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Going Beyond the Barriers: A Case of Acute Sinusitis with Intracranial Complication

Dr. Harikrishnan R[1], Dr. Venugopal M[2], Dr. Salima Rema Windsor[3], Dr. Sindhu B S.[4]

[1]Junior Resident, Department of Otorhinolaryngology, Government Medical College, Thiruvananthapuram, Kerala, India

[2]Professor & HOD, Department of Otorhinolaryngology, Government Medical College, Thiruvananthapuram, Kerala, India

[3, 4]Assistant Professor, Department of Otorhinolaryngology, Government Medical College, Thiruvananthapuram, Kerala, India

Abstract: ***This is the case of 15 year old boy presented with intracranial complication secondary to acute sinusitis. This case is reported to show the importance of timely intervention, which could prevent a fatal outcome.***

Keywords: Rhinosinusitis, intracranial, meningitis, altered sensorium, empyema, subdural

1. Introduction

Sinusitis can be classified as acute or chronic. Acute being of duration lesser than 12 weeks and chronic more than 12 weeks.1Acute rhinosinusitis (ARS) is a very common condition that is predominantly managed in primary care and hence rarely dealt by specialists unless complications occur. Most cases resolve spontaneously within 10 days, and the incidence of complications is very low. Medical treatment may be antimicrobial and anti - inflammatory, mainly for reducing the severity and duration of illness and to prevent recurrence and complications. Medical management remains the mainstay for ARS, whereas when a complication is to be managed surgically (e. g., orbital or intra - cranial abscess, Pott's puffy tumour), simultaneous surgical drainage of the affected sinuses should be considered. [1]Intracranial complications includes brain abscess, meningitis, extradural empyema, subdural empyema and brain infarction.

2. Case Report

A 15 year old boy with no prior comorbidities presented to the casualty with complaints of high grade fever, puffiness around the eyes and headache of 2 weeks duration. He was fully vaccinated for his age. On examination he was febrile (102^0F) with altered sensorium, periorbital puffiness and had signs of meningeal irritation. Tenderness was noted in bilateral maxillary and frontal sinuses. Lab investigations showed raised total count with neutrophilic predominance. Lumbar puncture was suggestive of bacterial meningitis. MRI brainshowed empyema involving left fronto - parietal subdural region and inter hemispheric fissure. CT scan of nose and paranasal air sinuses showed was mucosal thickening along bilateral frontal, left ethmoid, sphenoid and maxillary sinuses. Subtle erosion was noted in the roof of left ethmoid sinus which was the likely the foci of infection.

