

*Case Report***Rhino Orbito Cerebral Mucormycosis in a Child with Type 1 Diabetes Mellitus Following Steroid Therapy for Optic Neuritis**Sudhakar Hegade<sup>1\*</sup>, Vishwanath Sidram<sup>2</sup>, Durugappa H<sup>3</sup>, Lakshminarayana Reddy<sup>4</sup><sup>1</sup>Assistant Professor, Dept of Pediatrics, VIMS Bellary. Karnataka 583104, India.<sup>2</sup>Associate Professor, Dept of Neurosurgery, VIMS Bellary. Karnataka 583104, India<sup>3</sup>Associate Professor, Dept of Pediatrics, VIMS Bellary. Karnataka 583104, India<sup>4</sup>Professor, Dept of Pediatrics, VIMS Bellary. Karnataka 583104, India\*Correspondence Email: [drsudhakar.97@gmail.com](mailto:drsudhakar.97@gmail.com)*Received: 21/04/2012**Revised: 2/05/2012**Accepted: 4/05/2012***ABSTRACT**

We report a rare case of rhino orbito cerebral mucormycosis in a child with type 1 diabetes mellitus following steroid therapy for optic neuritis. A fifteen year old male child was admitted in VIMS hospital in March 2007, when he was diagnosed to have type 1 diabetes mellitus. Since then he was on subcutaneous insulin therapy. In 2011 he presented to pediatric emergency ward with diabetic ketoacidosis for the third time since diagnosis. On examination he had nasal septal abscess which subsided after treating with antibiotics. Later he developed diminution of vision in left eye. On examination he had optic neuritis for which intravenous methyl prednisolone was given for three days followed by oral prednisolone. The child presented again with DKA and convulsion after one month. On evaluation he had left sided proptosis and CT scan showing evidence of evolving abscess in left frontal lobe and left sided orbital abscess. Orbital abscess was drained. Child was treated with Amphotericin B, subcutaneous insulin and oral phenytoin. However child developed loss of vision in left eye.

**Key words:** child; diabetes mellitus; mucormycosis; amphotericin B.

**INTRODUCTION**

Mucormycosis refers to infection caused by the order mucorales of the class zygomycetes.<sup>[1]</sup> Most commonly implicated species are mucor, rhizopus, absidia, Cunninghamella.<sup>[2,3]</sup> The disease is highly angioinvasive.<sup>[4]</sup> Fungus invades into

vascular network and causes thrombosis and necrosis of the surrounding tissue.<sup>[5]</sup> Most of the head and neck mucormycosis are caused by the order mucorales accounting for about half of the cases. Seventy percent of the rhinocerebral mucormycosis cases have diabetes mellitus.<sup>[6]</sup> It is of rare variety because, in literature either orbital or

rhinocerebral mucormycosis has been describe. Hence we are reporting rhino orbito cerebral mucormycosis.

## CASE REPORT

A fifteen year old child was admitted in VIMS hospital Bellary, in March 2007. He was diagnosed to have type 1 diabetes mellitus at admission. He was put on subcutaneous insulin therapy since then. Because of poor compliance for the treatment child presented to pediatric emergency ward with diabetic ketoacidosis for the third time since diagnosis. On examination he was found to have nasal septal abscess. Abscess was drained and was prescribed a course of antibiotics and insulin therapy as before, Abscess subsided but one week later he complained of diminution of vision in left eye. On detailed clinical and ophthalmological evaluation including fundoscopic examination, he was found to have optic neuritis. He was treated with three doses of intravenous methyl prednisolone at a dose of 30mg/kg, followed by tapering dose oral prednisolone. Patient responded to treatment and was discharged in good condition with an advice for a

