

Phaeohyphomycotic cyst in the Foot by *Exophiala*

KARUNAKARREDDY CH¹, POORNACHANDRA THEJASWIDS², HEMA KINI³, SUCHITRA SHENOY⁴, SHIVANANDA PRABHU⁵

ABSTRACT

A 52-year-old male, presented to us with a swelling over plantar aspect of right foot following trauma. Clinically it was a cystic swelling diagnosed as an abscess; ultrasound showed thick walled multilocular collection with thick echogenic debris, following which complete excision of the swelling was done. A part of the swelling was sent for histopathological examination and cut section showed thick purulent material. Other part sent for culture sensitivity grew, *Exophiala*, which belongs to Dematiaceous group of fungi. Surgical excision with antifungal treatment is the management in general for fungal cyst, whereas in our case complete excision was done without antifungal treatment.

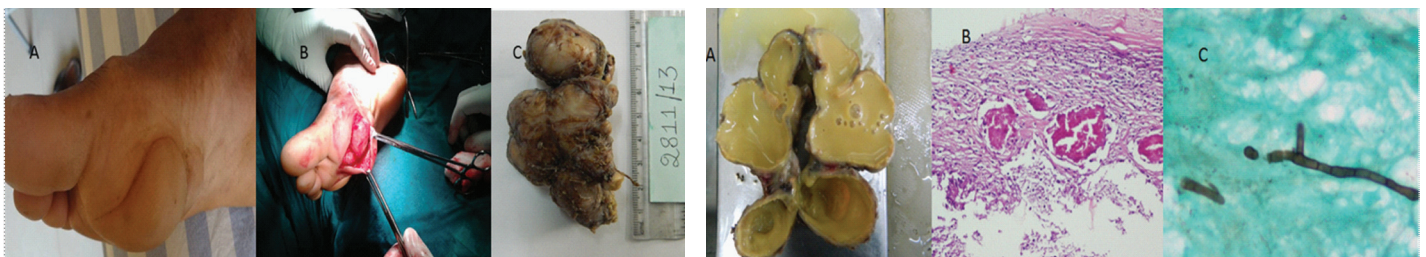
Keywords: Dematiaceous, *Exophiala*, Fungi, Phaeohyphomycosis

CASE REPORT

A 52-year-old male, farmer by occupation presented to outpatient Department, Kasturba Medical College, Mangalore, India, in April 2012, with a swelling over plantar aspect of right foot. He developed the swelling following trauma while working in a paddy field. He has been taking oral antibiotics and analgesics. Swelling gradually progressed in size over 6 months with 8x4 cm size at presentation. On examination the swelling was subcutaneous, tense, tender and cystic in nature with multiple right inguinal lymph nodes. Patient was non-diabetic, not immunocompromised. His renal and hepatic parameters were unremarkable and haemoglobin was 12gm%. Ultrasonography showed thick walled multilocular collection with thick echogenic debris extending from the mid foot to the fore foot upto the first and second toes [Table/Fig-1a]. Muscles and blood vessels of the area were intact and normal. Complete excision of the swelling was done by putting longitudinal incision along the plantar aspect by raising the flaps following which primary closure was done [Table/Fig-1b]. Patient was kept on oral antimicrobial drugs. The tissue was sent for histopathology and microbiology evaluation. Grossly specimen appeared as a multinodular cystic mass measuring 8x4x4cms. Surface is pale brown to congested [Table/Fig-1c]. Cut section showed a multilocular cyst separated by thick septae and filled with thick bright yellow purulent material [Table/Fig-2a]. Histopathological sections showed fibrocollagenous cyst wall lined by suppurating necrotic debris containing PAS positive pink granules and septate branching hyphae amidst granulomatous inflammation, foamy macrophages and granulation tissue, consistent with inflammatory plantar cyst secondary to fungal infection [Table/Fig-2b,c]. Culture on Sabouraud's dextrose agar with chloramphenicol grew *Exophiala dermatitidis* after 2 wk of incubation. There has been no recurrence on follow up for 12 months and patient is absolutely fine.

DISCUSSION

Exophiala is a genus of dematiaceous saprophytic mould belonging to the family Herpotrichiellaceae. The major etiologic agents of phaeohyphomycosis are species of *Bipolaris*, *Exophiala*, *Curvularia*, *Chaetomium*, *Phoma*, *Exserohilum*, and *Wangiella* [1]. Around 30 different species of this genus have been isolated from different environmental sources of tropical and subtropical regions [2]. These fungi are known to cause systemic as well as subcutaneous cystic lesions [3]. The genus *Exophiala* found in the environment is known to cause subcutaneous cystic infection in immunocompetent as well as the immunosuppressed individual [4]. Subcutaneous lesions usually result due to the traumatic implantation of the fungi in to the tissue as it must have happened in the present case. Phaeohyphomycosis is mainly caused by brown pigmented fungi which have melanin in the cell wall. Melanin by its scavenging effect acts over free radicals produced by the phagocytic cells and this may be the reason for infection even in immunocompetent host [5]. The lesion usually presents as an abscess or as a cystic swelling which gradually grows in size [6]. On examination the lesion appears as a localised abscess. These lesions have to be differentiated from other cystic lesions like fibroma, lipoma or sebaceous cyst depending on the site [1]. The imaging techniques available today helps the clinician to measure the size, the extent of lesion, the tissue involved and the tissue content of the swelling. Excision of the entire lesion in total will help to resolve the infection. The tissue excised should be sent for histopathological and microbiological examination to rule out infectious and non-infectious causes. The treatment strategy in case of *Exophiala* infections involves multiple avenues like medical treatment with associated surgical excision and in case of smaller lesion may be cryosurgery or electrocautery [7,8]. The abscess due to bacterial cause may involve treatment for shorter duration in comparison to the antifungal therapy. The antifungal therapy takes a longer time and has far more side effects like hepatic and



