

CASE REPORT

SUBCUTANEOUS PHAEOPHYPHOMYCOTIC CYST MIMICKING IMPLANTATION DERMOID CLINICALLY – A CASE REPORT

Vimal Chander R¹, Jayaganesh P², Karuna Kumar K³

HOW TO CITE THIS ARTICLE:

Vimal Chander R, Jayaganesh P, Karuna Kumar K. "Subcutaneous Phaeohyphomycotic Cyst Mimicking Implantation Dermoid Clinically – A Case Report". Journal of Evolution of Medical and Dental Sciences 2014; Vol. 3, Issue 07, February 17; Page: 1753-1756, DOI: 10.14260/jemds/2014/2053

ABSTRACT: Mycotic cysts are subcutaneous cysts with formation of granulomas caused by either dematiaceous (pigmented) fungi or eumycotic (nonpigmented) fungi. Phaeohyphomycosis includes a group of fungal infections caused by phaeoid or melanised fungi and is characterized microscopically by the presence of pigmented septate hyphae, pseudohyphae and yeasts. Subcutaneous phaeohyphomycotic cysts are uncommonly encountered lesions that are caused by a wide variety of dematiaceous fungi. They usually present as a single lesion and are characterized by subcutaneous asymptomatic nodular lesions that usually develop after traumatic implantation of fungi especially in the extremities. We present a case of phaeohyphomycotic cyst in the subcutaneous tissue of the left elbow in a 42 year old farmer presenting clinically as an implantation dermoid. Microscopic examination revealed a fibrocollagenous cyst wall showing short closely septate hyphae along with chains of budding yeast cells which were positive for Periodic acid Schiff, Gomori's methanamine silver and Masson-Fontana stains. A high index of suspicion is usually needed since they can be easily missed, especially when there are scant fungal elements, thus requiring special stains to detect the presence of these fungi.

KEYWORDS: Phaeohyphomycotic cyst, Dematiaceous fungi, Subcutaneous fungal infection, Fungal cystic lesion.

INTRODUCTION: Mycotic cysts are subcutaneous cysts with formation of granulomas caused by either dematiaceous (pigmented) fungi or eumycotic (nonpigmented) fungi, usually present in wood, soil or decaying plant matter gaining access to the tissues via trauma or thorn prick. Deep tissue involvement is very rare. We present a case of phaeohyphomycotic cyst in the subcutaneous tissue of the left elbow in a 42 year old farmer presenting clinically as an implantation dermoid.

CASE REPORT: A 42 year old farmer presented with swelling in the right elbow for the past 4 months. The clinical interview revealed history of trauma 4 months back. With a clinical differential diagnosis of sebaceous cyst and implantation dermoid, an excision biopsy was then done and sent for histopathological examination.

Macroscopic examination showed a single globular soft tissue mass measuring 2x2x1 cm, cut section showing whitish necrotic material within a cystic structure. [Figure 1]

Microscopic examination revealed a fibrocollagenous cyst wall lined by sheets of foamy histiocytes, epithelioid histiocytes with multinucleated foreign body type of giant cells and chronic inflammatory cells with one area showing vague hyphal forms on hematoxylin and eosin stain. [Figure 2] There are fragments of vegetable matter and necrotic debris within the cyst.

On Periodic acid Schiff and Gomori's methanamine silver stains, many short closely septate hyphae along with chains of budding yeast cells are seen in the cyst wall. [Figure 3 a, b and c] The

CASE REPORT

fungal organisms were positive for Masson-Fontana stain indicating the presence of melanin in their cell walls. [Figure 3 d].

A diagnosis of subcutaneous phaeohyphomycotic cyst was then made. Fungal culture for species identification could not be sent as the specimen was sent in formalin as the clinical diagnosis of fungal etiology was not thought of.

DISCUSSION: Mycotic cysts are subcutaneous cysts with formation of granulomas. They are caused by either dematiaceous (pigmented) fungi or eumycotic (nonpigmented) fungi, usually present in wood, soil or decaying plant matter. They gain access to the tissues via trauma or through thorn prick. Deep tissue involvement is very rare.¹ Regional lymphadenopathy and lymphangitis are unusual. Hence infective causes are usually not considered.²

Phaeohyphomycosis includes a group of fungal infections caused by phaeoid or melanised fungi and is characterized microscopically by the presence of pigmented septate hyphae, pseudohyphae and yeasts. Common etiologic agents include *Exophiala jeanselmei*, *Wangiella dermatitidis*, *Bipolaris*, *Phialophora* and *Curvularia* species.^{3, 4} Clinically it presents as superficial (cutaneous and corneal) and subcutaneous (mycotic cysts). Rarely, it can present as systemic phaeohyphomycosis, especially in immunocompromised patients.

Phaeohyphomycotic cysts are characterized by subcutaneous asymptomatic nodular lesions that usually develop after traumatic implantation of fungi especially in the extremities. Histopathological examination usually shows an abscess or a granulomatous lesion with presence of pigmented yeasts and pseudohyphae or septate hyphae which will show positivity for periodic acid Schiff and Gomori's methanamine silver stains. They are also typically positive for Masson-Fontana stain confirming the presence of melanin in their cell walls, which has shown to be important in providing a protective advantage in evading host defenses in these fungi.

