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# A Case Report on Pott's Puffy Tumour: A Rare Infective Etiology Affecting Skull

**Anand J.[1], Suresh Kumar S.[2]**

[1]Post Graduate, Department of NeuroSurgery, Amala Institute of Medical Sciences Thrissur, Kerala, India
[2]Professor, Department of NeuroSurgery, Amala Institute of Medical Sciences Thrissur, Kerala, India

Corresponding Author

**Anand J.**

Post Graduate, Department of NeuroSurgery, Amala Institute of Medical Sciences Thrissur, Kerala, India

**Abstract:** ***Calvarial Osteomyelitis is a very rare clinical condition. It more often occurs as after trauma or sinusitis. It occurs more in low socioeconomic areas and developing countries. Although its initial presentation is subtle it can result in life threatening complications if not treated properly. Because of the aesthetic concerns osteomyelitis of cranium must be treated differently than osteomyelitis of other bones in the body. It is important to make early diagnosis and proper management should be done to prevent Central nervous system complications.***

**Keywords:** Bifrontal, Calvarial, Osteomyelitis, Tuberculosis, Tumor

## 1.Introduction

Osteomyelitis of the skull as described by Pott is caused by extradural hemorrhage and bone contusion [1]. It was later classified it into two different types by Van Launelongue, primary or hematogenous osteomyelitis and secondary or contiguous osteomyelitis [1]. It is believed that skull osteomyelitis has many different etiologies. It is usually caused by ear infections, immunocompromised or diabetic patients [2, 3]. Paranasal infections rarely predispose to skull osteomyelitis [3]. Common causative organisms are Pseudomonas, Staphylococcus species, Salmonella and Pseudomonas species [3]. Percivall Pott was the first to report a case of a circumscribed, indolent and puffy tumor of the scalp with a spontaneous separation of the skull from underlying pericranium [4, 5]. Osteomyelitis of frontal bone associated with collection of subperiosteal abscess is termed as Pott's puffy tumour [6]. Another condition that has almost similar clinical features is Calvarial tuberculosis, which is a rare presentation and occurs commonly in developing countries. Calvarial TB occurs in about 0.1-3.7% of all skeletal TB infections [7]. As greater amount of cancellous bone with diploic channels are seen in frontal and parietal regions it remains the most favorable site for Calvarial osteomyelitis [8]. The most affected site of the calvarium is parietal bone. The more common forms are painless swelling with punched-out lytic lesions [8, 9, 10].

## 2.Case Report

A male patient of age 65 presented with swelling over mid frontal region for 1 month, it was spontaneous in onset, associated with mild pain over the swelling for initial few days. The patient frontal headache on and off for 2 months and had history of fever on and off for 1 month. Patient also gives a history of trauma to forehead 3 months back. The patient is a known diabetic and is on irregular medications. On examination the swelling was firm with smooth surface, immobile, non-tender, no localised rise in temperature. All baseline investigations were done. Patient had elevated ESR value, but his WBC counts were within normal limits. MRI brain contrast was done which revealed an expansion, lytic lesion measuring 84 (AP) x 54 (TS) x 16 (cc) mm in mid frontal bone with moth eaten margins and extensive erosions in both inner and outer tables with central bony sequestration and local pachymeningeal enhancement. expansion lytic lesion with enhancing soft tissue component involving diploic space of frontal bone in the midline with cortical break and erosion involving inner and outer tables. A sequestrum was noted within the lesion (Figures 1, 2 and 3).

