

# CASE REPORT

## Ptosis in Diabetic- Third nerve Palsy or Mucormycosis? A Case Report

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### ABSTRACT:

Orbital mucormycosis, an opportunistic fungal infection is a rare but life threatening infection that generally occurs in patients with diabetes mellitus and other immune deficiency conditions. As such the condition is a medical emergency. Early diagnosis and treatment of mucormycosis is extremely important due to the aggressive course of the disease. Control of underlying disease must be established, metabolic abnormalities corrected and antifungal therapy should be combined with surgical debridement of all necrotic tissues. Hereby, we discuss a case orbital mucormycosis in a patient of diabetes mellitus which was treated by a combined approach involving, medical and surgical management.

**Keywords:** Diabetes mellitus, fungal infection, mucormycosis.

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### INTRODUCTION:

Orbital mucormycosis, an opportunistic fungal infection is a rare but life threatening infection that generally occurs in patients with diabetes mellitus and other immune deficiency conditions.<sup>1</sup> As such the condition is a medical emergency. Early recognition and treatment are essential because it may lead to death in few days. Fungal infection of nasal cavity is uncommon but is being seen with increasing frequency in patients with immune deficiency.<sup>2</sup> This fungus is widespread and occurs in soil, manure, vegetable, fruits and as bread mold. The incidence of mucormycosis is approximately 1.7 cases per 1,000,000 inhabitants per year.<sup>3</sup> Depending on the immunological status of the patient, the disease may manifest in six different ways depending on the affected site as rhinocerebral, pulmonary, cutaneous, gastrointestinal, central nervous system or disseminated forms. Patients with diabetes mellitus usually have the rhinocerebral and pulmonary forms of the disease.<sup>4,5</sup> Diagnosis is confirmed by histopathological demonstration of the organism in the affected tissue.<sup>6</sup> Early diagnosis and treatment of mucormycosis is extremely important due to the aggressive course of the disease. Control of underlying disease must be established, metabolic abnormalities

corrected and antifungal therapy should be combined with surgical debridement of all necrotic tissues.<sup>7</sup>

Hereby, we discuss a case orbital mucormycosis in a patient of diabetes mellitus which was treated by a combined approach involving, medical and surgical management.

### CASE REPORT:

A 45-year old diabetic female was referred with right sided ptosis and a provisional diagnosis of unilateral third nerve palsy. Ptosis was severe, progressive and of 15 days in duration. Ocular motility was restricted in all gazes. Vision was perception of light present (inaccurate projection of rays). Pupils showed Grade 3 Relative afferent pupillary defect. Corneal sensations were absent and exposurekeratopathy was present. There was minimal pain, no chemosis, or conjunctival congestion. There was no obvious proptosis on presentation. The left eye was within normal.

### BRIEF OPHTHALMOLOGIC FINDINGS

#### Day 1:

- EXOM fully restricted in the right eye with minimal lid edema

- Ptosis present, no chemosis and proptosis
- Corneal epithelial defect present and absence of corneal sensations

**Day 3:**

- PROPTOSIS is seen in the right eye
- Corneal haze and epithelial defect had worsened
- Other eye involvement is not yet seen

**Day 5:**

- Contralateral eye involvement –lid edema
- RE further worsened with complete lid ptosis
- CT Orbit-No Orbital involvement of the left eye

The patient was managed medically and was advised biopsy and surgical debridement. On 6<sup>th</sup> day, patient was posted to trans-nasal endoscopic debridement and exenteration. Stand by ophthalmology team was present for exenteration and maxillofacial team for maxillectomy. BLACK NASAL ESCHAR was seen on the nasal cavity, ethmoidal sinuses and maxilla which was then debrided. Clinically on table no periorbita involvement was seen. Hence joint discussion of deferring exenteration and to assess recovery post debridement was taken. On 7<sup>th</sup> day, rapid progression and worsening symptoms of the patient were observed. Also, questionable second eye involvement was seen. With all these findings, the diagnosis of orbital mucormycosis was confirmed. Death on table consent was taken and nil visual prognosis was explained to the patient's relatives.

**ORBITAL EXENTERATION**

Exenteration is a surgical procedure involving removal of the entire globe and its surrounding structures including muscles, fat, nerves, and eyelids. This differs from enucleation, which is the removal of the globe while leaving all other surrounding structures and evisceration, which is the removal of intraocular contents while leaving an intact sclera.

