ISSN: 3033-3326

Case Report

Journal of Chemotherapy and Cancer Research

Invasive Sino-Orbital Fungal Infections in Immunocompetent Patient: Case Report and Review of Literature

Sabreen Alshmali[1*], Abdulaziz Bakathir[2], Khamis Al Hasani[2], Sayeed Nabeel[2], Sami Alkindi[5], Abdullah Balkhair[3], Mohammed Al Washahi[4] and Iman Al Ajmi[5]

[1]*Oman Medical Speciality Board, Oman*
[2]*Dental & Maxillofacial Surgery Department, Sultan Qaboos University Hospital, University Medical City, Oman*
[3]*Infectious diseases Unit, Department of Medicine, Sultan Qaboos University Hospital, University Medical City, Oman*
[4]*ENT Unit, Department of Surgery, Sultan Qaboos University Hospital, University Medical City, Oman*
[5]*Department of Radiology and Molecular Imaging, Sultan Qaboos University Hospital, University Medical City, Oman*

[*]**Corresponding author**
Sabreen Alshmali, Oman Medical Speciality Board, Oman.

Received: July 08, 2025; **Accepted:** July 14, 2025; **Published:** July 18, 2025

ABSTRACT
Objective: Immunocompetent people can develop invasive sino-orbital fungal infections, which can be difficult to diagnose and treat. Our extensive case study focuses on invasive sino-orbital fungal granulomas in patients without a history of systemic immunocompromising disease.

Keywords: Fungal Infection, Mucormycosis, Orbital Floor, Immunocompetent

Introduction

In immunocompetent patients, invasive sino-orbital fungal infections are a rare clinical phenomenon. However, they still present difficulties in diagnosis and treatment.

Mucormycosis and other fungi can often colonise the lungs and paranasal sinuses. Additionally, the air that is inhaled contains a significant number of spores. The spores may grow and become saprophytic within a host if the circumstances are met. Invasive, locally aggressive fungal masses could appear, especially if the host's immune system is seriously weakened. Contiguous spread happens because of the paranasal sinuses' proximity to the orbit, particularly in immunocompromised hosts.

In immunocompetent hosts, fungal colonisation usually has a chronic, slowly progressive course. It is potentially fatal due to its spread to the middle cranial fossa via the superior orbital fissure and optic canal, with mortality of up to 80% [1]. Orbital fungal disease is not often suspected because of its relative rarity and the wide range of orbital pathologies that can present similarly. Currently, there are no standard guidelines for management, and the outcome is invariably poor without timely diagnosis and appropriate treatment.

Case Report

A 57-year-old man was referred to the oral and maxillofacial department due to left infraorbital pain and swelling that had lasted for two months. The swelling is not associated with vision abnormality, no eye restriction, paraesthesia, or nasal discharge. He is an asthmatic patient, not on any medication. The patient himself detected swelling. He reported discomfort and feeling.

On examination, no gross facial asymmetry. Left eye slightly enophthalmos. Swelling extends medially to the mid-left infraorbital rim. Firm, palpable, not tender, no change in colour, nodular, and indurated. measuring 1cm x 1 cm.

A radiographic investigation was requested with a magnetic resonance (MRI)and computed tomography CT scan requested

Citation: Sabreen Alshmali, Abdulaziz Bakathir, Khamis Al Hasani, Sayeed Nabeel, Sami Alkindi, et al. Invasive Sino-Orbital Fungal Infections in Immunocompetent Patient: Case Report and Review of Literature. J Chem Can Res. 2025. 3(3): 1-2. DOI: doi.org/10.61440/JCCR.2025.v3.24

and revealed the presence of an extensive fungal mass involving the right maxillary sinus with extension into the orbital floor, causing a significant defect.

An incisional biopsy was taken under general anaesthesia, was whitish, firm in texture, well localised, not fixed to surrounding tissue, and not vascularised. Then sent for histopathology; the result was an aggressive fungal infection in the form of septate hyphae.

Diagnosis

Based on clinical presentation, imaging findings, and histopathological examination of biopsy specimens, the diagnosis of invasive fungal sialo-orbital floor was established. The specific fungal species was identified as aggressive fungal infection.

Management

The patient received treatment using a comprehensive approach that included:

- **Surgical Debridement:** To remove the fungal mass and necrotic debris from the orbital floor and maxillary sinus, functional endoscopic sinus surgery (FESS) was used.
- **Orbital Floor Reconstruction:** To improve ocular alignment and prevent enophthalmos, a PEEK implant was utilised to repair the orbital floor defect which virtually planned before the surgery.
- **Antifungal Therapy:** For long-term antifungal suppression, the patient was started on intravenous amphotericin B and then oral voriconazole.

Outcome

The patient responded well to treatment with resolution of symptoms and improvement in visual function. A patient kept under regular follow-up to monitor for recurrence of infection and potential complications.

In conclusion

this case study emphasises how crucial it is to rule out fungal sinusitis when a patient presents with orbital floor pathology, particularly if they have no risk factors. For best results, early identification and multidisciplinary approaches including orbital reconstruction, surgical debridement, and antifungal treatment are crucial.

References

1. Shamim MS, Siddiqui AA, Enam SA, Shah AA, Jooma R, Anwar S. Craniocerebral aspergillosis in immunocompetent hosts: Surgical perspective. Neurol India. 2007. 55: 274-281.