AN UNEXPECTED CASE OF LEFT COMPLETE OPHTHALMOPLEGIA SECONDARY TO RARE MUCORACEOUS MOULD INFECTION

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INTRODUCTION

Mucoraceous mould infection is a rare condition with challenging diagnosis and high mortality. It causes an array of syndromes, one of the most common being **nasal-orbital-cerebral infection.**

It is particularly prevalent in immunocompromised patients; however, **uncontrolled Diabetes Mellitus** (DM) is an imperative risk factor.

Treatment is limited including antifungals, surgical debridement and in some cases orbital exenteration may be lifesaving.

CASE PRESENTATION

49 year old male patient with a background of hypertension, hypercholestrolemia, type 2 DM and nil ocular history, presented to the Eye Casualty at Northampton General Hospital with one week history of **blurred vision and proptosis** of the **left eye (LE).**

EXAMINATION

Visual Acuity with Snellen: Right Eye(RE) 6/6+3 **LE Counting Fingers**
Left complete ptosis
Left RAPD
Left complete ophthalmopelgia
Left exophthalmos with 4 mm difference on exopthalmometer
Anterior chamber, fundoscopy and rest of neurological examination were unremarkable

INITIAL PLAN

PROVISIONAL DIAGNOSIS: ?CAVERNOUS SINUS THROMBOSIS (CST)

- Urgent bloods (FBC, Full Profile, ESR, CRP, Blood Cultures, HB 1ac)
- Started on IV Co-amoxiclav and Metronidazole, Subcutaneous Enoxaparin as initial treatment for CST
- Urgent **CT head,orbit, venogram with contrast** and later an urgent **MRI head and orbits**

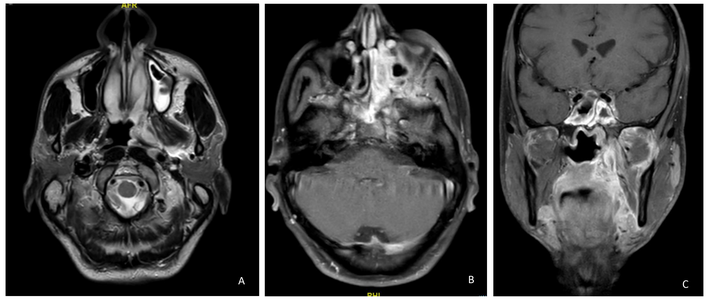
INTIAL CT AND MRI HEAD AND ORBITS

Fig 1. Axial CT head image showing linear filling defect within the left cavernous sinus as well as extensive sinus disease involving frontal, bilateral sphenoid, ethmoid air cells and left maxillary sinus.



Fig 2a and 2b. Axial MRI head; 2c. Coronal MRI head, showing soft tissue mass lesion on the left side of the oropharynx, extending superiorly to the nasopharynx; abnormal enhancing tissue at the left orbital apex extending along the proximal aspect of the orbital floor with enlargement and enhancement of the inferior rectus muscle; pathological enhancement of the V2 maxillary nerve is seen in the lateral cavernous sinus wall-

Likely neoplastic aetiology. An inflammatory or infective aetiology possible but less likely.



In light of the MRI finidings and to rule out a neoplasic etiology

POST NASAL BIOPSY WAS PERFORMED

"Scattered foci of necrosis in the mucosa extending into areas of the cartilage with chronic inflammatory infiltrates".

Grocott stain and PASD stain for fungi showed branching fungal hyphae within areas of necrosis

CONSISTENT WITH **INVASIVE FUNGAL INFECTION**

- Bloods revisited, including serologies to rule out risk factors of imunosupression: RF,
- ANCA,
- ANA,
- Centromere AB,
- TB (AAFB),
- COVID -19,
- Viral screen (HepA, HepB, Hep C, HIV)
- Serodia, Treponemal IgM, RPR

NEGATIVE

HB A1c 85 - Uncontrolled DM, only risk factor

REPEAT CT AND MRI HEAD AND ORBITS ARE PERFORMED TO ASSESS EXTENSION OF INFECTION AND BONE EROSION

Fig. 3a and 3b Axial CT Head images showing new erosion of the posterior and posterolateral wall of the left side sphenoid sinus (3a) and bony changes on the left shenoid body and left lateral wall of sinus (3b)

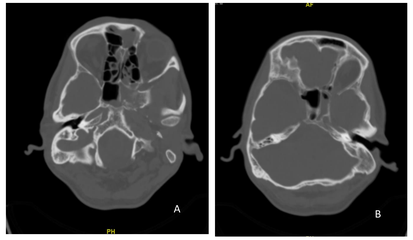
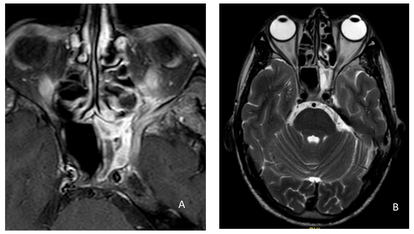


Fig 4a and 4b. Axial MRI head image shows progression in the degree of sphenoid sinus opacification; enhancement of the left orbital apex, left superior and inferior orbital fissures; new opacification is seen across left frontal recess.



1. **Patient was referred to Oxford for fungal debridement**
2. Diagnosed with a **MUCORACEOUS MOULD INFECTION** - based on histology, although pan-fungal PCR negative.
3. Patient underwent Functional Endoscopic Sinus Surgery (FESS) and 1 week later a re-do FESS;
4. However due to residual disease on later imaging and he has underwent a **left orbital exenteration.**
5. He continues on **antifungals (both isavuconazole and ambisome**) with close review by Infectious Disease and ENT teams

LEARNING POINTS

In cases of complete ophthalmoplegia and clinically stable patients, a high index of suspicion for sinus disease should be kept.

Particularly, ophthalmologists should consider fungal infections as possible aetiology, even in non-immunocompromised patients, who present other risk factors such as uncontrolled DM.

REFERENCES

1. Martínez-Herrera E, Frías-De-León MG, Julián-Castrejón A, Cruz-Benítez L, Xicohtencatl-Cortes J, Hernández-Castro R. Rhino-orbital mucormycosis due to Apophysomyces ossiformis in a patient with diabetes mellitus: A case report. BMC Infect Dis. 2020;20(1):1-4. doi:10.1186/s12879-020-05337-4
2. Powell AE. Breaking the mold. Landsc Archit. 1997;87(10):120. doi:10.1177/106002801655425
3. Gupta S, Goyal R, Kaore NM. Rhino-Orbital-Cerebral Mucormycosis: Battle with the Deadly Enemy. Indian J Otolaryngol Head Neck Surg. 2020;72(1):104-111. doi:10.1007/s12070-019-01774-z
4. Shinde R V., Karande GS, Mohite ST, Patil SR. Rhino-orbital mucormycosis in diabetes mellitus. J Clin Diagnostic Res. 2013;7(6):1145-1147. doi:10.7860/JCDR/2013/5528.3083
5. Badakere A, Patil-Chhablani P. Orbital apex syndrome: A review. *Eye Brain*. 2019;11:63-72. doi:10.2147/EB.S180190
6. Chen IW, Lin CW. Rhino-orbital-cerebral mucormycosis. *Cmaj*. 2019;191(16):E450. doi:10.1503/cmaj.181210