

## CASE REPORT

# A Case of Sweet's Panniculitis Associated with Spinal Metastasis from Prostate Cancer

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Sweet's panniculitis is a rare variant of Sweet's syndrome in which neutrophilic infiltrate can be found either in the subcutaneous fat or in both the dermis and the subcutaneous tissue. Due to the rarity of this entity, the association between Sweet's panniculitis and malignancies is inconclusive, but cases of Sweet's panniculitis have largely been associated with hematological malignancies. Herein, we present a case of Sweet's panniculitis accompanied by bone metastasis from prostate cancer. Clinicians should be aware that Sweet's panniculitis may be associated with malignancies of solid organs. (*Ann Dermatol* 22(4) 478~481, 2010)

**-Keywords-**

Prostate cancer, Sweet's panniculitis, Sweet's syndrome

## INTRODUCTION

Sweet's syndrome, originally called acute febrile neutrophilic dermatosis, was first described in 1964<sup>1</sup>. The major histopathologic feature is a patchy, nodular or diffuse infiltrate of mature neutrophils typically limited to the dermis without evidence of vasculitis. Although inflammation in Sweet's syndrome is primarily restricted to the dermis, inflammation in Sweet's panniculitis may be found either in the subcutaneous fat or in both the dermis and the subcutaneous tissue<sup>2</sup>.

Sweet's syndrome is usually idiopathic, but is frequently associated with inflammatory bowel disease, infections,

pregnancy, drugs and malignancy. Malignancy-associated Sweet's syndrome accounts for about 13% to 33% of the patients, and acute myelogenous leukemia was the most common type of malignancy associated with Sweet's syndrome<sup>3</sup>.

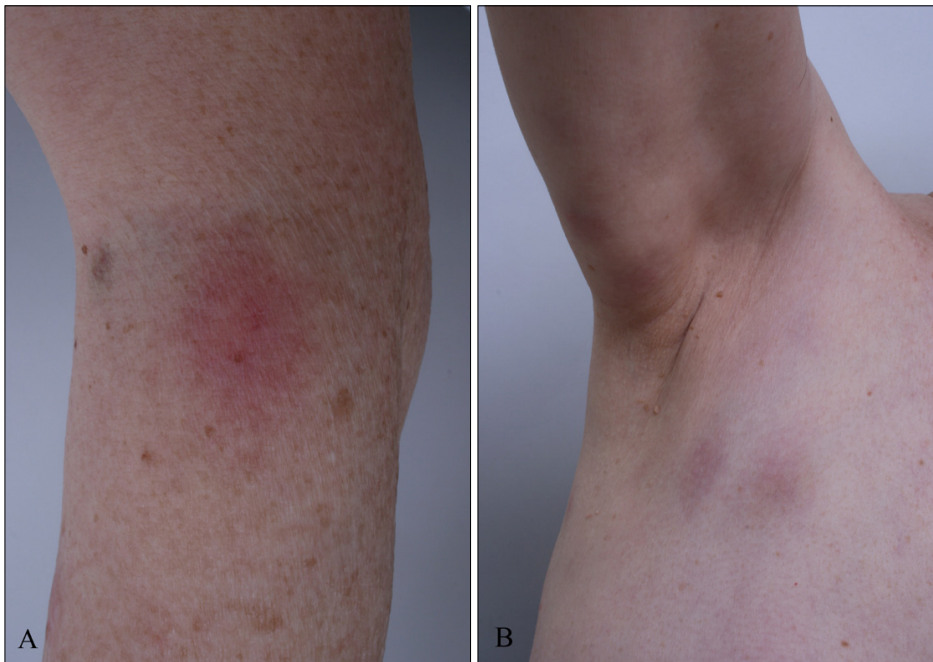
Sweet's panniculitis is a rare variant of Sweet's syndrome and is mainly associated with hematological malignancies. Only one case of Sweet's panniculitis associated with solid tumors has been reported so far<sup>4</sup>. In this review, we present a case of Sweet's panniculitis that occurred concurrently with bone metastasis from prostate cancer.

## CASE REPORT

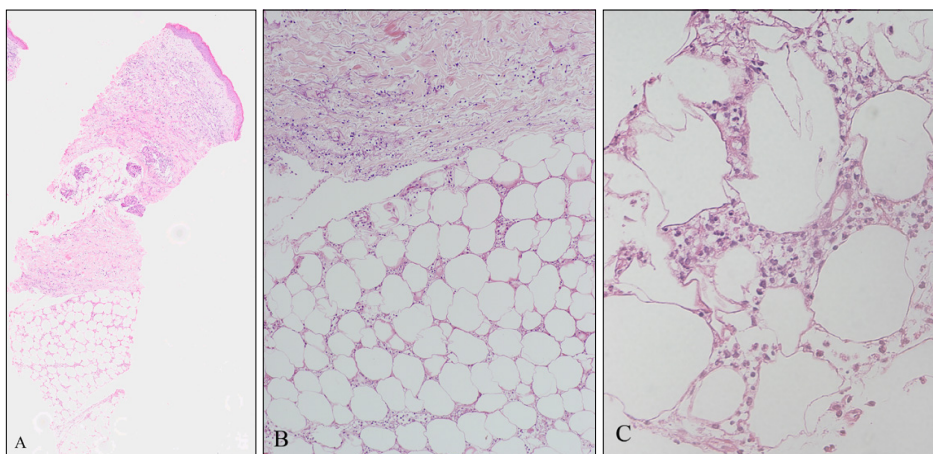
A 71-year-old man with prostate cancer was referred to the Department of Dermatology, for evaluation. He presented with a three-day history of painful coin-sized erythematous plaques on the trunk and both the arms accompanied with high-grade fever (39.9°C) (Fig. 1). He had been diagnosed with prostate cancer (acinar type, cT3N0Mx) five years ago. Since then, he had been treated with anti-androgens and external radiation therapy. During the admission, prostate cancer was well controlled with luteinizing hormone-releasing agonist (Zoladex<sup>®</sup>) monotherapy. Laboratory tests showed normal white cell counts with neutrophilia (85.7%), an increased erythrocyte sedimentation rate (ESR) (107 mm/h), and an elevated C-reactive protein (CRP) level (15 mg/L). Blood and urine cultures for bacteria were negative. The patient's prostate specific antigen (PSA) level was also mildly elevated to 8.1 ng/ml. A skin biopsy specimen from the trunk showed mild lymphohistiocytic infiltration in the dermis with neutrophil-rich lobular panniculitis without evidence of vasculitis (Fig. 2). Based on the clinical and histological findings, the patient was diagnosed with Sweet's panniculitis. Radiological evaluation, including whole-body bone scan and magnetic resonance imaging, were performed, under