regular follow up and insulin therapy. One month later he again presented to pediatric emergency ward with diabetic ketoacidosis and single episode of convulsion on admission. On examination he was having proptosis of left eyeball (fig 1.). Child was evaluated with CT scan head, which showed orbital abscess on left side and evolving abscess in left frontal lobe (fig 2, fig 3). Orbital abscess was drained and sent for routine examination, culture and sensitivity and for fungal staining. Fungal hyphae were demonstrated in the sample, which helped us to arrive at a diagnosis of rhino- orbito- cerebral mucormycosis. Blood culture and pus culture were negative for bacterial pathogens. The child was treated with intravenous Amphotericinn B with dose of 1.5mg/kg/day over a period of 5 weeks along with subcutaneous insulin and oral phenytoin. Repeat CT scan of brain and orbit showed abscess with well defined and organized abscess without mass effect (fig 4.). Child was managed conservatively. Swelling of eye subsided, blood glucose was under control however, he developed loss of vision in left eye as sequelae of orbital mucormycosis and child was discharged with an advice for regular follow up.



Fig 1. Swelling and proptosis of left eyeball.

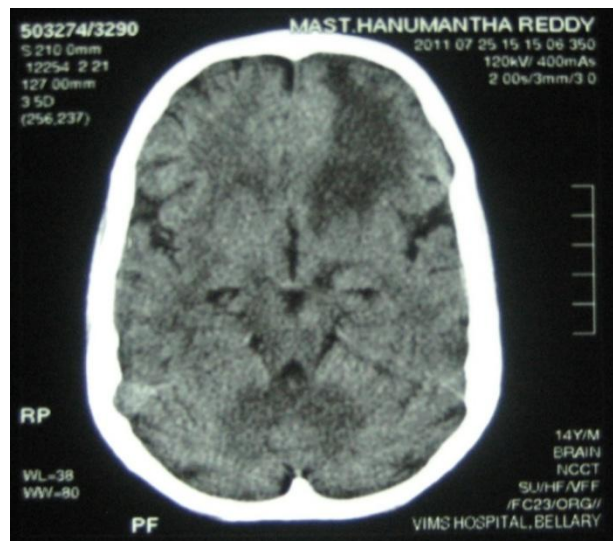


Fig2. CT scan showing frontal abscess on left side.



Fig 3: CT scan showing orbital abscess and proptosis on left side



Fig 4: CT scan after treatment showing well organized abscess on left frontal lobe.

## DISCUSSION

Rhino-orbito cerebral disease manifest as unilateral retro orbital head ache, facial pain, hyposmia, numbness, nasal stuffiness. Late symptoms are diplopia and visual loss. Most of the patients are diabetic.<sup>[7]</sup> CT scan of paranasal sinuses has to be done. CT scan of the involved sinuses shows mucosal thickening, air fluid level, and bony erosion. CT brain shows ethmoid and sphenoid sinusitis. As the disease progress, bony erosions may occur and may spread into orbit and brain and will be revealed as abscess. Timely diagnosis is very important in patients with mucormycosis. The diagnosis of mucormycosis is made by obtaining the biopsy specimen of the involved tissue. Biopsy of the necrotic tissue on fungal stain show irregular, ribbon like, non septate hyphae. Treatment consists of intravenous Amphotericin B for a period of four to six

weeks. Rhino orbito cerebral mucormycosis have significant morbidity in those who survive. Mortality is 50-70% in those with rhinocerebral mucormycosis.<sup>[8]</sup>

Ketenci et al reported 14 cases of mucormycosis, nine patients had diabetes mellitus, and concluded that rhinocerebral disease spreading outside sinonasal cavity has poor prognosis.<sup>[9]</sup> Dabritz et al reported 12 cases of pediatric mucormycosis three of them had rhinocerebral disease.<sup>[10]</sup> Chawla et al reported 2 cases of orbital mucormycosis in infants.<sup>[11]</sup> Rassi et al reported 4 cases of sinonasal mucormycosis in immunocompromised pediatric patients.<sup>[12]</sup>

## CONCLUSION

Rhinoorbito cerebral mucormycosis is devastating disease with significant morbidity and mortality. Risk factors are diabetes mellitus and immunocompromised conditions. Timely diagnosis and treatment will help in reducing the complications.

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