Case Report

Subcutaneous phaeohyphomycosis – A case report

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Abstract

Phaeohyphomycosis is a mycotic disease caused by dematiaceous fungi. It causes both subcutaneous and systemic infection. The disease is more of ahistopathological than a clinical entity. We present a case of phaeohyphomycosisin a 45-year-old female who presented with the complaint of swelling in the right finger for2 months duration. A provisional clinical diagnosis of ganglion or dermoid cyst was entertained. Histopathology revealed granulomas with numerous multinucleated giant cells and fungal hyphaewithin and in between the giant cells. Gomorimethanamine silver stain (GMS) was used toconfirm the presence of hyphae. Based on the clinical, and histopathologicalfeatures, a diagnosis of Phaeohyphomycosis was given.

Keywords: Phaeohyphomycosis, granuloma, subcutaneus lesion.

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INTRODUCTION

Phaeohyphomycosis is a rare infection relatively common in the tropics caused by group of subcutaneous fungi with low virulence and pathogenicity[1,2,3] Phaeohyphomycosis is the very general term suggested. By Ajello *et al*, in 1974 to describe infections in which melanizedseptate or catenular hyphae, black yeast cells and vesicular elements are seen in tissue.[4,5] The number of fungi documented as etiologic agents of phaeohyphomycosis currently number at least 57 genera and 104 species[5]. Phaeohypomycosis has two main clinical forms: subcutaneous and systemic. Unlike other subcutaneous mycosis these fungi are quite localized and results in an abscess / cyst formation[1,6].

CASE REPORT

A 45-year-old female presented with the complaints of swelling in the right little finger for 2 months duration with a positive history of trauma while working in the field. Local examination showed a nodular swelling measuring 3x2cm over right little finger. No ulceration was noted. The swelling was soft, nontender. clinically it was diagnosed as ganglion/dermoid cyst. complete haematological investigations were within normal limits.


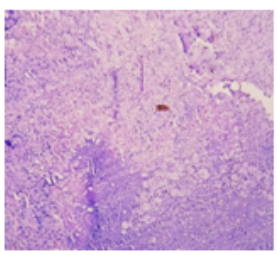
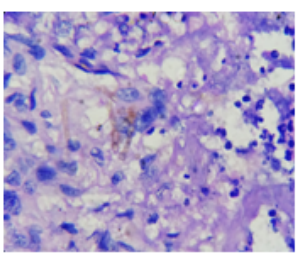

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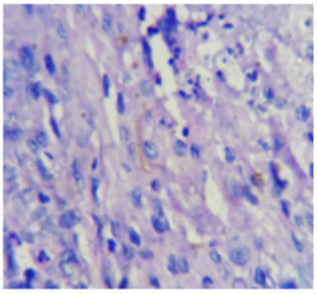
Figure 1 Figure 2 Figure 3



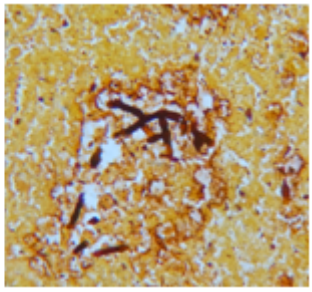


Figure 4 Figure 5

Legend

Figure 1: Swelling - Right little finger

Figure 2: dense fibrous wall of abscess filled with exudate, debris and histiocytes

Figure 3 and 4: Pigmented fungal hyphae with prominent septations

Figure 5: Fungal hyphae - Gomori'smethenamine silver stain

GROSS

Grossly the specimen was encapsulated and measuring 2x2cm. Cut section was soft to firm in consistency, homogenous and greyish white in color.

MICROSCOPY

The biopsy showed multiple tiny abscess with granulation tissue formation in the subcutis. Confluent histiocyticgranulomas were also seen along with inflammatory cells composed predominantly of eosinophils and lymphocytes. The centre of the subcutaneous abscesses consisted of necrotic debris and purulent exudate. The abscess was lined by a wide zone of granulation tissue, in which there were some microabscesses. Within the granulation tissue there were numerouslymphocytes, epithelioid macrophages, and giant cells of foreign body type. Eosinophils were also occasionally present. The junction of abscess wall and purulent exudate showed multiple brown pigmented fungal elements with branching and septation. The fungal elements were highlighted by Gomori' smethenamine silver stain. A diagnosis of subcutaneous phaeohyphomycosis was made based on clinical, histopathological and fungal stain findings.

