

SUBCUTANEOUS FUNGAL INFECTION OF THE FOOT – A CASE REPORT

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ABSTRACT

Subcutaneous fungal infection is one of the various forms of fungal infection in which implantation of an organism occurs via trauma and primarily involves the dermis and subcutaneous tissue. Due to the depth of tissue involvement both medical and surgical intervention is required. We report a case of a 55-year-old female presenting with a swelling of the right foot, biopsy of which revealed a subcutaneous fungal infection. With post-operative oral antifungal administration, local excision, regular dressings followed by a split skin graft, this patient's condition improved.

Key words: Fungal infection, Excision, Skin grafting

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INTRODUCTION

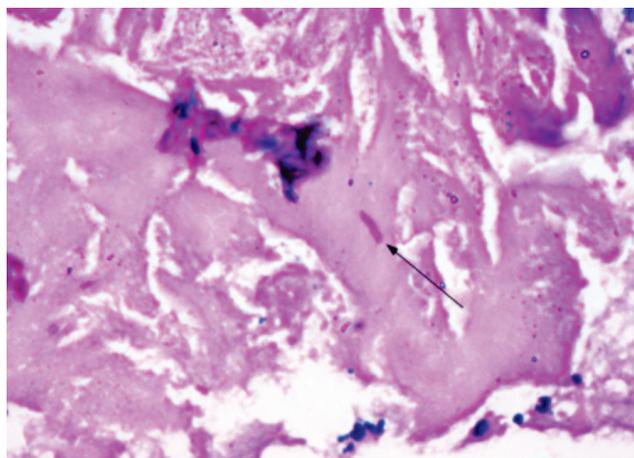
Mycoses or fungal infection can be (1) superficial (involving the outermost skin and hair), (2) cutaneous (involving deeper layers of skin, hair follicles and nail), (3) subcutaneous (involving the dermis and subcutaneous tissue) and (4) systemic (involving deep tissues of one or more internal organs)¹. As a result of the various presentations, diagnosing and categorizing the patient with a specific form of fungal infection is essential in terms of treatment. Of the various forms of infection, the subcutaneous variety follows a traumatic implantation of

the causative fungi and is chronic but localized². Direct microscopic examination is useful in diagnosis of subcutaneous mycoses; however histopathological examination of tissue sections, along with special staining, is most reliable for diagnosis³. Due to the depth of tissue involvement and the versatility of the etiological organism, this infection requires a joint medical and surgical team work for its treatment⁴.

CASE REPORT

A 55-year-old female, a bare foot walker, with no pre-

Figure 1: Photomicrograph showing septate fungal hyphae (arrow, Periodic acid–Schiff stain stain) 40x



morbid illnesses presented with a painless swelling on the lateral aspect of the sole of the right foot of one year duration. General and systemic examination was unremarkable. Local examination revealed a solitary spherical swelling of 8x4 cm dimensions on the lateral aspect of the sole of the right foot which was non tender, firm and non fluctuant. The overlying skin was thickened with healed linear ulcers. A clinical diagnosis of madura foot was made and an excision was carried out. Histopathology revealed a hyperkeratotic and acanthotic epidermis with an intraepidermal pustule with luminal aggregates of neutrophils and nuclear debris overlying granulation tissue. Underlying dermis and subcutaneous tissue showed granulomatous reaction with central necrosis, hyalinization, and peripheral epithelioid histiocytes with Langhans' giant cells. Though these features suggested a fungal infection, fungal hyphae were not demonstrable. Hence, special stains like Periodic acid-Schiff stain (PAS) and Grocott's methenamine silver stain (GMS) were used, which showed occasional septate fungal hyphae (Figure 1, arrow). Hence a diagnosis of subcutaneous fungal infection was arrived at. The wound was dressed everyday and once there was healthy granulation a split skin graft (SSG) was done after which the wound healed well. She was advised to avoid bare foot walking, and strenuous use of foot.

DISCUSSION

Fungi are basically aerobic eukaryotic organisms which are simpler in structure compared to plants or animals¹. There are two broad groups of fungi: an independent single cell (yeast) and multicellular with hyphae (mold). Hyphae are branching filamentous structures and are also referred to as mycelium. The complex process of fungal reproduction is attributed to the microscopic spores or spore containing progogules².

The modes of acquiring fungal infection involves: (1) primary fungal infection via either inhalation of spores,

traumatic implantation or overgrowth of normal flora, (2) fungal toxins, and (3) allergic response and affects the level of involvement of the infection³. In our case, the patient was found to have subcutaneous fungal infection and was the primary reason for the long standing history of the symptoms. Also as our patient was a barefoot walker, this form of fungal infection is credited to traumatic damage to the skin allowing fungal implantation. Due to the chronic presentation of this infection it requires both medical and surgical intervention⁵. Histopathological examination of tissue sections with special staining is an essential investigation in the diagnosis of subcutaneous fungal infection². We were able to isolate fungi with septated hyphae. Following the identification of the fungi, we were able to offer appropriate treatment. The patient was conservatively managed with topical dressings and followed up with a SSG. The present case emphasizes the need for appropriate identification, diagnosis and management of subcutaneous fungal infection to avoid long term patient debilitation.

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