A Case Report: A Battle With An Angioinvasive Fungus

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Introduction

Mucormycosis is an angioinvasive fungal infection characterized by various clinical syndromes, with the most common being rhino-orbito-cerebral infections. It is particularly seen in immunocompromised hosts, including patients with diabetes mellitus, hematologic cancers, and solid organ or hematopoietic stem cell transplants. With an estimated incidence of 3 cases per million in the United States of America, its rarity has limited the ability to perform large, randomized clinical trials, making actual case reports a necessity for research. Its diagnosis triggers a medical and surgical emergency, with delay in treatment increasing case reports a necessity for research.

Case Description

- 58-year-old relatively healthy male presented to ORL inpatient floor as a direct transfer from an outside hospital for worsening left orbital swelling.
- Over 4 days, symptoms progressed to left-sided ptosis, unilateral orbital drainage, vision loss, and epistaxis.
- Had taken oral steroids and IM Methylprednisolone for weeks prior, to avoid adverse effects from his COVID-19 vaccination.
- Labs showed leukocytosis with WBC of 34.9 with left shift and severe hyperglycemia with glucose of 337.
- Urgent radiology readings of outside CT scans were requested.
- Ophthalmology and Neurology services were consulted.
- Empirically placed on Unasyn and Vancomycin.

Physical Examination

- Vitals: 37.4C, BP 159/110, P 98, R 16, SpO2 99% on room air
- General: A&Dox, sitting comfortably and in no acute distress.
- HEENT:
  - Left eye: frozen and proptotic, without EOMs in all directions, eyelid edematous and occludes eye at rest. No direct or accommodation pupillary reflex. Right eye: unremarkable.
  - Nasal Cavity: Severe septal and turbinate crusting, with evidence of prior epistaxis and dryness. No mass, lesion, pus or discharge.
  - Respiratory: Clear to auscultation bilaterally.
  - Neurology: Complete vision loss of left orbit with CN 3, 4, 6 deficits. Mild V1 CN 5 sensation deficit, due to forehead swelling. Terminal branches of CN 7 intact.

Workup

CT imaging showed left medial and superior infraorbital inflammation with proptosis and left ethmoid and maxillary sinusitis.

MRI Brain/Face with contrast demonstrated:
- Left optic nerve infarct/ischemia
- Left preseptal and orbital cellulitis with associated exophthalmos
- Mucosal disease involving left ethmoid and left maxillary sinus
- Hypoenhancement of left inferior turbinate consistent with invasive fungal sinusitis

Hospital Course

- Initiated on IV lipid Amphotericin B, Meropenem, and Vancomycin.
- Hyperglycemia controlled with sliding scale and long-acting insulin.
- Course complicated by:
  - Cavernous sinus thrombosis leading to left orbital exenteration
  - Acute mentation changes with right hemiparesis due to SAH
  - Left internal carotid artery occlusion status post left extra-cranial to intracranial carotid bypass surgery
  - Multiple infections, brain infarcts, cerebral vasospasms, and hydrocephalus

References


Figures:
- Figure 1: Initial CT orbit with IV contrast
- Figure 2: Initial MR face with IV contrast
- Figure 3: CT head comparison from initial presentation (left) to progression of hydrocephalus and intra parenchymal hemorrhages (right)