PRIMARY CUTANEOUS NOCARDIOSIS- A DIAGNOSTIC DILEMMA

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PRESENTATION OF CASE

A 38-year-old male, working as a supermarket manager, developed multiple painful nodules on the face and arms associated with generalised weakness of 2 months duration. His medical history was otherwise uneventful. There was no previous history of any trauma or medication. He was investigated in a nearby hospital and was treated as cutaneous vasculitis with systemic corticosteroids. But there was no improvement in the symptoms.

Few weeks later, he developed similar new lesions on the chest and abdomen. Few lesions evolved to form an abscess, along with which he developed regional lymphadenopathy and fever. He consulted a different doctor and there he was diagnosed to have Cutaneous Tuberculosis and was started with Anti-Tuberculosis Therapy (ATT). Since there was no much improvement after 3 months of starting ATT, he was referred to our medical college.

On presentation, general examination revealed multiple tender, discrete lymph nodes of about 2 x 1 cm size in the axilla, neck and groin.

CLINICAL DIAGNOSIS

On dermatological examination, he had multiple tender skin coloured to erythematous nodules of size varying from 2 x 1 cm to 5 x 4 cm on the face, trunk, forearms, hand and a few lesions on the lower limbs [Figure 1, 2]. Few nodules had dissolved to form abscess [Figure 3] and a few had ruptured to form crusted plaques [Figure 4].

Figure 1. Erythematous Tender Nodules on the Dorsum of Hand

Figure 2. Multiple Erythematous Nodules on the Forearm

Figure 3. Ruptured Nodule with Abscess Formation on the Leg

Figure 4. Multiple Crusted Plaques on the Trunk
Systemic Examination was within Normal Limits

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PATHOLOGICAL DISCUSSION

Among the laboratory investigations, complete blood cell count showed leucocytosis along with neutrophilia (14,300 cells/ mm³ with 80% neutrophils) and a raised erythrocyte sedimentation rate (ESR) of 80 mm/ hr. Liver and renal function tests and blood sugars were within normal limits. Screening for hepatitis B, C and HIV virus were negative.

Chest x-ray and electrocardiogram (ECG) were normal. An ultrasonogram of abdomen and computed tomography (CT scan) of brain and chest were taken and were found to be normal indicating that there was no systemic involvement.

Initial pus culture taken from a nodule turned out to be sterile. Gram staining and modified acid fast staining were done from the pus, which revealed Gram positive filaments with branching hyphae [Figure 5].

Figure 5. Gram Positive Delicate Filaments

A wedge biopsy done from a nodule revealed suppurating granulomas [Figure 6].

Figure 6. Histopathology shows Suppurative Granulomas

An abscess was surgically drained and aspirates were sent for repeat pus culture. Culture was done on a Sabouraud's agar medium (SDA) enriched with blood agar which yielded multiple, compact creamy white colonies of *Nocardia asteroides* [Figure 7].

Figure 7. All these Features were Characteristic of *Nocardia Asteroides* and hence a Diagnosis of Primary Cutaneous Nocardiosis was Made

The two larger nodules were surgically excised and the patient was started on Cotrimoxazole. Lesions began to heal in two weeks' time. Two months after starting the treatment, there was complete resolution of all the lesions. But treatment was continued for six months with regular monthly followup. Relapse was noticed one month after stopping the treatment and hence the treatment was continued for another six months [Figure 8].

Figure 8. Healed Cutaneous Lesions with Post-Inflammatory Pigmentation

FINAL DIAGNOSIS

Fungal infections produce diverse clinical features that pose difficulty in diagnosis and management. Nocardiosis is an acute or chronic, suppurative, granulomatous disease caused by members of the genus *Nocardia*. *Nocardia* species are aerobic actinomycetes living free in nature. *Nocardia asteroides* is the predominant human pathogen. Other species include *N. brasiliensis*, *N. otitidiscaviarum* and *N. farcinica*.¹

Most infections follow inoculation of the fungus from soil or wood into the abraded skin to cause localised actinomycotic mycetoma. The infection can present as nodules, pustules, abscesses and rarely lymphocutaneous syndrome. In few cases, dissemination have been reported. Their inhalation would result in primary pulmonary disease and they can eventually metastasize to any part of the body.²

Nocardiosis has been reported from all over the world. However, in India, the number of reports of *Nocardia* infection is limited.³

We Report this Case due to its Rarity and following Unusualities:

Here, our patient is a young healthy male with a sedentary lifestyle without any comorbidities or immunosuppression. The initial lesions started as tender nodules on the face and neck without any systemic dissemination. Due to these unusualities, the condition was wrongly diagnosed at two different hospitals. The delay in diagnosis led to wrong treatment and suppuration of the nodules. Hence, physicians should always consider subcutaneous fungal infections as a differential diagnosis of nodules and abscess, especially if they fail to respond to the usual treatment modalities.

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