Subcutaneous Pheohyphomycosis-A Rare Mycotic Infection from a North Himalayan State of India Diagnosed on Cytopathology

Sir,

Pheohyphomycosis is caused by brownish-black colored dematiaceous fungi characterized by melanin in cell wall. Clinically, it presents as localized infections of skin, subcutis, or systemic involving the central nervous system, eyes, or bones.[1,2] It is considered to be an opportunistic fungus commonly reported in immunocompromised patients which may spread from the primary infected site to other organs resulting in increased mortality. Therefore, its early diagnosis is essential to prevent further complications.

A 55-year-old female, a housewife and a resident of Uttarakhand, a north Himalayan state of India, presented with a gradually increasing 2 × 2 cm, soft, tender swelling over the dorsum of the right hand for last 2 months [Figure 1a]. There was no history of trauma, diabetes, and tuberculosis; her human immunodeficiency virus (HIV) status was also negative. The patient was subjected to fine needle aspiration cytology (FNAC); the smears revealed fungal hyphae which were septate showing branching with irregular constrictions along with conidia in background of inflammation and necrosis. The wall of fungal hyphae, at places, showed brownish-black pigment on Giemsa stain, and hence a diagnosis of pheohyphomycosis was suspected [Figure 1b]. Smears were then subjected to periodic acid-Schiff (PAS) and silver methanamine (SM) stains which showed positivity for fungal hyphae [Figure 1c and d]. Fungal hyphae also showed brownish-black pigment in their cell wall on Masson Fontana staining and a diagnosis of pheohyphomycosis was confirmed. This was followed by surgical excision; histopathology was consistent with subcutaneous pheohyphomycosis. The patient was treated with itraconazole for a period of 3 months, and she responded well to the treatment.

Pheohyphomycosis are usually found in soil infected subcutaneous tissue mostly on the extremities and may spread to distant sites particularly in immunocompromised individuals. The present case also demonstrated pheohyphomycosis in subcutaneous tissue of hands, which may have been implanted from soil as the patient was actively involved in gardening. Pheohyphomycosis has been reported very rarely from this area and literature search shows that it is the second reported case from this north Himalayan Uttarakhand region. The previous reported case was of pheohyphomycoic keratitis which also presented in an immunocompetent patient without any history of trauma.[3] Deposition of melanin in the cellular wall of fungus is a characteristic of dematiaceous fungi. The present case on vigilant cytomorphological examination also clearly showed the presence of brownish-black pigment in fungal walls on Giemsa stain, which raised suspicion.
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Figure 1: (a) Subcutaneous swelling on dorsum of right hand; (b) fine needle aspiration cytology revealed septate branching fungal hyphae with irregular constrictions in necrotic background (MGG stain, x400); (c) Periodic Schiff stain showing magenta colored fungal hyphae (PAS stain, x1000); (d) Silver methanamine stain showing black colored fungal hyphae showing septae, branching and irregular constrictions (silver methanamine stain, x400)

of pheohyphomycosis; this was followed by special stains (MF, SM, and PAS) which confirmed the diagnosis of the pigmented fungi. Itraconazole therapy has been reported to show marked positive response in both cutaneous and systemic pheohyphomycosis irrespective of different species.14,5 Our patient also responded well to surgical excision and treatment by itraconazole.

Thus, pheohyphomycosis may be considered as an important differential diagnosis in cases presenting as subcutaneous abscess even in unsuspected immunocompetent patient without any co-orbidity. Vigilant morphological examination of the smears on FNAC with special stains including MF, SM, and PAS may lead to an early diagnosis followed by prompt treatment, thus preventing further complications. In addition, this case is being reported due to its rarity in this Uttarakhand, north Himalayan state of India, the second reported case from this region.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

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Access this article online

Website: www.jcytol.org

Quick Response Code

DOI: 10.4103/0970-9371.190445

How to cite this article: Chandra S, Vaidya V, Harsh M, Chandra H, Jindal R. Subcutaneous Pheohyphomycosis-A rare mycotic infection from a North Himalayan State of India diagnosed on cytopathology. J Cytol 2016;33:240-1.