

Bipolaris Sinusitis : A Case Report

Shrikant Tiwari¹, Padma Das³, Gitanjali Sarangi³, Rajlaxmi Panigrahi², Monalisah Nanda⁴

¹Department of Microbiology, ²Dept. of ENT, Hi-Tech Medical College, Bhubaneswar, and
³Dept. of Microbiology, ⁴Dept. of Skin and VD, S.C.B. Medical College, Cuttack, Orissa, India

Abstract

Allergic fungal sinusitis (AFS) is a non invasive form of paranasal sinus mycosis caused commonly by the dematiaceous fungi, such as *Alternaria*, *Bipolaris*, *Curvularia*, *Drechslera*, *Exserohilum* spp. etc. and sometimes by *Aspergillus* spp¹. It is believed to be an allergic reaction to fungi, followed by formation of fungal debris, allergic mucin and polypses in the nasal cavity and paranasal sinuses. Here, we report a case of 14-year-old immunocompetent male child, who visited to the E.N.T department of our hospital with chief complain of headache, nasal congestion, difficulty in nasal breathing, post nasal purulent discharge since the last one year. Clinical examination revealed the presence of massive polyp which obstructed the left nostril. Chest x-ray was normal, where as C.T. Scan showed an extended polyp which occupied the left maxillary sinus. The nasal polyp was removed surgically and the fungus *Bipolaris* species was identified by culture and microscopic examination of tissue. Patient was treated with itraconazole and systemic steroids following surgical removal.

Key words: Fungal sinusitis; Nasal, Polyp.

INTRODUCTION

Allergic fungal sinusitis (AFS) is a non invasive form of paranasal sinus mycosis caused commonly by the dematiaceous fungi, such as *Alternaria*, *Bipolaris*, *Curvularia*, *Drechslera*, *Exserohilum* spp. etc. and sometimes by *Aspergillus* spp¹. *Bipolaris* is a dematiaceous, filamentous fungus and is one of the causative agents of phaeohyphomycosis. These group of fungus usually found in soil, decaying matter and plants. This mycosis is characterized by the presence

of darkly pigmented tissue with yeast-like cells and pseudohyphae-like elements. The fungus appears brown because its cell wall contains melanin. *Bipolaris* characteristically germinates only from the terminal cells of conidia. *Bipolaris* sinusitis, an often unrecognized cause of allergic fungal sinusitis infects both immunocompetent as well as immunosuppressed individuals.

CASE

We present a case of nasal polyp in a 14 year old immunocompetent male child, who came to E.N.T department of our hospital with chief complain of headache, nasal congestion, difficulty in nasal breathing, post nasal purulent discharge since the last

Address for correspondence: Dr Shreekant Tiwari, Asst. Professor, Department of Microbiology, Hi-Tech Medical College, Bhubaneswar, Odisha, India, 751025. Mobile: + 919437151263. E-mail: drshreekant@rediffmail.com

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one year. Clinical examination revealed the presence of massive polyp which obstructed the left nostril. Chest x-ray was normal, where as C.T. Scan showed an extended polyp which occupied the left maxillary sinus.

The polyp was removed surgically and a small piece of it was sent to the department of Microbiology for fungus culture. After 4-5 days of incubation at 25°C on Sabourauds dextrose agar, macroscopic examination showed a dark gray to olivaceous to black fungal colony. Microscopic examination of lacto phenol cotton blue mount demonstrated a brown colour septate hyphae, branched conidiophores with sympodial arrangement of conidia. Germ tube test was positive. On the basis of culture and microscopic examination it was identified as a *Bipolaris* spp. Slide culture test also confirmed the arrangement of conidiophores with sympodial arrangement of conidia. Histopathological study of polyp tissue revealed a chronic inflammatory process, presence of allergic mucin, infiltration of nasal mucosa with eosinophil and lymphocytes and periodic acid schiffs (PAS) staining rendered fungal hyphae.

DISCUSSION

Bipolaris spp. belong to dematiaceous or phaeoid fungi, a large heterogenous group of filamentous fungi, having melanin in their cell wall, which imparts a dark colour to their conidia, spores and hyphae. Typical association with these fungi is termed as Phaeohyphomycosis but they may also cause allergic and hypersensitivity disorders². Relatively few species are associated with such manifestations and one such clinical condition is allergic fungal sinusitis. AFS is non invasive mycoses commonly affecting the sphenoid sinuses³. Interestingly, *Bipolaris* and *Curvularia*, are responsible for most cases of AFS².

Criteria followed for diagnosis of AFS include nasal polyp, presence of allergic mucin containing eosinophils and Charcot layden crystal, hyphal elements in the mucosa without the evidence of tissue invasion and a typical computer tomography Scan finding of hyper attenuation within the cavity of the affected sinus².

Bipolaris sinusitis has been recognized and reported from various countries of the world⁴. Three species namely *B. hawaiiensis*, *B. australiensis* and *B. specifera* cause disease inhuman. *B. specifera* have been isolated from the nasal polyp of an allergic boy and appears to be the most common human fungal pathogen⁵. The diagnosis currently rests on demonstration of allergic mucin and pathologic examination of the clinical specimen for presence of fungal hyphae.

Systemic steroids are the mainstay in treatment of allergic fungal disease caused by these fungi. Therapy for AFS also involves removal of the mucin and antifungal like itraconazole. Our patient was also treated with systemic steroids and itraconazole following surgical removal. As evidenced by other studies long term outcome of patients with AFS is good even without antifungals though recurrence is a common complication. Proper identification of causal agent and appropriate management has been usually sufficient for a favourable long term control of disease⁶.

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