Cutaneous blastomycosis : A Rare Case

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Abstract

Cutaneous blastomycosis lesion is most often originate from a Primary pulmonary infection which disseminates through the blood or lymphatics to involve the skin. During the manifestations of cutaneous lesion in case of secondary blastomycosis, the primary pulmonary infection is frequently subclinical. Here we report a case that illustrates the difficulty in diagnosing a case of cutaneous blastomycosis.

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Introduction

Blastomycosis is endemic in the South eastern and South Central United States and Great lakes region as well as in locations near the Missouri, Mississippi and Ohio Rivers.[1] Also named as Gilchrist disease, North American blastomycosis, blastomycetic dermatitis and Oidiomycosis.[2] Blastomycosis was originally thought to be geographically localized to North America.[3] However the term North American blastomycosis is misleading as Blastomyces dermatitidis has a worldwide distribution and has been documented in at least 15 African countries as well as in Europe, South America, the Middle East and South Asia.[4]

Blastomycosis is caused by thermally dimorphic microfungus, Blastomyces dermatitidis, grows as a nonpathogenic mold in soil and its conida convert to pathogenic yeast in the host[4]. The people in endemic areas with occupational soil contact for example farming, construction, carpentry– have been shown to have decidedly increased risk of developing blastomycosis.[5] Rare human to human transmission has been observed in female sexual partners of men with blastomycosis disseminated to the prostate gland,[6] in postmortem transmission at autopsy[7] in transplacental infection of newborns[8] and in a reported cases of possible venereal transmission.[9] The median incubation period for inhalation blastomycosis ranges from 30 to 45 days.[10, 11]

A recent analysis of the nationwide inpatient sample database for 2002 showed that of adults hospitalized for blasymycosis, 58% were male and 42% were female.[12]

It was categorized into cutaneous and systemic types in 1939.[4] and manifests as a primary lung infection in about 70% of cases.[13] The onset is relatively slow and symptoms are similar to pneumonia, even sometimes misdiagnosed as tuberculosis[14] or carcinoma[13] Blastomycosis may infact behave similarly to Coccidiomycosis and Histoplasmosis in terrns of a high prevalence of self-resolving, subclinical pulmonary infection.[4]

Pulmonary infection with B.dematitidis occurs by inhalation of Conidia[15] and if untreated, many cases progress over a period of months to years to become disseminated blastomycosis. In these cases, the large Blastomyces yeast cells translocate from the lungs and are trapped in capillary beds elsewhere in the body, where they cause lesions. The skin is the most common organ affected, being the site of lesions in approximately 60% of cases.[13] Up to 40% of presumed cases of secondary cutaneous blastomycosis have no associated pulmonary findings on chest radiography.[4] Other dissemination sites are bone, genitourinary tract and CNS.[16]

Skin lesions are often symmetrical and usually affect the face and extremities.[17] Multiple skin lesions are often found in disseminated

infections.[17] In most of the cases the cutaneous lesions are characteristically ulcerated or verrucous. The secondary cutaneous form may appear as single or multiple erythematous papules, plaques, nodules, pustules, verrucous or ulceration and or scarring.[18]

Case Report

A 40 years old male, married, service holder from Tejgaon, Dhaka presented to the department of Dermatology and Venereology, Shaheed Suhrawardi Medical College and Hospital, Dhaka, Bangladesh with a chronic asymptomatic plaque on the lower chest wall in November 2014. He gave a 6 months history of the progressive lesions. An incisional biopsy specimen taken from this plaques 3 months prior to his visit to our hospital revealed that it was lupus vulgaris.

Systemic work-up including complete blood count, liver function test, renal function test, fasting glucose were normal except moderately positive tuberculin test. The skin disease progressed despite treatment with anti tubercular drugs.

Careful questioning revealed that initial lesion appeared as a small papule. He denied fever, chills, cough, shortness of breath, weight loss or any other systemic illness. There was no history of diabetes mellitus. There were no risk factors for Human Immunodeficiency Virus (HIV) infection.

Examination revealed that single, transversely placed, oval , erythematous, irregular but clean cut margin from surrounding skin, uneven surface with few crusting of the plaque measuring about 1.5 inch × 1 inch situated over the lower part of the left chest wall. Lower part of the left half of the lesion is depressed e.g. reaching to the normal skin. The lesion was non tender, firm in consistency. There was no lymphadenopathy. Examination of the respiratory or other systems revealed no abnormality.

Investigations including complete blood count with, fasting blood sugar, liver function test, renal function test, X ray chest P/A view, antibodies against HIV_1 and HIV_2 were done and all the results were normal.

A repeat skin biopsy specimen for histopathology showed that an acanthotic epidermis with suppurative and granulomatous inflammation, skin scraping with KOH preparation revealed yeast form of fungus.

