RESEARCH PAPER | Medical Research | Volume : 3 | Issue : 10 | Oct 2013 | ISSN - 2249-555X

A Case Report of Recurrent Rhino-Orbital Mucormycosis

KEYWORDS: Angioinvasion,Diabetes mellitus, Loss of vision, Mucormycosis

Dr.Karan Ostwal	Dr.Swati. Jakwad	Dr.Mukta Khaparkuntikar
Department Of Microbiology, Government Medical College, Aurangabad, INDIA	Department Of Microbiology, Government Medical College Aurangabad, INDIA	Department Of Microbiology, Government Medical College Aurangabad, INDIA

Dr.Jyoti Iravane	Dr.Ajit Damle
Department Of Microbiology, Government Medical College Aurangabad, INDIA	Department Of Microbiology, Government Medical College Aurangabad, INDIA

Introduction-
Rhino-orbital-mucormycosis is an aggressive, angioinvasive fungal infection seen in immunocompromised hosts. The risk factors are poorly controlled diabetes mellitus, neutropenia, hematological malignancies, long-term deferroxamine therapy, intravenous drug abuse and cytotoxic therapy. Rhino-orbital mucormycosis is a rare disease with overall prevalence of 0.15% in diabetes [1]. Left untreated, it is rapidly fatal. Mucormycosis classically involves the nasal mucosa with invasion of the sinuses, orbit, and brain[2]. We are reporting a case of recurrent rhino-orbital mucormycosis leading to bilateral loss of vision which was missed out on MRI Scan.

Case Report-
A 58 year old female was admitted in medicine ward with complains of severe headache since 15 days & bilateral complete loss of vision since 4 days.

Patient had orbital swelling & blackish discharge from bilateral nostrils since 20 days, drooping of left eyelid, severe diffuse headache and fever since 15 days. There was history of diminution of vision initially of right eye followed by left eye since 15 days.

She was a known case of Diabetes mellitus and hypertension since 10 years. She has been taking treatment irregularly and with poor dietary restrictions.

Four days back patient landed up in diabetic ketoacidosis with a fasting blood sugar level of 356mg/dl and post meal 468 mg/dl. The Liver function tests and Kidney function tests were normal.

On general examination, patient was febrile, tachypneic with blood pressure of 160/90 mm of Hg.

Systemic examination was not significant.

On local examination, there was evidence of boil in nose on right side and deviated nasal septum to the left.

Ocular examination showed altered facial symmetry due to drooping of left eye lid, ptosis and chemosis of left eye. Extra ocular movement was decreased in all directions.

On MRI there was bilateral mild mucosal thickening of ethmoid, maxillary and sphenoial sinus and no evidence of any feature suggestive of mucormycosis.

Microbiological Work up- After a negative MRI report, the nasal crusts were sent to our Microbiology laboratory. 10% KOH preparation showed broad, ribbon like aseptate hyphae with wide angle branching and the report was immediately conveyed to the clinicians on the basis of which IV Amphotericin B was started to the patient. Sample was inoculated on SDA at 37^0C and 25^0C. On 4th day growth on SDA which was initially white and becoming greyish brown with abundant aerial and substrate mycelium was seen on obverse side. Reverse side was white. On lacto phenol cotton blue preparation it showed non-septate, broad (6-15 µm) hyphae, sporangiophores, sporangia, and spores were visualized. Intercalary or terminal arthrospores (conidia) were seen. Apophysis, rhizoid and stolon were absent.

Treatment-
Crystalline insulin 8 IU hourly was given until the blood glucose level reached 200mg/dl. Inj. Ceftriazone 1g/8 hourly, Inj. Amphotericin-B 0.5 mg/kg/day,Tablet Diclofenac sodium 50 mg TDS ,Tablet Amplodepin 5 mg BD was given. Gatifloxacin eye drops were administered.