**PROCEDURE**

Patient was taken up in operation theatre under GA with back up of neurosurgeon, OMFS surgeon and ENT surgeon. Linen sutures were taken across both the eyelids and were opposed. Incision was taken in between the upper eyelid and upper orbital margin. Orbital contents separated superiorly with the help of cautery. Once the globe was removed the fungal invasion to the bony part was noted which was extending involving roof of orbit(Frontal bone), Cavernous sinus, nasal cavity and maxilla. Debridement was done and necrosed tissue removed. Neurosurgical assistance was sought and extended debridement of frontal sinus and medial wall of orbital extending to sphenoid sinus was done. (Fig 1-4) The exenterated organ was sent for biopsy. The biopsy report stated histomorphological features consistent with fungal infection of eyeball and periorbital tissue indicative of mucormycosis.

**POST OPERATIVE MANAGEMENT**

Patient was continued with her systemic treatment. Regular orbital packing was done with betadine soaked roller bandage. After 1 year of the healing, we plan to insert a light weight mounted / glued on Silicon prosthesis.



**Figure 1**



**Figure 2**



**Figure 3**



**Figure 4**

#### **DISCUSSION:**

Mucormycosis is an invasive fungal infection first described by Paulltauf in 1885.<sup>8,9</sup> The causative agents of mucormycosis are the filamentous fungi of the Mucoraceae family.<sup>8,9</sup> The most frequently isolated species is *Rhizopus oryzae* followed by *Rhizopus microsporus*, and *Absidia corymbifera*.<sup>10</sup> Rhinocerebral mucormycosis is also referred to as rhino-orbito-cerebral mucormycosis in the respective literature to denote involvement of the orbital structures.<sup>10</sup>

Oladeji S et al reported a case of 40 year old Nigerian female with uncontrolled diabetes mellitus referred to a teaching hospital with four week history of facial rash that progressed to extensive ulceration of the mid face and bilateral visual loss. She had complete nasal bridge collapse, nasopalatal fistula with black eschars on the mucosa and markedly elevated fasting blood sugar. Her blood glucose was controlled on insulin, she had surgical debridement and histopathological study done revealed fungi hyphae. Systemic antifungal (ketoconazole) was given. Subsequently, she made a slow but steady progress and her wound became clean with healthy granulation tissue. It was concluded by the authors that rhinocerebral mucormycosis still remains a poorly understood disease with high mortality rate. Presently, the triad of clinician's awareness, prompt initiation of treatment and timely surgical intervention represent the effective way of managing the disease. G.V. Padmaja et al reported a case report of rhinocerebral orbital mucormycosis in an immune compromised female. A 14 year old female was brought to the casualty of MGM Hospital, Warangal in unconscious state, with skin lesions on nose and extending to both cheeks. Clinically the lesion was seen in various forms of gangrenous crusts. The attendants of the patients revealed the history that she was a school going child suffering from fever since 3 days and she was neither a known diabetic nor suffering from any other chronic disease. Laboratory investigation revealed moderate anaemia with blood sugar levels of 300 mg/dl and urine sugar of ++++. Skin scrapings and swab from the lesion revealed fungal hyphae in 10% KOH preparation and growth from sabouraud's dextrose

agar with lactophenol cotton blue preparation showed tangled hyphae with large sporangiophores and Rhizoids were absent. In spite of the treatment with all broad spectrum antibiotics patient succumbed to death within 10 days of admission. It was concluded that undiagnosed juvenile diabetes with opportunistic infections are dangerous and will increase morbidity and mortality.<sup>11,12</sup>

Singh V et al reported a case describing a 17-year-old girl with type 1 diabetes mellitus who presented with rhinocerebral mucormycosis. The patient presented with a history of toothache and facial pain with oedema of left half of face, periorbital oedema and depressed consciousness. She had hyperglycaemia with diabetic ketoacidosis and rapidly developed hemiparesis progressing to quadriplegia and died within 3 days of admission. The report emphasised the importance of having a high index of suspicion when dealing with patients with diabetes presenting with facial pain or cellulitis and prompt initiation of medical therapy along with surgical debridement for control of rhinocerebral mucormycosis. Hadzri MH et al reported a case report of a 70-year-old woman, with uncontrolled type 2 diabetes mellitus, presented with a one-month history of non-specific headaches associated with progressive swelling of her left eye. Computed tomography of the brain and orbits showed the extensive involvement of bilateral intranasal sinuses, orbits, extraocular muscle and soft tissues. The diagnosis of invasive mucormycosis was confirmed from a tissue biopsy taken from the internal nasal septum. Despite the extensive mucormycosis invasion, she was successfully treated with intranasal and systemic amphotericin B and minimal adjunctive intranasal sphenoidotomy.<sup>13,14</sup>

#### **CONCLUSION:**

This can be concluded that it is important to differentiate cranial nerve palsy and mucormycosis in diabetic patients. The key to keep mucormycosis in the differential diagnosis in diabetic patients who come with ocular complaints as a delay in diagnosis is fatal. Aggressive medical and surgical management is critical. The patients will require co management with multiple services.

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