The treatment of choice is complete surgical excision, but additional antifungal treatment is recommended for recurrent cases and in immunocompromised patients.⁵ Though subcutaneous phaeohyphomycotic cyst usually present as single lesion, rarely multifocal lesions are also seen especially after inadequate initial excision.⁶ In immunocompromised patients, it can run a prolonged course with multiple recurrences.⁷

Chromoblastomycosis is a differential diagnosis for subcutaneous mycoses and the treatment of choice for chromoblastomycosis is antifungal therapy.⁸ Hence differentiating the specific fungal forms for subcutaneous mycoses is essential for planning further management.⁹

CONCLUSION: Subcutaneous phaeohyphomycotic cysts are uncommonly encountered lesions that caused by a wide variety of dematiaceous fungi. A high index of suspicion is usually needed since they can be easily missed, especially when there are scant fungal elements, thus requiring special stains for detecting the presence of these fungi. Routine histopathological examination along with special stains for fungi is sufficient for the diagnosis of phaeohyphomycosis, especially when the sample cannot be cultured.

CASE REPORT

REFERENCES:

1. Sheikh S.S, Amr S.S. Mycotic cysts: report of 21 cases including eight pheomycotic cysts from Saudi Arabia. *Int J Dermatol* 2007; 46(4):388-92.
2. Madhavan Manoharan, Natarajan Shanmugam, Saveetha Veeriyam. A Rare Case of a Subcutaneous Phaeomycotic Cyst with a Brief Review of Literature. *Malaysian J Med Sci* 2011; 18(2):78-81.
3. Isa-Isa R, García C, Isa M, Arenas R. Subcutaneous phaeohyphomycosis (mycotic cyst). *Clin Dermatol* 2012; 30(4):425-31.
4. Schnadig VJ, Long EG, Washington JM, McNeely MC, Troum BA. *Phialophora verrucosa*-induced subcutaneous phaeohyphomycosis. Fine needle aspiration findings. *Acta Cytol* 1986 Jul-Aug; 30(4):425-9.
5. Chuan M.T, Wu M.C. Subcutaneous phaeohyphomycosis caused by *Exophiala jeanselmei*: successful treatment with itraconazole. *Int J Dermatol* 1995 Aug; 34(8):563-6.
6. Kimura M, Goto A, Furuta T, Satou T, Hashimoto S, Nishimura K. Multifocal subcutaneous phaeohyphomycosis caused by *Phialophora verrucosa*. *Arch Pathol Lab Med* 2003; 127(1):91-3.
7. Xu X, Low DW, Palevsky HI, Elenitsas R. Subcutaneous phaeohyphomycotic cysts caused by *Exophiala jeanselmei* in a lung transplant patient. *Dermatol Surg* 2001 Apr; 27(4):343-6.
8. Bonifaz A, Vázquez-González D, Perusquía-Ortiz AM. Subcutaneous mycoses: chromoblastomycosis, sporotrichosis and mycetoma. *J Dtsch Dermatol Ges* 2010; 8(8):619-27.
9. Koga T, Matsuda T, Matsumoto T, Furue M. Therapeutic approaches to subcutaneous mycoses. *Am J Clin Dermatol* 2003; 4(8):537-43.



Fig. 1: Gross appearance

CASE REPORT

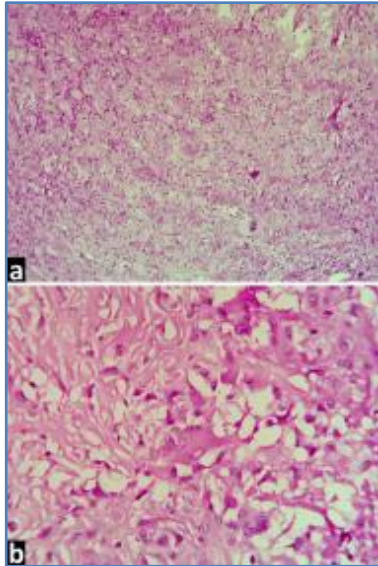


Fig. 2: (a) Sheets of foamy histiocytes and chronic inflammatory cells in the cyst wall (H and E x100) (b) Presence of epithelioid histiocytes and a multinucleated giant cell (H and E x400)

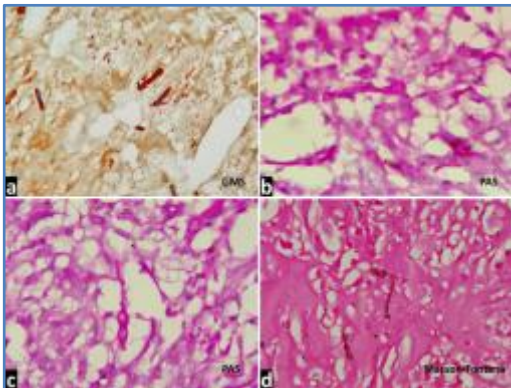


Fig. 3: Closely septate hyphae with chains of budding yeast cells positive for Gomori's methanamine silver, (a) (GMS x400) and Periodic acid Schiff stains, (b) & (c) (PAS x 400) and Masson-Fontana stain, (d) (Masson-Fontana x400)

AUTHORS:

1. Vimal Chander R.
2. Jayaganesh P.
3. Karuna Kumar K.

PARTICULARS OF CONTRIBUTORS:

1. Assistant Professor, Department of Pathology, Saveetha Medical College, Thandalam, Chennai.
2. Associate Professor, Department of Pathology, Saveetha Medical College, Thandalam, Chennai.
3. Assistant Professor, Department of Pathology, Saveetha Medical College, Thandalam, Chennai.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Vimal Chander R,
Assistant Professor,
Department of Pathology,
Saveetha Medical College,
Thandalam, Chennai – 602105.
E-mail: rvimalchander@gmail.com

Date of Submission: 19/01/2014.

Date of Peer Review: 20/01/2014.

Date of Acceptance: 01/02/2014.

Date of Publishing: 14/02/2014.