IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 22, Issue 5 Ser.8 (May. 2023), PP 43-44
www.iosrjournals.org

Nasal Myiasis Secondary To Rhino-Orbito-Cerebral Mucormycosis (ROCM) : A Case Report

Monica Patnaik[1], Manish Chandra[1]
[1]*Department of Otorhinolaryngology and Head-Neck Surgery, King George Medical University, Luclnow*

Abstract
Mucormycosis is a fulminant invasive fungal infection caused by fungi of the order Mucorales belonging to class Zygomycetes. It is caused by fungal species of the genera Rhizopus, Lichtheimia and Mucor. Mucormycosis is seen in patients with uncontrolled diabetes mellitus, prolonged use of steroids, hematological malignancies, stem cell transplantation, renal failure or severe trauma. Prompt management of mucormycosis is essential to limit the morbidity. It includes mrdical and surgical debridement. Intravenous liposomal amphotericin is the mainstay of medical management and also treatment of the underlying predisposing factors is equally important. Atrophic rhinitis is a debilitating condition of nasal cavity in which there is mucosal atrophy leading to shrinkage of nasal turbinates giving widened nasal cavity appearance on anterior rhinoscopy along with nasal crusting and foul smell. Atrophic rhinitis is of two types. Secondary atrophic rhinitis is usually associated with chronic granulomatous diseases, chronic rhinosinusitis and trauma or sinonasal surgery. Atrophic rhinitis leads to nasal myiasis. Nasal myiasis is infestation of nasal cavities by larvae of the fly of genus Chrysomia. Here we describe the successful management of a case of atrophic rhinitis with nasal myiasis secondary to rhino-orbital mucormycosis. We review the presentation of the disease, pathophysiology, work-up, management and outcome of the patient.

Keywords – *Rhino-orbital mucormycosis, surgical debridement, atrophic rhinitis, nasal myiasis*

Date of Submission: 14-05-2023 Date of Acceptance: 24-05-2023

I. INTRODUCTION

Mucormycosis is an angioinvasive fungal infection caused by saprophytic fungi of the order Mucorales belonging to class Zygomycetes. [1]

The disease spreads rapidly and extensively into adjacent tissues within a few hours to days. [2] Elimination of underlying predisposing factors, surgical exploration and judicious use of amphotericin B has been the dictum in the treatment protocol of the disease. A very common after-effect of extensive nasal debridement is atrophic rhinitis. [3,4]

II. CASE REPORT

A 51-year-old male patient presented to our emergency with complaints of nasal bleeding for 4 days and maggots coming out of left nostril for 4 days. His medical records showed that he had uncontrolled diabetes mellitus for last 5 years and ROCM 10 months back for which surgical debridement of nose and paranasal sinus with enucleation of left eye (lid sparing) 10 months back at other hospital. There he had received a total of 8.4 gm liposomal Amphotericn B followed by oral Posaconazole for 2 months. During examination patient had lower left lid swelling and nasal vestibulitis, nasal endoscopy showed congested and edematous left nasal mucosa along with foul-smelling discharge, crust and maggots. Left inferior turbinate was completely absent and left middle turbinate was congested (*Fig I*). Hematological workup showed elevated leukocyte counts, raised blood sugar, urea and creatinine. Patient was given intravenous ceftriaxone 1gm 12 hourly and maggot oil preparation for nasal instillation. Regular endoscopic removal of crusts and maggots was done. Patient's nasal cavities became maggot free after 3 days. Alkaline nasal douching consisting of sodium bicarbonate, sodium biborate and sodium chloride in the ratio of 1:1:2 was started after fourth day. Patient was discharged on fifth day. Then patient was followed up weekly initially and then monthly *(Fig II*). Nasal tissue was sent for histopathological examination and diagnosis of atrophic rhinitis was confirmed (*Fig III and IV*).

III. DISCUSSION

Online search was done in various data base and no literature on nasal myiasis secondary to rhinoorbital mucormycosis was found. Mucormycosis is an emergency which requires urgent medical and surgical management. Secondary atrophic rhinitis is a late post-operative complication following aggressive surgical debridement of necrotic nasal mucosa. [5] Surgery induces scar formation in mucoperiosteum thereby interrupting the vascular supply to the mucosa resulting in mucosal atrophy. [6] Maggots infest such a nasal cavity and the larvae feeds on living or dead tissues and on fluid substances in the affected areas. The clinical presentation of patients vary depending upon duration of disease. In the first 3-4 days patient complains of intense nasal irritation, sneezing, lacrimation, fever and headache with thin blood-stained discharge from the nasal cavities. Later there is active epistaxis with maggots coming out of the nose. [7] Epistaxis maybe due to the burrowing nature of the larvae. [8] Maggots can invade nasal cavity, septum, paranasal sinuses, palate and orbit, cause facial cellulitis, occasionally meningeal irritation or even death. Histopathological changes show a chronic inflammatory reaction invading the tunica propria leading to endoarteritis and periarteritis.

