Rhino-oculo-cerebral mucor mycosis: A rare life-threatening complication of diabetic ketoacidosis

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Background

- Mucor mycosis is a rare, rapidly progressing, life threatening angio-invasive infection caused by the fungus belonging to order of Mucorales
- Immunocompromised host status, including uncontrolled diabetes is a common risk factor
- To emphasize the clinicians for its prompt diagnosis and treatment, we report here a rare, life threatening case of rhino-oculo-cerebral mucor mycosis in a patient with new onset diabetes mellitus presenting as diabetes ketoacidosis.

Case Presentation

A 46-year-old male with PMH of hypertension, left sided blindness due to BB injury, active smoker presented to the ED with complaints of headache, nausea, vomiting, tachypnoea and unintentional weight loss of 12 lbs in last 2 weeks.

Initial workup upon admission was significant for diabetic ketoacidosis (DKA) with pH of 7.08, beta hydroxybutyrate of 11.4, blood glucose of 559, anion gap of 33 and HbA1c of 13.1.

- **Day 1**: noted to have sudden onset vision loss, ptosis and chemosis of the right eye as well as left sided facial droop and weakness.
- Stroke evaluation- No infarct or hemorrhage noted on imaging and initiated on antiplatelet, statin followed by repeat CT in 24 hours as per tele neurology.
- Ophthalmology consult: opined the vision loss likely from CRAO and raised concerns for orbital apex syndrome likely from invasive fungal sinusitis.
- ENT consult: did not note any bony erosion of sinuses on imaging and recommended CT of face with sinuses
- **Day 2:**
- CT head without contrast: New small parenchymal hemorrhage in the right anterior inferior frontal lobe, likely hemorrhagic transformation of prior stroke
- CT face sinuses: sinus opacity with mucosal thickening, erosive osseous changes involving ethmoid and midline nasal septum, proptosis of right globe (**Figure 1a and 1b**).
- Infectious disease consult: IV Amphotericin B started.
- **Subsequent course:**
- Continued management with posaconazole and imaging surveillance.
- Noted to have right basal frontal lobe abscess extending into the left lobe on imaging with subsequent evacuation and aspiration of black fluid, which reflected minimal hyphae consistent with Mucor Mycosis.

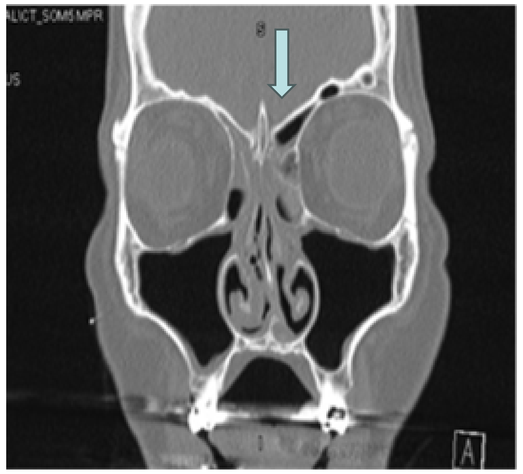

Figure 1a. Coronal view

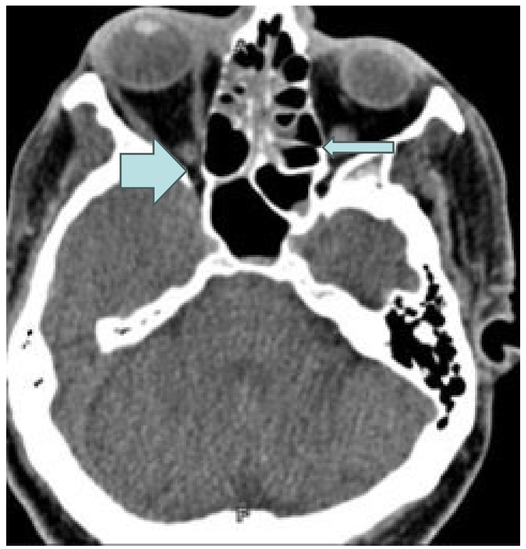

Figure 1b. Axial view

Thin blue arrows shows mucosal thickening and erosive osseous changes involving ethmoid sinus and nasal septum.
Thick blue arrow shows proptosis of the right globe.

Discussion

- As with our patient, a review of 179 cases of rhino-oculo-cerebral mucor mycosis showed that 70 percent patients had diabetes and DKA was the most common presentation [2].
- Diagnosis is established by identifying the organism on tissue histopathology with culture. However, culture often yields no growth.
- Imaging with CT scan or Magnetic Resonance Imaging (MRI) and endoscopic evaluation of sinuses aids in gauging the extent of sinus involvement and spread to contiguous structures.
- Treatment involves combination of surgical debridement and anti-fungal therapy (IV amphotericin B, Posaconazole) [3,4]. Overall mortality from ranges from 25 to 62 percent, with the best prognosis in patients with infection confined to the sinuses [5].

Conclusion

High index of suspicion for invasive fungal sinusitis is required in patients with diabetes ketoacidosis, uncontrolled diabetes and immunocompromised host status for prompt diagnosis and treatment due to its rapidly progressive nature with high degree of morbidity and mortality.

References

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