

Subcutaneous phaeohyphomycosis caused by *Bipolaris hawaiiensis* in an immunocompetent patient

Sir,

Phaeohyphomycetes are dematiaceous (brown pigmented) fungi which derive their pigmentation from melanin in cell walls. Cutaneous and subcutaneous infections due to this group of fungi are reported globally, usually following traumatic implantation of the fungal elements through contaminated soil, wood splinters or thorns. *Bipolaris hawaiiensis* is a phaeohyphomycete which belongs to division Deuteromycota and genus Cochliobolus. They have been occasionally found in humans, mainly as chronic colonizers and in patients with allergic sinusitis. We present a case of post surgery subcutaneous infection due to *Bipolaris hawaiiensis*, which has very rarely been reported in the literature.

A 30-year-old lady presented with complaints of recurrent swelling and pus discharge from a laparotomy surgery scar for 3 months. She had undergone surgery for removal of ovarian cysts due to polycystic ovarian disease, two weeks prior to the beginning of these complaints. There was mild to moderate pain at the site in addition to occasional discharge of pus. She later developed multiple similar swellings on the surgery scar and was prescribed antibiotic courses. She would partially respond to these drugs and relapse on stopping the medicines.

Dermatological examination revealed multiple painless nodules on and in the region surrounding the abdominal surgical scar [Figure 1]. There was no evidence of any underlying immunosuppression or other risk factors. Biopsy from the medial and uppermost swelling revealed the presence of dense granulomatous infiltrate and fungal material [Figure 2]. Microscopic examination of nodular tissue after treatment with 10% KOH revealed light brown septate hyphae. The material was cultured on potato dextrose agar (PDA). Colonies on PDA after 7 days were whitish-grey, which later became blackish brown. The growth on Sabouraud's agar was downy grayish within 3-6 days, which rapidly became woolly gray along with dark pigmentation on the reverse of the colony. A slide culture of the isolate on corn-meal agar stained with Lactophenol Cotton blue (LCB) showed brown septate hyphae with

geniculate, sympoidal conidiophores bearing conidia through pores [Figure 3]. Conidia were ellipsoidal and rounded at the ends with 4-6 pseudoseptae which did not extend to the cell wall and cells were enclosed within sacs. The fungus was identified as *Bipolaris hawaiiensis* on the basis of cultural characteristics and the arrangement of poroconidia on LCB mount.



Figure 1: Multiple painless nodules on surgical scar over the abdomen

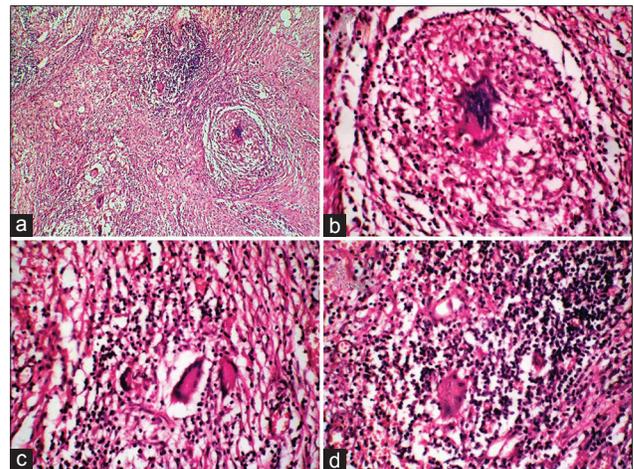


Figure 2: Histopathology from nodules revealing: (a) Extensive dermal granulomatous infiltrate with multiple giant cells (H and E x40) (b-d) Fungal material and giant cells (H and E x40)

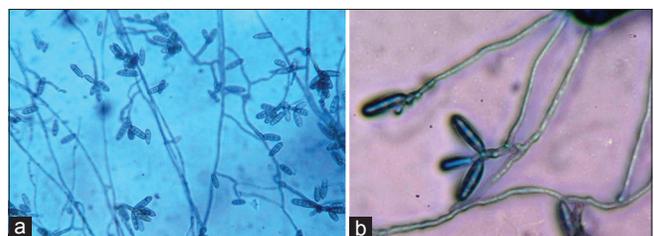


Figure 3: (a) Slide mount on lactophenol blue revealing septate hyphae with geniculate, sympoidal conidiophores bearing conidia through pores [x40] (b) High power view of same [x100]



Figure 4: Complete regression of lesions after 16 weeks of therapy

Anti-fungal susceptibility testing was carried out by agar dilution method (a modification of the Clinical Laboratory Standards Institute (CLSI) broth based methodology) and the isolate was found to be sensitive to itraconazole. Surgical evacuation of the collection was done and oral itraconazole, 400 mg was administered twice daily to which there was a good response after 16 weeks [Figure 4].

Bipolaris is a filamentous dematiaceous fungus that usually grows on plant debris and in soil. It is an emerging human pathogen that has been occasionally reported from countries with hot climates like southern states of USA, Australia, Pakistan and India. The increasing incidence is due to the ever increasing population of immunosuppressed patients. Several reports of allergic fungal sinusitis (AFS) due to *Bipolaris* have appeared in the literature.^[1] Other human infections reported include allergic bronchopulmonary disease, keratitis, orbital cellulitis, prosthetic heart valve infection, meningoencephalitis and osteomyelitis.

Twenty two cases of *Bipolaris hawaiiensis* infections have been reported in humans [Table 1]. Very rarely have cutaneous infections been attributed to *Bipolaris* species.^[2] Superficial cutaneous infection in three immunocompetent patients has been reported by Robb *et al.* A non-healing ulcer in a pancytopenic patient with acute leukemia preceded by trauma has been reported.^[3]

Dermatoses caused by *Bipolaris hawaiiensis* infection have been reported twice in the past. A case of subungual hyperkeratosis due to the fungus has been reported.^[4] The other report is a case of subcutaneous phaeohyphomycosis caused by *Bipolaris hawaiiensis* manifesting as a verrucous lesion on the big toe.^[5]

Table 1: *Bipolaris hawaiiensis* infections reported in the literature

Cases	Organ/site involved	Immune status	Country	Year
1	Meningo-encephalitis	Compromised	France	1973
1	Nasal	Competent	Unknown	1978
1	Allergic bronchopulmonary mycosis	Competent	Australia	1981
1	Lungs	Compromised	France	1984
1	Granulomatous encephalitis	Competent	USA	1986
1	Nasal	Compromised	India	1987
1	Corneal ulcer	Leprosy	India	1988
1	Fungal sinusitis	Competent	USA	1989
1	Fungal sinusitis	Competent	Australia	1989
1	Subcutaneous infection	Competent	Brazil	1991
1	Fungal sinusitis	Competent	Germany	1999
1	Pneumonia	Competent	USA	2001
1	Fungal sinusitis	Competent	Italy	2004
1	Subungual hyperkeratosis of big toe	Competent	Italy	2004
1	Fungal sinusitis	Competent	USA	2007
1	Keratomycosis with endophthalmitis	Competent	India	2009
5	Nose-2 Wound infection-1 Burns secondarily infected-1 Post op-1	Competent	Saudi Arabia	2010
1	Allergic bronchopulmonary mycosis	Competent	India	2011
22 Total				

Amphotericin B, itraconazole, voriconazole and surgical excision were reported to be successful modes of therapy. Surgery is preferred in immunocompromised patients.

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