Diabetes Mellitus and Cutaneous Tuberculosis

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Abstract
The frequency of complication of diabetes mellitus in patients with pulmonary tuberculosis is high. Lupus vulgaris is a progressive form of cutaneous tuberculosis that occur in a patient with moderate or high degree of immunity. Cutaneous tuberculosis is an infrequent first sign of disseminated tuberculosis. Cutaneous tuberculosis in immunocompetent diabetic patient should be considered as a D/D of cutaneous abscess or ulcers due to fungal infection and tuberculoid. PCR is an efficient and sensitive method for the diagnosis of cutaneous tuberculosis.

Introduction
Problems associated with diabetic foot are world wide. However there may be regional variation among risk factors and clinical presentation, differences concerning age, diabetes duration, peripheral vascular disease and precipitaing factors contributing to injury are also considered. Clinical presentation of cutaneous tuberculosis is varying. There is an increasing trend of cutaneous tuberculosis over the years. Scrofuloderma was the most common clinical presentation followed by lupus vulgaris, tuberculosis verucca cutis and tuberculids.1

Cutaneous tuberculosis is an infrequent first sign of disseminated tuberculosis. The authors describe a case with cutaneous tuberculous ulceration on the dorsum of left foot.

Case Report
Mr. B Age 68 years retired, wireman by profession complaining of painful erythematous ulceration with oedema and oozing of watery fluid admixed with necrotic cheesy material on dorsum of left foot since 3 months was seen in surgery OPD of Shree Mumbadevi Hom. Hospital.

Ulcers measuring 3 x 2 x 3 cms; indurated margin with black discolouration, floor of the ulcer shows necrotic yellowish cheesy material (Fig. 1).

P/H diabetes mellitus, insect bite. No H/O Pulmonary Tuberculosis.

F/H no diabetes mellitus

O/E
No lymphadenopathy, BP 120/80 mm Hg in supine position, RR 18/min, Pulse 88/min. RS, CVS-NAD

Laboratory work up revealed WBC 10,900, Hb 16.6 gm% N 70%, L 30%, FBS 79 mg%, PPBS 107.7 mg%.

Swab from wound for aerobic culture revealed staphylococcus aureus, coagulase and catalase test positive having maximum inhibition for gatifloxacin. Glycosylated Hb 8.0% (Ion exchange resin) Normal range : 4-7% Non diabetic, 8-9% Good Control, 9-10% Poor control.

HIV status : normal, HBsAg : negative, ECG : normal

Patient was followed up in surgical OPD for one month with Inj. magnamycin, amikacin with no marked improvement. Patient was referred to ortho OPD for 2nd opinion. Surgical exploration with debridement was done under GA, tissue was sent for paraffin section.

The histopathological findings suggested granulomatous changes with central necrosis and Langhan giant cells (Fig. 2). Mycobacterium
tuberculosis was identified from tissue by imprint smear, staining with modified ZNCF method. A tuberculin skin test showed 11 mm erythema. A preclusive anti-tuberculosis chemotherapy AKT4 was started with remarkable rapid remission of cutaneous lesion.

Discussion

Our case was a diabetic clinically controlled but still the healing was poor since the basic pathology was due to atypical mycobacterium tuberculosis probably scrofuloderma and due to diabetes the local defence was modified even though immunocompetent, because of which the cutaneous mycobacterial infection entered through the insect bite. The pathogenesis of inoculation of cutaneous tuberculosis requires a break in the skin through minor abrasion allowing the entry of organism.8

We speculated that in older patients and in diabetics oxygen pressure alters in the lower limbs2 which may favour the growth of organism like staphylococcus and tubercle bacilli even the atherosclerotic changes of vessels may enhance the pathogenesis.

Cutaneous tuberculosis in immunocompetent diabetic patients should be considered as a D/D of cutaneous abscesses or ulcers due to fungal infection and tuberculid3,4 which are hypersensitivity reaction to mycobacterium tubercle (MTB).5

Cutaneous tuberculosis is more frequent in diabetes than in non-diabetic.6 Tuberculosis aggravates diabetes and increases the frequency of complication compared with diabetics without tuberculosis.7

Atypical mycobacterium are important human pathogens. Although they often cause systemic disease, mycobacterium infection may present solely as cutaneous lesion. It is not easy to detect non-tuberculosis mycobacterium by traditional, histochemical Ziehl Neelsen stain or by culture on specific media.9 The author stresses the importance of PCR (polymerase chain reaction) to identify non-tubercle mycobacterium in skin lesion. Since tuberculosis and diabetes frequently coexist in the population at risk for tuberculosis. Clinician should suspect tuberculosis in the diabetics with or without abnormality on chest roentgenogram. Aggressive diagnostic measures and specific chemotherapy should be given and monitored to treat cutaneous tuberculosis.10
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References