

Case Report

Concomitant orbital aspergillosis and mucormycosis in a 17 months old immunocompetent child



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Abstract

Isolated multiple orbital fungal infection (aspergillosis & mucormycosis) is extremely rare disease in immunocompetent individuals and especially in children. Placement of prosthetic device during the surgery could be one of the risk factors. The presentation is usually masquerading other entities which make early diagnosis a challengeable. This case presenting a 17 months old immunocompetent child who is diagnosed with isolated multiple orbital fungal infection: aspergillosis & mucormycosis. The presentation was mimicking orbital cellulitis and chronic dacryocystitis. The definitive diagnosis was made by tissue biopsy. The child was managed by surgical debridement and IV amphotericin B liposomal. High index of suspicion to fungal infection should be considered after surgical intervention with insertion prosthetic materials. To the best of our knowledge, orbital aspergillosis in immunocompetent young children is exceptionally rare.

Keywords: Isolated orbital fungal infection, Mucormycosis, Aspergillosis, Immunocompetent child

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Introduction

Orbital fungal infection is an uncommon condition in immunocompetent individuals, often seen in immunocompromised patients. It is usually as a result of contagious spread from paranasal sinus and oropharynx [1,2]. Mucormycosis and aspergillosis are the two most common orbital fungal infection, both caused by ubiquitous fungi in the environment [3]. Hereby, we present a 17 months old immunocompetent healthy child presented with orbital concomitant mucormycosis and aspergillosis infection.

Case report

Seventeen months old male presented to ED with two months history of right medial canthal erythema and swelling.

Prior to his admission he was diagnosed with dacryocystitis and underwent syringing and probing with silicone intubation of the nasolacrimal duct in another hospital. He has been on long term of intermittent systemic antibiotics. On admission a mass was palpable at the medial canthal area that was extending in a confluent fashion from the right superior medial upper lid along the medial canthal area and extending inferiorly to the medial inferior orbital rim (see Figs. 1A and 2). A biopsy (see Fig. 1B) showed multiple necrotizing granulomas (Fig. 3A). Periodic-acid Schiff stain (PAS) showed dichotomous branching, septated hyphae, consistent with *Aspergillus* organism (Fig. 3B). There was no evidence of malignancy. Consequently intravenous liposomal amphotericin B and Voriconazole was started and radical and extensive debridement performed. The final mycology results showed mucorales with rhizoids, and *aspergillus Niger*

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Fig. 1. (A) The picture shows medial canthal area erythema and swelling involving superior lid and extending to one third inferior lid. (B) A Dacryocystorhinostomy type incision was used to take specimen for the biopsy.



Fig. 2. A coronal section of CT scan showing the mass extending inferonasally.

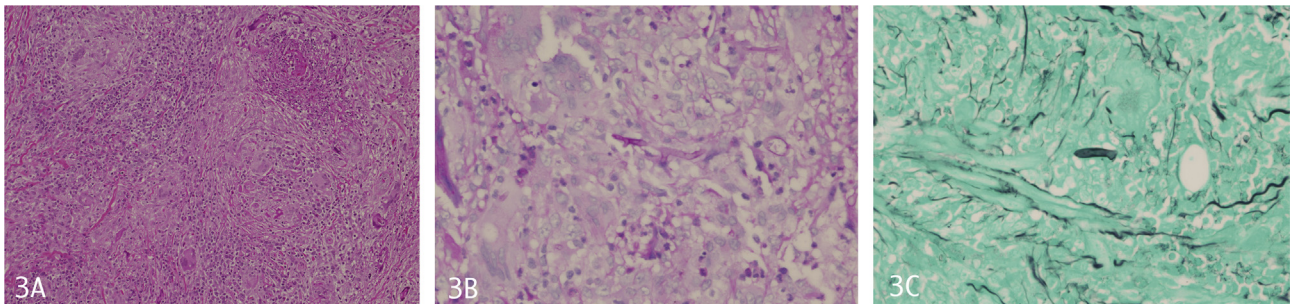


Fig. 3. (A) Low power shows granulomas and multinucleated giant cells (Hematoxylin & eosin, magnification x20). (B) PAS stain shows acutely angled septated hyphae consistent with *Aspergillus* (periodic acid-schiff stain, magnification x60). (C) GMS stain shows non-septated broad hyphae consistent with mucoraceae (Gomori methenamine silver stain, magnification x60).

(Fig. 3C). Follow up MRI showed decrease in the size of the mass and there was no further extension comparing to the previous scans. Congenital immunodeficiency condition was ruled out by immunological studies: neutrophils oxidative burst test, lymphocytes subsets by flow cytometry, immunoglobulins, vaccine response to tetanus and pneumococcal and T cell proliferation assay.

Discussion

Aspergillus species are spore-forming, dichotomously branching fungi. They are usually found in soil, humid areas, agricultural environments, and decaying matter [1]. Most common genus that affect humans are *Aspergillus fumigatus*, *A niger*, *A flavus*, and *A oxyzae*. *Aspergillus fumigatus* is most common organisms in immunocompromised patients [4,5].

Three types have been described: noninvasive; destructive but noninvasive; and invasive. The non-invasive and destructive non-invasive forms affect the immunocompetent individuals [6], while invasive aspergillosis is aggressive, and mainly affects immunocompromised. It is associated with high morbidity and mortality [4,7,8], Risk factors are neutrophil disorders, corticosteroid usage, HIV infection, diabetes mellitus, organ transplants, trauma, use of prosthetic devices, and advanced age [1]. In our case the aspergillosis infection was of noninvasive type. Though there was histological evidence of adjacent tissue destruction, but there was no evidence of necrosis or blood vessel invasion. The patient was healthy. To our knowledge there has been no previous report of aspergillosis infection in an immunocompetent 17-month old child.

Isolated orbital aspergillosis and mucormycosis infection is rare disease in immunocompetent individuals. Those infections usually affecting adults. Our patient represents a different age group of those infections. The two possible risk factors in our case include prolong systemic antibiotics and the earlier use of a lacrimal stent.

Conflict of interest

The authors declared that there is no conflict of interest.

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