[Table/Fig-1]: A) Swelling over plantar aspect of right foot. B) Dissection done by raising flaps after longitudinal incision over swelling. C) Gross specimen, surface showing multinodularity with pale brown to congested appearance **[Table/Fig-2]:** A) Cut section of specimen showing loculations with septae and filled with thick pus. B) Eosinophilic fluffy granules seen amidst granulomatous inflammation. C) GMS stain showing septate branching fungal hyphae

renal involvement. Drugs like voriconazole, itraconazole, flucytosine, amphotericin B and posaconazole have been tried after determining the invitro susceptibility testing [7,9].

CONCLUSION

Fungal infections can present in many ways; as in our case a subcutaneous swelling following trauma to the foot initially thought to be an abscess and proved later to be a rare fungal infection due to *Exophiala*. Complete excision of lesion was done with no antifungal treatment and on follow-up wound healed completely with no recurrence.

REFERENCES

- [1] Young Ahn Yoon, Kyung Sun Park, Jang Ho Lee, Ki-Sun Sung, et al. Subcutaneous Phaeohyphomycosis Caused by *Exophiala*salmonis. *Ann Lab Med*. 2012;32:438-41.
- [2] Patrick CY Woo, Antonio HY Ngan, Chris CC Tsang, et al. Clinical Spectrum of *Exophiala* Infections and a Novel *Exophiala* Species, *Exophiala* Hongkongensis. *J Clin Microbiol*.2013;51(1):260–67.
- [3] Zeng JS, Sutton DA, Fothergill AW, Rinaldi MG, et al. Spectrum of Clinically Relevant *Exophiala* Species in the United States. *J Clin Microbiol*. 2007;45(11):3713–20.
- [4] Maria do Rosário R Silva, Orionalda de FL Fernandes, Carolina R Costa, et al. Subcutaneous phaeohyphomycosis by *Exophiala*janselmei in a cardiac transplant recipient *Rev inst med trop S. Paulo*. 2005;47(1):55-57
- [5] Devesh Mishra, Maneesh Singal, Mahaveer Singh Rodha, and Arulselvi Subramanian. Subcutaneous Phaeohyphomycosis of Foot in an Immunocompetent Host. *J Lab Physicians*. 2011;3(2):122–4.
- [6] Rimawi BH, Rimawi RH, Mirdamadi M, Steed LL, Marchel IR, et al. A case of *Exophiala*oligosperma successfully treated with voriconazole. *Medical Mycology Case Reports*. 2013;2:144–47
- [7] Daboit TC, Duquia RP, Magagnin CM, Mendes SDC, et al. A case of *Exophiala*spinifera infection in Southern Brazil: Molecular identification and antifungal susceptibility. *Medical Mycology Case Reports*. 2012;1:72–75.
- [8] Radhakrishnan D, Jayalakshmi G, Madhumathy A, et al. Subcutaneous phaeohyphomycosis due to *Exophiala*spinifera in an immunocompromised host. *IJMM*. 2010;28(4):396–99.
- [9] Badali H, Najafzadeh MJ, Esbroeck MV, et al. The clinical spectrum of *Exophiala*janselmei, with a case report and in vitro antifungal susceptibility of the species. *Medical Mycology*.2010;48:318–27.

PARTICULARS OF CONTRIBUTORS:

1. Post Graduate, Department of General surgery, Kasturba Medical College, Manipal University, Mangalore, Karnataka, India.
2. Associate Professor, Department of General surgery, Kasturba Medical College, Manipal University, Mangalore, Karnataka, India.
3. Professor, Department of Pathology, Kasturba Medical College, Manipal University, Mangalore, Karnataka, India.
4. Associate Professor, Department of Microbiology, Kasturba Medical College, Manipal University, Mangalore, Karnataka, India.
5. Professor Department of General surgery, Kasturba Medical College, Manipal University, Mangalore, Karnataka, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Poorna Chandra Thejaswi,
Shreyas Pragathi Colony, Near Baliga Stores, Bijal, Mangalore, Karnataka, India.
Phone : 9986874910, E-mail : drpoornachandra@gmail.com

Date of Submission: **Apr 04, 2014**

Date of Peer Review: **Aug 19, 2014**

Date of Acceptance: **Sep 10, 2014**

Date of Publishing: **Nov 20, 2014**

FINANCIAL OR OTHER COMPETING INTERESTS: None.