Case of the Month

ACUTE INVASIVE FUNGAL SINUSITIS

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CLINICAL PRESENTATION:

• An 80 yo male patient is brought to the ER with altered level of consciousness with limited available history.

• On Examination: the patient is febrile at 39.8°C. Right-sided proptosis with periorbital swelling and erythema is noted

• A CT Head is ordered by the medical team
UNENHANCED CT HEAD FINDINGS:

- Representative axial non-contrast CT Head images at the level of base of skull.
UNENHANCED CT HEAD FINDINGS:

- Representative axial non-contrast CT Head image in bone window
UNENHANCED CT HEAD FINDINGS:

- Representative coronal images from non-contrast CT Head. The right images is presented in bone window.
**IMAGING FINDINGS**

- CT demonstrates a lobulated heterogenous soft tissue mass centred in the right pterygopalatine fossa.
- This mass involves the posterior nasal passage, ethmoid and sphenoid sinuses.
- There is extensive bony destruction and evidence of minimal intracranial extension.
- In addition, there is orbital extension of mass with resultant proptosis.
DIFFERENTIAL CONSIDERATIONS:

• Acute Invasive Fungal Sinusitis
• Sinonasal squamous cell carcinoma
• Complicated Rhinosinusitis
• Sinonasal Wegner’s Granulomatosis
• Sinonasal Non-Hodgkin Lymphoma
Diagnosis

• While CT features were suggestive, they were not sufficient to make the diagnosis

• Endoscopic biopsy was performed

• Pathology demonstrated high levels of fungal elements (*Mucor sp.*) favouring diagnosis of acute invasive fungal sinusitis

• No pathologic features to suggest of neoplasm
ACUTE INVASIVE FUNGAL SINUSITIS
TYPICAL IMAGING FEATURES

• **Non-contrast CT:**
  - Soft tissue opacification with bony erosive changes
  - Often unilateral with involvement of sphenoid and ethmoid sinuses [1]
  - Can extend along vessels or intracranially with resultant complications such as cavernous sinus thrombosis, carotid artery invasion/occlusion or pseudoaneurysm [1]
  - Contrast-enhanced study is optimal for evaluation of soft tissue infiltration as well as bony erosions [4]

• **MR**
  - Better for assessment extent of intraocular extension [1]
  - Leptomeningeal enhancement should be excluded in early intracranial extension [1]
ACUTE INVASIVE FUNGAL SINUSITIS

CLINICAL CONSIDERATIONS

• Most commonly occurs in immunocompromised patients, especially diabetics and elderly [5]

• *Mucormycosis* and *Aspergillus* are the most common causative organisms [5]

• Variable clinical presentation: acute fever, facial pain, nasal congestion, epistaxis, visual changes, altered LOC [2]
ACUTE INVASIVE FUNGAL SINUSITIS
MANAGEMENT

• Acute invasive fungal sinusitis is a source of significant morbidity and mortality [3]

• Histopathologic diagnosis is crucial to guide management

• Overall survival is poor with high risk of long term complications [2]

• Treatment includes empiric IV antifungal therapy (ie. Amphotericin B) [2]

• Surgical consultation for radical debridement is often necessary [2]
REFERENCES