Recurrence-
After the treatment with Amphotericin-B for 10 days there was no discharge from nose and the headache was relieved. The patient was discharged but a forthnight later the patient again had the same symptoms . The crusts were sent to Microbiology laboratory. On 10% KOH preparation showed ribbon like aseptate hyphae. Culture showed growth of Mucor Spp. Which was confirmed on Lacto Phenol Cotton Blue preparation. Treatment with Amphotericin B was again resumed until the culture came out negative with the total stoppage of discharging crusts and relief of the symptoms.

Discussion-
In condition like diabetes mellitus monocytes/macrophages are dysfunctional and fail to suppress the spore germination process. Zygomycetes have a predilection for elastic lamina of large and small sized arteries causing thrombosis, haemorrhage and infarction. Hence angioinvasion, thrombosis, ischaemia and infarction can occur in zygomycosis[3]. Commonly, mucormycosis attacks people with compromised immune systems. Reduced ability of the serum to bind iron at low pH may be the basic defect in the body defence system . The high iron, glucose rich, acid milieu facilitates fungal growth. Human resistance to fungal infection rests on the ability to restrict the availability of iron to the invading fungus by binding it to proteins such as apotransferrin. Fungal hyphae produce a substance called rhizoferrin, which binds iron avidly. This iron-rhizoferrin complex is then taken up by the fungus and becomes available for vital intracellular processes [4].

Different levels of vision loss, including blindness, can occur

Volume : 3 | Issue : 10 | Oct 2013 | ISSN - 2249-555X

from secondary optic nerve dysfunction. The optic nerve may be involved where there is a breach in the thin bony structure that separates the optic nerve from the paranasal sinuses[4]. In our case also there involvement of both optic nerves leading to bilateral loss of vision.

The treatment of Rhino Cerebral Mucormycosis involves a combination of surgical and medical modalities plus correction of the underlying medical problem if possible. The timing of surgery is very crucial; surgery should be instituted without delay once the condition is diagnosed. Several surgical procedures have been described in the literature. They range from the simple to the complex debridement of the necrotic mucosa; Caldwell-Luc surgery; medial maxillectomy, ethmoidectomy, and sphenoidotomy; and radical maxillectomy with orbital exenteration. Both endoscopic and open approaches have been described, in both single and multiple stages [2].

There are few things which needs to be highlighted in this case report, firstly the patient paid her cost for poor compliance to antidiabetic treatment and no dietary restriction. Secondly she was brought to the hospital very late as the onset of symptoms were 20 days back. Third the MRI failed to diagnose the condition. Initially the patient was admitted to a private hospital where the facility for fungal culture was not available and the MRI scan was negative. Hence the patient was started with on IV antibiotics namely meropenem and vancomycin and was not responding to the treatment. The patient was later shifted to Government Medical College where she was diagnosed as a case of Rhino-orbital mucormycosis with Diabetic ketoacidosis after the laboratory report of Microbiologist. If the patient was diagnosed at the right time we might have been able to save her vision. This highlights the need of a good microbiology lab even at private hospitals. Finally we believe the patient was inadequately treated mere absence of symptoms is not the indication for stoppage of treatment. Such antifungal policies are responsible for the emergence of resistance to antifungal drugs.

To conclude, the prognosis appears to depend primarily on two factors: early diagnosis and resolution of the predisposing condition

REFERENCE

1. Mohd Hayat, Syed Mushtaq, Sameena Saba, and Riyaz Saif. Rhino-orbital-mucormycosis as a presenting manifestation of gestational diabetes mellitus. Indian J Endocrinol Metab. 2011 July; 15; S65–S66. | 2. S.P.S. Yadav , Anuj Kumar Goel . Rhino-orbital mucormycosis–A case report. International Journal of Pediatric Otorhinolaryngology 2010; 5,P 9—12 | 3. Jagdish Chander;Textbook of Medical Mycology 3rd edition 2009 P.361-75 | 4. SD Mathebula. Rhino orbital mucormycosis- case report. S Afr Optom | 2006.65 (2);P 78–81