DISCUSSION

Phaeohyphomycosis is a term used to describe infections caused by fungi that contain melanin in their cell walls[1-8]. In Greek "phaeo," meaning dark[8].These fungi have been variously referred to as dematiaceous, phaeoid, or darkly pigmented, and they incite a variety of clinical syndromes, ranging from solitary subcutaneous nodules associated with localtrauma to life-threatening infections, such as brain abscess and disseminated disease[2,4,7,8].McGinnis defined four forms of phaeohyphomycosis: superficial (blackpiedra, tineanigra), cutaneous and corneal (dermatomycosis, mycotic keratitis, onychomycosis),subcutaneous, and systemic[9]. In a review of 7 casesby MooKyuSuh *et al* the median age was 50yrs[5] with male predominance[5,7.] But we presented a 45 yrs old female patient having this fungal infection. Phaeohyphomycosis can occur in both immunocompetent and immunosuppressed patients[4,7]. Subcutaneousphaeohyphomycosis in general is anuncommon disease, commonly misdiagnosed as synovialor epidermoid cyst or even as trichilemmal cyst. In theimmunocompromised patient, it is relatively uncommon[4]. The most common manifestaionis subcutaneous cyst[4]. Other forms of subcutaneous infection include confluent papules, nodules, ulcers, infiltrative lesionsor cellulitis. The most commonly encountered aetiologicalagent of subcutaneous phaeohyphomycosis isExophialaJeanselmei[1,4,5,6].They are considered to be saprophytes of plantmaterial, wood and soil[1,2,5-7,10]. The common feature among agents of phaeohyphomycosis the presence of melanin in their cell walls, which imparts the characteristic dark color to their conidia and hyphae[7,8,10]. It may also play an important role in the pathogenesis of infections caused by these fungi[7,8]. Several mechanisms have been proposed by means of which melanin may act as a virulence factor. It is thought toconfer a protective advantage by scavenging free radicals and hypochlorite that are produced by phagocytic cells in the iroxidative burst and that would normally kill most organisms. In addition, melanin may bind to hydrolytic enzymes, thereby preventing their action on the plasma membrane. Thesemultiple functions may help explain the pathogenic potential of some dematiaceous fungi, even in immunocompetent hosts[7]. Possible mechanisms in the diabetic includeimpaired neutrophil, macrophage, and complement function[8]. Histologically, phaeohyphomycosiscan be distinguished from a superficially similar dematiaceous fungal

infection, chromoblastomycosis, by the presence of septatehyphae and pseudohyphal elements in the tissue ratherthan thick-walled meristematic cells dividing by bilateral fission[4,10].Chromoblastomycosisis a superficial or subcutaneous skin infection characterized by the presence of thick-walled muriform cells with intersecting cross-walls (sclerotic bodies).[10]Phaeohyphomycotic organisms are occasionally visible onhematoxylin and eosin stained section as brown structures but can more easily be identified and differentiated fromother subcutaneous fungi by special stains[1]. They may bebranched and often constricted at the level of septations. Microbiological culture is essential for specific identification of the species[1,11]. Culture could not be done in our case as the lesion was totally excised and sent in formalin for histopathology. Dematiaceous fungi are generally highly susceptible to itraconazole[4,10]. Treatment of localized subcutaneous fungus is surgicalexcision[1,4,7,10]. In the present case, complete excision of the nodule was done, hence no further treatment was required.

CONCLUSION

Subcutaneous phaeohyphomycosis is a rare fungal infection. Pathologists should report this lesion with cautionemphasizing the importance to differentiate from otherpigmented lesions so asto guide the clinicians to opt for appropriate treatmentmodalities.

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