Therefore ,we diagnosis the case as a chronic cutaneous blastomycosis secondary to pulmonary infection by clinical examination, histopathological and skin scraping test.

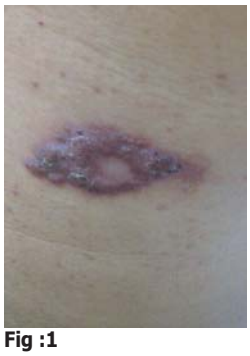

Fig :1
Single, well demarcated erythematos oval plaque situated over the lower part of left chestwall.

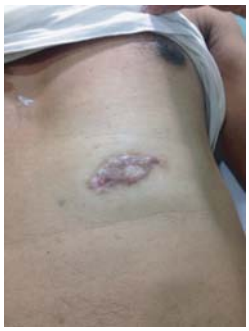

Fig2:
Partial flattening of the plaque after 3 month

Treatment was begun with Itraconazole 200 mg daily. The lesion gradually became flat slightly after 3 months of treatment, became more flat after 6 months of treatment. After complete 1 year of treatment the whole lesion became flat with few residual hypo pigmentation with slight scarring.

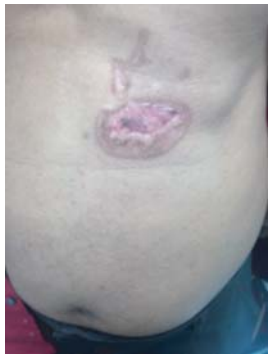

Fig 3 :
After 6month further improvement of plaque

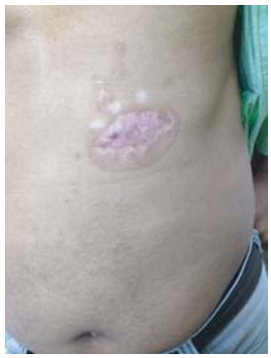

Fig : 4
After 1 year total flattening of the plaque with residual hypopigmentation with slight scarrin

Discussion

B. dermatitidis, grows as a nonpathogenic mold in soil and its conidia convert to pathogenic yeast in the host.[4] There are five categories of blastomycosis including:

Our patient present with a chronic, single, asymptomatic, plaque in the lower part of the left chest wall, which may represent the chronic cutaneous disease. Blastomycosis may infact behave similar to Coccidioidomycosis, and Histoplasmosis in terms of a high prevalence of self resolving, sub clinical pulmonary infections.[4] Up to 80% of patients with pulmonary blastomycosis manifest skin lesions.[19] Underlying pulmonary infections with B.dermatitidis may present as acute, chronic or asymptomatic process.

In contrast to other fungal infections usually seen in immunocompromised patients, Blastomyces dermatitidis is a

true pathogen that often infects immunocompetent individuals.[20] However,Lemos and Colleagues[21] found 25 % of patients with blastomycosis had a preceding immunosuppressive condition and 22% of patients had underlying diabetes mellitus.

Our present case does not clinically show any sign symptoms of loss of cellular immunity and disseminated disease. Moreover, he is free from raised blood sugar, anti HIV antibody is negative. However, in contrast to other fungal infections, in patients with the acquired immunodeficiency syndrome blastomycosis has not shown an increased risk of dessimination.[22]

Current guidelines from the infectious diseases society of America (IDSA) recommended treatment with Itraconazole for 6 to 12 months for mild to moderate cases.[23] For severe cases IDSA recommends induction with Amphotericin B for one to two weeks or until there is clinical evidence of improvement, followed by maintenance therapy with Itraconazole for 6 to 12 months.[23] For mild to moderate cases, 90% cure rates have been reported after a 6 months regimens of 200 -400 mg/day Itraconazole.[24]

Primary pulmonary blastomycosis is very similar in clinical presentation to pulmonary tuberculosis.[14,25] There may be no symptoms or there may be low grade fever, chest pain, cough and hemoptysis, and unlike histoplasmosis, it often coexists with disseminated disease.Though our patient has single, chronic, asymptomatic lesion in non trauma prone site, no obvious pulmonary complains, no history of trauma, moreover treated with 2 months of antitubercular drugs (according to previous histopathology report) with no signs of improvement. Therefore we thought that it might be a case of chronic cutaneous disease secondary to pulmonary infection.

However in this case a repeat skin biopsy and histopathological report showed that an acanthotic epidermis with suppurative and granulomatous inflammation and skin scraping with KOH preparation revealed yeast form of fungus. According to this report we gave 6 months of Itraconazole therapy in recommended dose and found partial improvement of the lesions. Therefore we continue the regimen up to 1 year and got complete resolution of lesion with residual hypopigmentation and few scarring.

As cutaneous blastomycosis is often associated with a negative chest radiograph, it is difficult to diagnose cutaneous blastomycosis. In this case skin biopsy and skin scraping test helped us to reach a diagnosis. Treatment with Itraconazole was found to be very effective in this clinical situation.

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