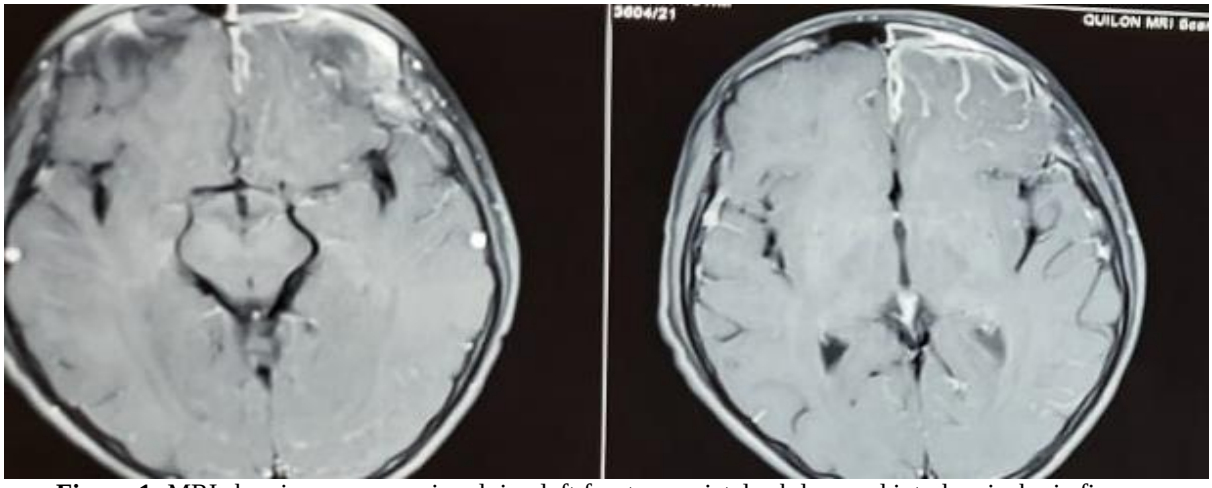

Figure 1: MRI showing emypema involving left fronto - parietal subdura and interhemispheric fissure.

Figure 2: MRI showing mucosal thickening of left maxillary sinus

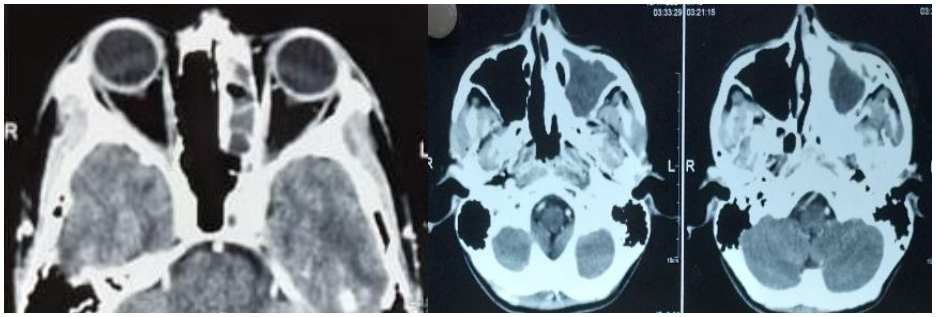

Figure 3: CT showing mucosal thickening involving left maxillary, ethmoid and frontal sinuses.

During the course of treatment patient had 2 episodes of seizures followed by right sided hemiplegia with grade 0 power for right upper and lower limb. There was also right sided UMN facial palsy.

Patient underwent Functional Endoscopic Sinus Surgery under general anesthesia. Left middle meatal antrostomy was done. Left maxillary, anterior ethmoidal, posterior ethmoidal, sphenoid sinuses and frontal sinuseswas filled with pus and was cleared. The post operative period was uneventful. He was started on parenteral broad - spectrum antibiotics, analgesics and other supportive interventions. His hemiplegia gradually resolved and he attained grade 3 power for his right upper and lower limb. Three Weeks later he underwent (L) Fronto - Parietal Craniotomy and empyema evacuation from Neurosurgery side. The child had complete recovery of the neurological deficits in the post operative period and was able to walk without support and back to normal life. This case is highlighted to show the importance of timely intervention and multidisciplinary team work that could avoid a fatal outcome.

3. Discussion

Patients with intracranial complications of sinusitis are more frequently observed in adolescent and teenage patients. [2] Intracranial complications include any infection involving the central nervous system, particularly the anterior cranial fossa. This includes epidural or subdural abscess or empyema, meningitis, intracerebral abscess, and cavernous and/or sagittal sinus thrombosis. [3] Patients with intracranial complications typically present with a history of upper respiratory infection, fever, and headache. Altered mental status, seizures, meningismus, and focal neurologic deficits are more concerning signs of intracranial complications. The surgical treatment of intracranial complications will inevitably involve neurosurgical expertise. Subdural empyema is one of the commonest intracranial complications of rhinosinusitis, typically from haematogenous spread. The brain is clearly more exposed as the infection is beyond the protective dura mater and allows the possibility of thrombosis of the dense network of veins in this space. Serious neurological injury can occur if not treated rapidly and aggressively with combined medical treatment and neurosurgical drainage to decompress the brain and evacuate the empyema. Subdural empyemas present with meningeal irritation and neurological signs such as seizures or focal deficits. [4] Timely intervention and multidisciplinary team work is the key for managing the complicated sinusitis as in our case.

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