Invasive Aspergillosis Producing Painful Ophthalmoplegia

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Abstract

Painful ophthalmoplegia is caused by the lesions of orbital apex and anterior cavernous sinus. Cavernous sinus syndrome can be produced by intracranial invasive aspergillosis. A case of painful ophthalmoplegia due to invasive aspergillosis caused by *Aspergillus niger* in a diabetic patient is presented. ©

Introduction

Painful ophthalmoplegia is caused by the lesions of orbital apex and anterior cavernous sinus.[1,2] Cavernous sinus syndrome can be produced by intracranial aspergillosis, which is common in immunocompromised individuals.[1,3]

Case Report

A 62 years man, diabetic for last 10 years presented with four-weeks history of right-sided facial pain, diplopia, drooping of the right eyelid and one-week history of deviation of angle of mouth to left.

Neurological examination revealed complete right-sided ophthalmoplegia with mydriasis, proptosis and chemosis of the right side, hypoalgesia of 1st and 2nd trigeminal divisions on the right, diminished right corneal reflex, right lateral rectus palsy and right motor trigeminal, facial and auditory nerve palsies. His vital signs were stable and he had no long tract signs.

Investigations were as follows: Hemoglobin-12g%, Erythrocyte sedimentation rate- 20cm / 1st hr, Fasting blood sugar- 130mg / dl, Renal function tests and Liver function tests- normal and the Human Immunodeficiency Virus screening– negative. His cerebrospinal fluid study was normal. The chest X-ray revealed no lesions.

Magnetic Resonance Imaging (MRI- T 1 contrast) showed an enhancing lesion the right paracavernous region extending to the right superior orbital fissure. There was intense enhancement of the right ethmoidal sinuses, suggesting an inflammatory lesion (Fig. 1).

The clinical examination findings and MRI were suggestive of a cavernous sinus lesion extending to retrocavernous and petrous apex regions. Being a diabetic, a nasal endoscopy and sinoscopy were performed to find out the primary inflammatory lesion, which showed minimal hemorrhages in the paranasal sinus and nasopharynx. The biopsy from the region grew *Aspergillus niger* (Fig. 2).

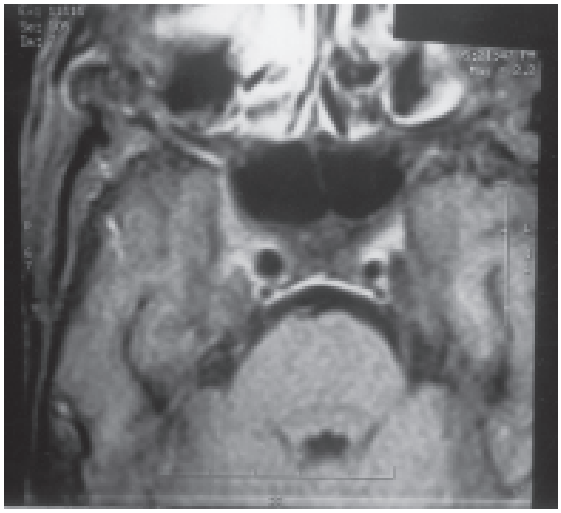

Fig. 1 : MRI brain T_1 W with contrast study showing a well-defined uniformly enhancing lesion in the right paracavernous region extending to the right orbital apex. Intense enhancement is seen in the right ethmoidal sinuses.

A diagnosis of invasive intracranial aspergillosis spreading from paranasal sinus was made and the patient was started on intravenous Amphotericin B along with measures to control diabetes. After 2 months of intravenous Amphotericin B, patient had reduction in facial pain and improvement in the ocular movement. He was treated with oral itraconazole subsequently and showed significant improvement. Five months after treatment, the only neurological deficit was mild wasting of the right temporalis and masseter muscles.

Discussion

Aspergillus is a fungus found in soil and organic

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Fig. 2 : Tube culture with growth of Aspergillus niger.

debris. Infections caused by aspergillus species varies from localised pulmonary or paranasal sinus infection to invasive aspergillosis with intracranial extension.[2] The causative agents include *Aspergillus fumigatus* (most common). *A.flavus, A.Niger, A.glaucus, A.restrictus, A.terreus* and *A.*versicolor.[1,2] Invasive aspergillosis is an opportunistic infection and very often occurs in immunocompromised individuals with HIV, leukaemia, lymphoma and diabetes.[2,4]

Aspergillosis can cause painful ophthalmoplegia by causing orbital apex or cavernous sinus syndromes.[1-3] The main routes of entry are hematogenous dissemination from a primary source, mainly lung, and contiguous spread from adjacent tissues such as paransasal sinus and ear.[1,4] In our case the site of primary infection was paranasal sinus.

Intracranial infection can be delineated by using imaging modalities like computerised tomography scan or MRI. Confirmation of infection is by specimen collected from nasal sinuses or nasopharynx with aid of microscopy and culture.[2] Trans orbital intracavernous needle biopsy may be useful in difficult cases.[1]

As invasive aspergillosis has high rates of mortality, therapy should be initiated upon suspicion of diagnosis itself.[5] Intravenous Amphotericin B deoxycholate should be given as infusion with maximum tolerated dose (1-1.5mg/dl/kg/day) in the initial period.[5] Lipid formulations of Amphotericin are a better choice in patients with impaired renal function and have lesser side effects.[5,6] Oral itraconazole is an effective drug as a continuation of initial intravenous Amphotericin B.[5] Initial therapy with Voriconazole, a broad-spectrum triazole, has shown better responses with fewer side effects compared to intravenous Amphotericin B.[6] This report highlights the importance of considering fungal infection as aetiology for painful ophthalmoplegia in diabetic patient. The possibility is still higher if the paranasal sinus is also affected. Biopsy from the sinus is helpful in establishing the diagnosis.

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