Our intention of preparing this article is to alert our fellow collegues about nasal myasis with atrophic rhinitis as a possible complication of overzealous nasal and paranasal debridement surgery and also to counsel the patients for long follow up after debridement surgery. Frequent visits of the patient to the treating surgeon will help to reduce the chances of such complications.

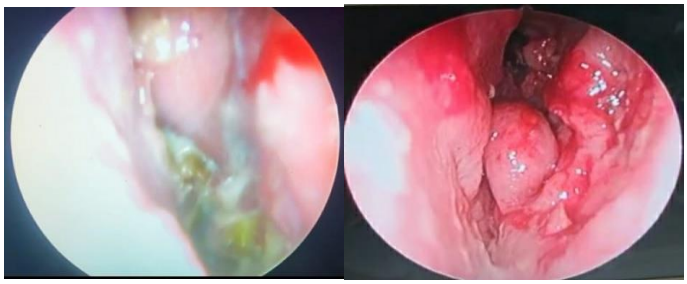

Fig I **Fig II**

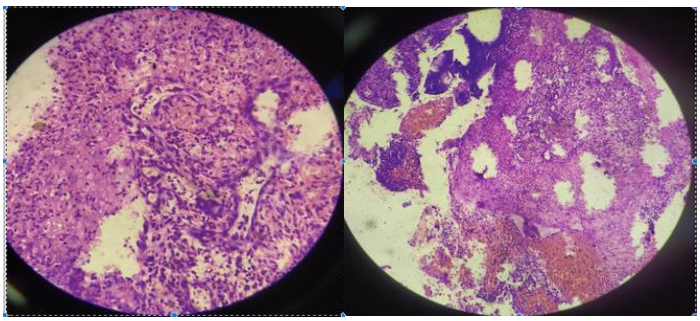

Fig III **Fig IV**

Fig I- nasal endoscopic image at the time of admission.
Fig II- nasal endoscopic image seven days post admission.
Fig III- H&E stained slide of nasal mucosa showing congested fibrocollagenous tissue infiltrated by eosinophils,lymphoplasmacytic infiltrate partially lined by stratified squamous epithelium.
Fig IV- under higher magnification mucosal glands show cystic atrophy lined by flattened cells.

References

[1]. Therakathu J, Prabhu S, Irodi A, Sudhakar SV, Yadav VK, Rupa V. Imaging features of rhinocerebral mucormycosis: a study of 43 patients. The Egyptian Journal of Radiology and Nuclear Medicine. 2018 Jun 1;49(2):447-52.
[2]. Petrikkos G, Skiada A, Lortholary O, Roilides E, Walsh TJ, Kontoyiannis DP. Epidemiology and clinical manifestations of mucormycosis. Clinical Infectious Diseases. 2012 Feb 1;54(suppl_1):S23-34.
[3]. Sharma H, Dayal D, Agrawal SP. Nasal myiasis: review of 10 years experience. The Journal of Laryngology & Otology. 1989 May;103(5):489-91.
[4]. Moore EJ, Kern EB. Atrophic rhinitis: a review of 242 cases. American journal of rhinology. 2001 Sep;15(6):355-61.
[5]. Keshanagari P, Noel R. Primary and secondary atrophic rhinitis: a microbiological and histopathological study. Int J Otorhinolaryngol Head Neck Surg. 2017 Oct;3(4):1077-80.
[6]. Chung CM, Johnston WJ, Blais R. Surgical Treatment of Atrophic Rhinitis With Injectable Silicone: A Case Report. Arch Otolaryngol. 1964;80(1):106–109.
[7]. Sinha V, Shah S, Ninama M, Gupta D, Prajapati B, More Y, Bhat V, Kedia BK. Nasal myiasis. J Rhinol. 2006 Nov 1;13(2):120-3.
[8]. Sahay LK. A study of maggots and their otorhinolaryngeal manifestations. Indian Journal of Otolaryngology. 1959 Sep;11(3):146-68.