CASE REPORT

Post Surgical Cutaneous Nocardiosis Mimicking Hypertrophic Scar: A Case Report

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Summary
Nocardia species are gram-positive, aerobic, acid-fast bacteria which exist as saprophytes in nature. Invasive disseminated infections are particularly common in immunocompromised or debilitated hosts. Superficial infections with Nocardia species occur as a result of local trauma and contamination of the wound. Clinically, it may manifest as an acute infection (abscesses or cellulitis), mycetoma, or sporotrichoid infection. Herein we report a rare case of cutaneous nocardiosis following surgery mimicking a hypertrophic scar.

Key words: *Nocardiosis, hypertrophic scar, post surgical*

Introduction
The genus *Nocardia* comprises gram-positive, aerobic, acid-fast, filamentous bacteria with a tendency to fragment into bacillary and coccoid forms. *Nocardia asteroides complex, N. brasiliensis, N. farcinica, and N. nova* are commonly implicated for infection in humans.[1] Cutaneous disease may manifest clinically as acute superficial skin infection with abscesses or cellulitis, mycetoma, lymphocutaneous (sporotrichoid) infection, or disseminated infection with skin involvement.[1,2]

Traumatic inoculation into the skin is the typical mode for acquisition of infection in immunocompetent hosts, resulting in an acute inflammatory response with subsequent necrosis and abscess formation; granuloma formation is uncommon. Here, we report a rare accidental inoculation of nocardia following surgery mimicking as hypertrophic scar.

Case Report
A 16-year-old Indian female patient presented with an asymptomatic erythematous linear plaque over the right nasal bridge following a surgery on the nose of 6 months duration for melanocytic nevi. No discharge or ulceration was reported. On examination, a club shaped plaque was present over a linear scar measuring 3×1 cm, on the right lateral aspect of nose (Figure 1). Differential diagnoses of hypertrophic scar, keloid, sarcoidosis were considered clinically.

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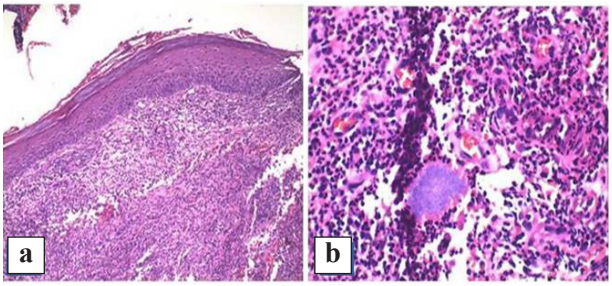
Skin biopsy showed dense and diffuse suppurative granulomatous infiltrate on a background of granulation tissue. Within the suppurative center numerous dark blue stained grains in various shapes and size were seen, surrounded by scant Splendore Hoeppli material, which is suggestive of nocardial mycetoma (Figure 2). Aspirate from the lesion showed Gram positive and acid fast, thin, beaded, branching filaments. Fungal cluture from the tissue did not demonstrate any growth.

Cotrimoxazole in double strength was (trimethoprim/sulfamethoxazole-160mg/800mg) was given for 4 weeks which cleared the lesions with residual scar without any recurrence (Figure 3).

Figure 1. Linear erythematous swelling over the lateral side of nose

Figure 2. (a) 10 X magnification; (b) on higher power dark blue granules with Splendore Hoeppli phenomenon



Discussion

The genus *Nocardia* belongs to the order Actinomycetales, a group of aerobic, Gram positive, filamentous bacteria. The organism is

Figure 3. Significant reduction in lesion after 4 weeks

mainly geophilic, occurring in soil and decaying plant parts. This group of organisms can cause serious human and animal infections.[3] The exact incidence of primary cutaneous nocardiosis is not clear. According to Palmar et al, the incidence of primary cutaneous nocardiosis reported in the English literature between 1961 and 1971 was 5%.[4]

Superficial cutaneous nocardiosis is the least serious of the cutaneous infections. This form of nocardiosis usually occurs in an immunocompetent individual 1 to 3 weeks following some type of local trauma with subsequent environmental contamination of the wound. Cellulitis is usually subacute with pain, swelling, erythema, and warmth at the affected site. It is prevalent among the rural population where agriculture is the main way of livelihood.

A history of thorn prick or splinter injury is common in patients with superficial cutaneous infection. Unusual modes of inoculation like animal scratch, burn injury and insect bite have been described.[3] Primary cutaneous nocardiosis over a surgical scar has not been reported before.

Mycetoma is the commonest clinical pattern of primary cutaneous nocardiosis. *Nocardia* species are frequently isolated as the causative agents for mycetoma.[5] The lymphocutaneous pattern of the disease is the rarest type and commonly occurs in otherwise healthy individuals.[6] Clinically, it simulates sporotrichosis but differs from this fungal infection by its acute onset, erythema of the overlying

skin, tenderness and a highly inflammatory course. Rarely, granules may be observed in the discharge from noduloulcerative lesions.[7]

The initial clinical diagnosis may be difficult due to the non-specific clinical picture. Demonstration of the organism from clinical specimens like granules, pus or aspirated fluid from an unruptured nodule by Gram stain and modified Kinyoun stain is the mainstay of diagnosis. Gram positive and acid fast, thin, beaded, branching filaments are the characteristic appearance of the organism. Identification of the *Nocardia* species by culture is a tedious process. [8]

Cotrimoxazole (trimethoprim/sulfamethoxazole) is the therapy of choice for proven or presumed nocardiosis. Drug therapy should be continued for 6 to 18 months, depending on the extent of the disease, because of the high incidence of relapse and metastatic abscesses with shorter duration of therapy. [9]

The present case presented as cutaneous nocardial mycetoma which mimicked a hypertrophic scar. In conclusion, primary cutaneous nocardiosis is challenging to diagnose due to varied clinical presentations. A high degree of clinical suspicion is required along with stringent efforts of the microbiologist to isolate the organism. -

Conflict of Interest Declaration

The authors have no conflict of interest to declare.

Acknowledgement

Nil

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