Sweet’s syndrome in human immune deficiency virus-infected patient

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Abstract
Sweet’s syndrome is an uncommon dermatosis and can be associated with a wide variety of illnesses including infections and malignancies. Sweet’s syndrome as a dermatological manifestation in human immunodeficiency virus (HIV) infection is rarely reported. Furthermore, called acute febrile neutrophilic dermatosis is characterized by fever and skin lesions, which are often erythematous papules and pseudovesicles. Diagnosis is based on clinical features and histology. The gold standard for treatment is systemic steroids although many other medications have been tried with variable success. We here report a case of Sweet’s syndrome in an HIV-infected patient.

Key words: Acute febrile neutrophilic dermatosis, acquired immunodeficiency syndrome, human immunodeficiency virus, Sweet’s syndrome

INTRODUCTION

Sweet’s syndrome otherwise called acute febrile neutrophilic dermatosis is an uncommon dermatological condition. Since first described in 1964 there were several case reports of classical Sweet’s syndrome and Sweet’s syndrome complicating infections or medications in the medical literature.\([1]\) Sweet’s syndrome in human immunodeficiency virus infection (HIV) is extremely rare and until date, there are only few case reports.\([2,3]\) To the best of our knowledge, no case of Sweet’s syndrome in HIV infection has been reported from the Indian subcontinent till date. We here report a case of Sweet’s syndrome in a female with HIV infection.

CASE REPORT

A 67-year-old female patient presented with high-grade fever, conjunctival congestion and painful skin lesions involving both hands of 1 week duration. She was recently detected to have HIV infection and had no relevant treatment history. On examination, the patient was febrile and had conjunctivitis. Skin lesions [Figure 1] were multiple erythematous tender papules involving both hands more on the right as well as on the right forearm. Some of the lesions had a vesicular appearance as well. There were no pustules or bullae or ulcerations.

Hemogram revealed leukocytosis (13,400 cells/cmm) with 90% neutrophils and an elevated erythrocyte sedimentation rate (84 mm/1h). Biochemical parameters including liver function tests, renal function tests, blood sugar and serum electrolytes were within normal limits. ELISA for HIV was positive and her CD\(_4\) count was 163 cells/cmm. Skin biopsy was performed, and histopathological analysis revealed dermal edema, dense neutrophilic inflammatory infiltrate in the dermis with a normal overlying epidermis [Figure 2]. Blood bacterial and fungal cultures were sterile. Chest X-ray was normal, and ultrasound of the abdomen demonstrated fatty liver.

Patient was managed with oral prednisone (1 mg/kg/day), ciprofloxacin (PO and eye drops)
and other symptomatic measures. Patient had an excellent clinical response to treatment and her lesions healed without scarring. Prednisone was gradually tapered off over the next 4 weeks, and the patient had no recurrence of lesions after stopping steroids. Patient was also initiated on antiretroviral agents.

**DISCUSSION**

Sweet’s syndrome was originally described by Dr. Robert Douglas Sweet in 1964 as “acute febrile neutrophilic dermatosis.” Depending on the clinical setting in which it develops Sweet’s syndrome can be classified as classical (idiopathic) Sweet’s syndrome, malignancy associated Sweet’s syndrome and drug associated Sweet’s syndrome.\(^1\) Classical Sweet’s syndrome does have a strong female predilection, but this predominance often lacks with malignancy-related cases. Classical Sweet's syndrome occurs commonly between 30 and 60 years although cases have been reported even during the neonatal period.\(^1\) Drug-induced Sweet’s syndrome although most frequently implicated with granulocyte-colony stimulating factor, has been reported with a wide array of other drugs. The malignancy associated with Sweet’s is acute myelogenous leukemia, but other malignancies are also reported to have association with Sweet’s syndrome.\(^1,^4\) A variety of infections are also associated with this rare dermatosis.\(^1\) A list of potential etiological associations of Sweet's syndrome is summarized in Table 1.