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**Fig. 1.** Multiple coin-sized erythematous plaques and nodules on the trunk (A) and the arms (B).



**Fig. 2.** Mild lymphohistiocytic infiltration in the dermis with lobular neutrophilic panniculitis (A: Scanning view, B: H&E stain,  $\times 40$ , C: H&E stain,  $\times 100$ ).

the suspicion of worsening of cancer or metastasis of prostate cancer based on the elevated PSA level. The evaluation revealed spinal metastasis at the ninth thoracic spine from the prostate cancer. However, the patient was not given any further treatment for the metastatic spinal lesion. After administration of systemic steroids, most of the patient's symptoms and skin lesions resolved within one week. However, since the skin lesions recurred after discontinuation of the medications, the administration of systemic steroids and colchicines was continued and disease activity was controlled.

## DISCUSSION

Sweet's syndrome can be classified according to the clin-

ical setting into 3 subtypes: idiopathic, malignancy-associated, and drug-induced<sup>5</sup>. Idiopathic Sweet's syndrome predominantly affects women and is mainly associated with inflammatory bowel disease, infections (commonly of the upper respiratory tract and gastrointestinal tract), or pregnancy<sup>5</sup>. Malignancy-associated Sweet's syndrome occurs as frequently in men as in women. The most common associated malignancy is acute myelogenous leukemia, and solid tumors account for only 15% of the malignancy-associated cases of Sweet's syndrome<sup>6</sup>. Sweet's syndrome precedes or coincides with the detection of primary, metastatic or recurrent tumors in 61% of the patients diagnosed with solid tumors, and occurs after the development of a solid tumor in remaining 39% of the patients<sup>7</sup>. The time interval between the diagnosis of a solid

tumor and occurrence of Sweet's syndrome was highly variable, up to 131 months<sup>7</sup>.

The diagnostic criteria for Sweet's syndrome were first proposed in 1986 and then modified by von den Driesch in 1994<sup>8</sup>. Our patient fulfilled the following criteria for diagnosis of Sweet's syndrome: (i) abrupt onset of plaques that showed diffuse neutrophilic infiltrates in the dermis without evidence of vasculitis; (ii) increased ESR and CRP and greater percentage of neutrophils in peripheral blood; (iii) association with an underlying prostatic adenocarcinoma; (iv) response to treatment with systemic steroids; and (v) pyrexia.

Sweet's panniculitis is a variant of Sweet's syndrome, in which neutrophils may be found in the lobules, septae, or both, with or without dermal involvement<sup>2</sup>. Some authors have recommended use of the term subcutaneous Sweet's syndrome or Sweet's panniculitis only for those cases in which the neutrophilic infiltrate is exclusively located in the subcutaneous tissue, since neutrophil involvement in the subcutaneous tissue through the extension of dermal neutrophils could be observed in many cases of Sweet's syndrome<sup>9-11</sup>. In the present case, mild lymphohistiocytic infiltration was observed in the dermis, but most of the neutrophilic involvement was restricted to the subcutaneous fat in the histopathologic pattern of lobular panniculitis.

Most cases of Sweet's panniculitis are associated with hematological malignancies such as acute myeloid leukemia or hairy cell leukemia. So far, there has been only one reported case of Sweet's panniculitis associated with solid tumors, in which the disorder was diagnosed following multiple metastasis of breast cancer, and the histopathological findings revealed lobular infiltration of neutrophils<sup>4</sup>. To the best of our knowledge, the present case, which occurred concomitantly during the detection of bone metastasis from prostate cancer, is the second reported case of solid tumor-associated Sweet's panniculitis. In this case, medications such as luteinizing hormone-releasing agonist or radiation therapy might have caused Sweet's panniculitis. However, these medications seem unlikely to be the causative agents, since the patient had been taking these drugs for more than one year prior to the presentation. In addition, the site of the patient's skin lesions (arms and trunk) were not associated with the site of pelvic radiation. In several previously reported cases of Sweet's syndrome associated with radiotherapy, skin lesions were principally localized around the site of radiotherapy<sup>12-15</sup>.

An association between prostate cancer and Sweet's syndrome has been reported in several cases<sup>16-20</sup>. In only two of these cases, prostate cancer was the single probable

cause of Sweet's syndrome. In rest of the cases, other disease entities such as hematological malignancies and bladder cancer occurred together before or after the onset of Sweet's syndrome. Although a definite relationship between Sweet's panniculitis and solid tumors cannot be determined conclusively due to the small number of these cases, it should be noted by the clinicians that solid tumors including prostate cancer may be associated with the development of Sweet's panniculitis.

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