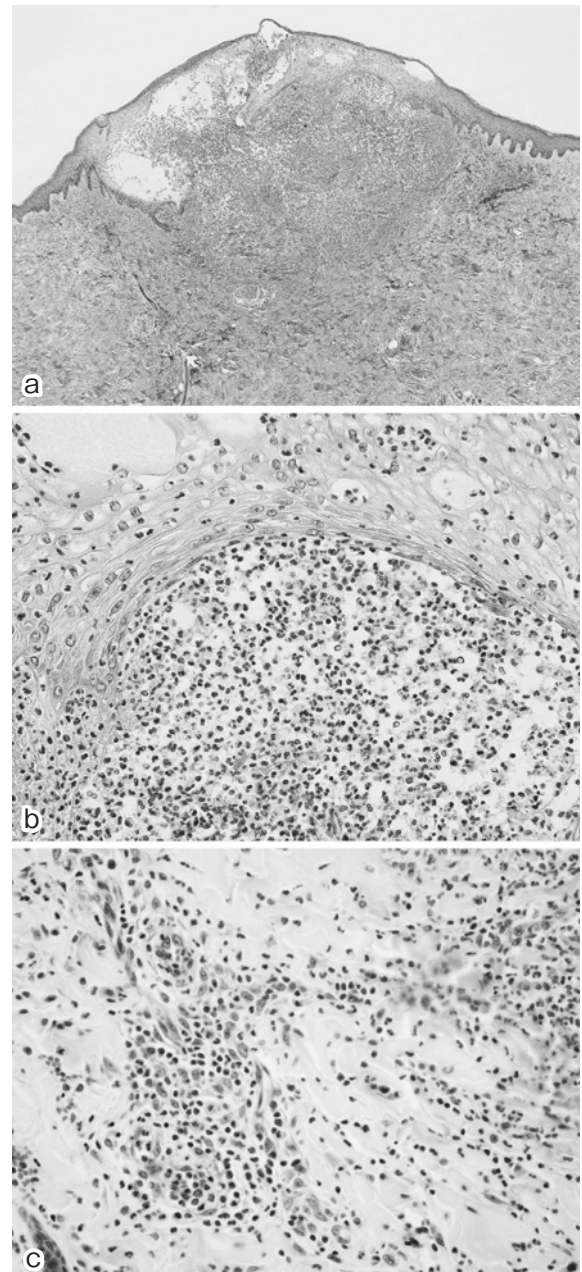


Fig. 3 Dense infiltration of inflammatory cells was present in the upper and middle dermis, and multilocular pustules were seen in the epidermis (hematoxylin and eosin staining, original magnification $\times 40$) (a). Observation at high magnification view indicated that the dense cellular infiltration contained numerous neutrophils with some mononuclear cells and eosinophils ($\times 100$) (b). No findings suggesting vasculitis were observed ($\times 100$) (c).

syndrome alone¹. Cooper et al.¹ have reported that Sweet's syndrome associated with MDS shows a higher frequency of mucous membrane lesions, vesiculobullous changes, and ulceration, and lesions



Fig. 4 Extensive necrosis and ulcers accompanied by pigmentation and scar were seen on the leg.

may occur at sites of trauma. Caughman et al.¹⁰ have proposed the term, "neutrophilic dermatosis of myeloproliferative disorder" for atypical forms of PG and Sweet's syndrome associated with myeloproliferative disease. This atypical form often shows features of eruption, including PG, Sweet's syndrome, erythema elevatum diutinum, and rheumatoid neutrophilic dermatitis.

Our patient had unusual clinical features, such as conjunctivitis with nodules in the ocular mucosa. Conjunctivitis or episcleritis is the main feature of eye involvement in Sweet's syndrome. In our case, histology of the ocular mucosa showed similar

neutrophilic infiltration to that of the skin lesion^{6,8,11}, and, therefore, the ocular symptoms were probably associated with Sweet's syndrome. In addition, eruptions progressed rapidly to extensive necrosis and ulcers, mimicking PG, and, thus, we investigated possible underlying diseases and confirmed the presence of MDS, which progressed to acute myelogenous leukemia 6 months later.

Therefore, this case indicates the importance of recognizing an atypical form of Sweet's syndrome as a possible manifestation of a myeloproliferative disorder.

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(Received, January 10, 2008)

(Accepted, February 29, 2008)