The exact pathogenesis of Sweet’s syndrome is yet to be elucidated. There have been various postulates on regarding the pathogenesis like septic processes or bacteria infections, cutaneous hypersensitivity reaction to viral or bacterial or tumor antigens, an autoimmune response, immune-complex deposition disease, effect of cytokines like interleukines, interferons or tumor necrosis factor.\(^1\) However, none of these postulates has been proven unequivocally. The excellent response to steroids supports the role of an inflammatory basis for this rare syndrome.\(^1\)

Fever is the most common symptom and will present in >80% patients irrespective of the setting of Sweet’s syndrome. Fever typically precedes the dermatosis by days to weeks; however, both can develop simultaneously as well. Other symptoms include malaise, arthralgia, headache and myalgia. Skin lesions of Sweet’s syndrome are typically tender, reddish, papules or nodules and are often distributed asymmetrically. Skin lesions are most frequent in the upper limbs, face and neck. Lesions can have a transparent, vesicle like appearance because of pronounced dermal edema. Larger plaque like lesions or bullous appearing lesions may occur. A myriad of ocular manifestations including conjunctivitis, blepharitis, scleritis, uveitis and retinal vasculitis has been described. Involvement of liver, spleen, lung, kidneys, and central nervous system has been reported.\(^1\)

The diagnostic criteria for classical Sweet’s syndrome were originally proposed in 1986.\(^5\) Diagnostic criteria include clinical, laboratory and histological parameters and are summarized in Table 2. In addition to neutrophilic infiltration, histology may reveal dermal edema, fragmented neutrophil nuclei, swollen endothelial cells and dilated small blood vessels. Overlying epidermis is very often histologically unremarkable. The main stay of treatment of Sweet’s syndrome is systemic steroids, but topical or intralesional steroids may be used in case of localized disease. Several investigators have also observed similar improvement when
using potassium iodide to treat patients with Sweet's syndrome.\(^1\) Other medications found to be useful in the treatment include indomethacin, clofazimine, cyclosporine, and dapsone. Antimicrobial therapy may be required if the skin lesions become secondarily infected. Sweet's syndrome lesions may heal spontaneously without any specific therapy in some patients however when untreated lesions may persist for weeks to months. Relapses may occur after spontaneous as well as treatment induced remission.

Although known to occur with a variety of infections only few reports exist documenting Sweet's syndrome in HIV infected persons.\(^2\)\(^-\)\(^3\) The validity of the association between HIV infection and Sweet's syndrome remains to be established. Also, whether the association is directly or indirectly causal, or merely a coincidence needs to be proven with time. With the currently available sparse literature on Sweet's syndrome in HIV infection, the pathogenesis, diagnosis and treatment of this dermatosis remains the same as that of an immunocompetent individual. Hopefully, this case serves as a reminder that Sweet's syndrome can be a differential diagnoses for unexplained skin lesions in HIV-infected.

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**Table 1: Etiology of Sweet's syndrome**

| Classification | Causes |
|----------------|--------|
| Idiopathic     | Granulocyte-colony stimulating factor, abacavir, minocycline, co-trimoxazole, nitrofurantoin, oral contraceptives, nonsteroidal analgesics |
| Malignancies   | Hematological: Acute myelogenous leukemia, Solid organ: breast, gastrointestinal and genitourinary |
| Infections     | Gastrointestinal infections (Yersenia, Salmonella, Helicobacter pylori), Upper respiratory tract infections (Streptococcus) |
| Others         | Pregnancy, inflammatory bowel diseases, sarcoidosis, behcets disease |

**Table 2: Diagnostic criteria for Sweet's syndrome**

- Abrupt onset of painful erythematous plaques or nodules
- Histopathologic evidence of a dense neutrophilic infiltrate without evidence of leukocytoclastic vasculitis
- Pyrexia>38 °C
- Association with an underlying hematologic or visceral malignancy or inflammatory disease or pregnancy or preceded by an upper respiratory or gastrointestinal infection or vaccination
- Excellent response to treatment with systemic corticosteroids or potassium iodide
- Abnormal laboratory values at presentation (3/4)
  - Erythrocyte sedimentation rate>20 mm/h
  - Positive C-reactive protein
  - More than 8000 cells/cmm leukocytes
  - More than 70% neutrophils

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