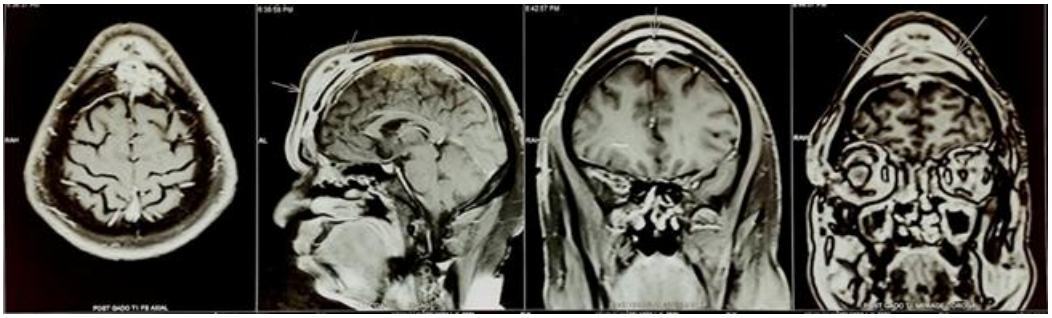

**Figure 1**

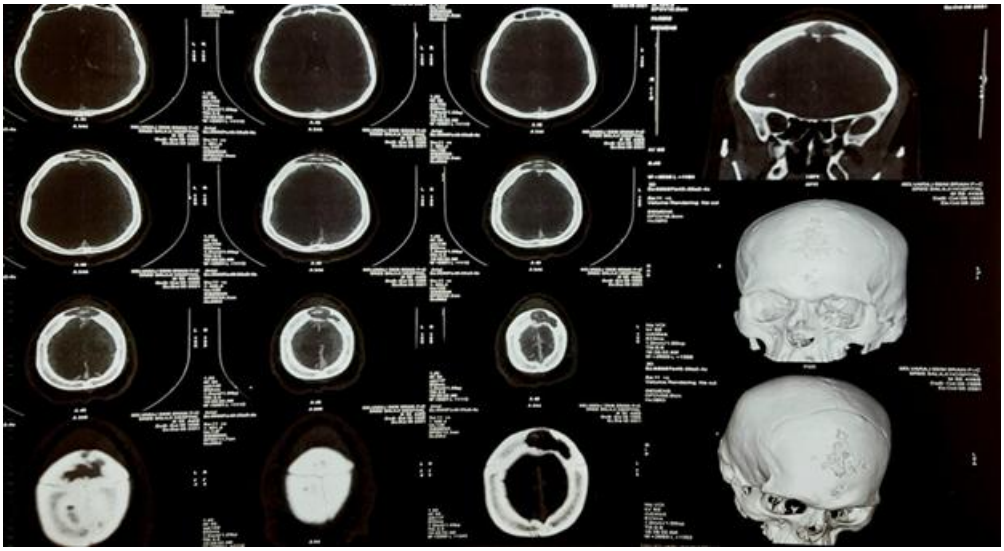

**Figure 2**

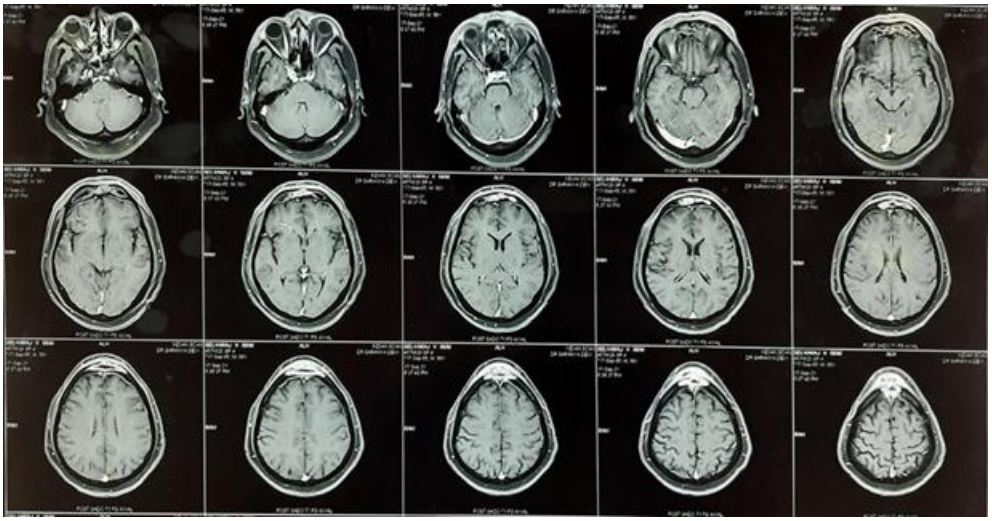

**Figure 3**

Patient was planned for bifrontal craniotomy with debridement and biopsy. In this procedure bicoronal flap was raised and bifrontal craniotomy was done, bone sequestrum and unhealthy bone fragments collected for biopsy (Figure 4). Avascular cheesy material was seen in diploic space which was debrided until healthy bone was seen. Dura was adherent and was torn in left frontal region for which duroplasty with pericranial patching was done. Patient was discharged on post operative day two.

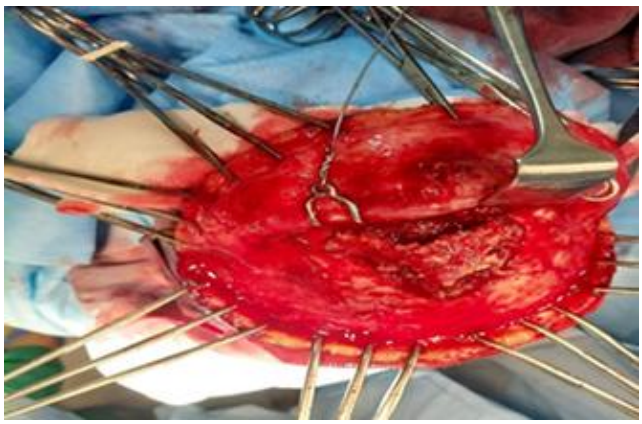

**Figure 4**

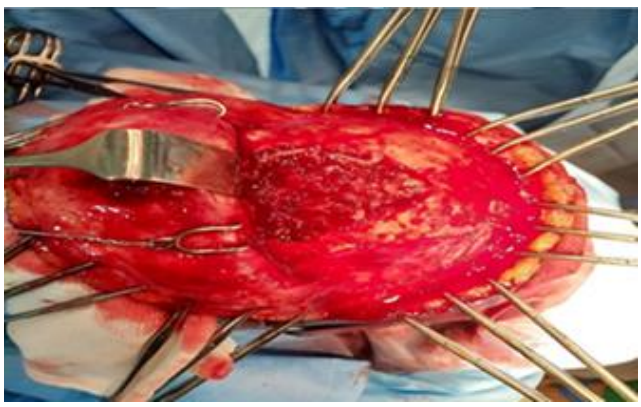

**Figure 5**

## 3.Discussion

Pott's puffy tumor is a rare condition arising secondary to acute sinusitis or post head trauma. It is an osteomyelitis of frontal sinus with superadded by subperiosteal abscess. Its nomenclature is sometimes confusing for patients who think it is a malignant disease; a term change was proposed by Jho and al to Pott's puffy "abscess" [11]. Its spread is based on a common venous vascularization between the sinus mucosa and the frontal bone and the infection can spread

directly or indirectly through septic emboli. The anterior table of frontal sinus is thinner than the posterior table and is more susceptible to abscess formation. The incidence of cranial osteomyelitis overall per year is ranging from 57 to 95 [12]. Presence of combination of both swelling and pain in the frontal region must raise a suspicion of frontal osteomyelitis. The presence of intracranial complications should be suspected if there is focal neurological deficit or any other signs of intracranial hypertension. Computed tomography allows a precise analysis of the bone structures and remains the investigation of choice, it can highlight osteolytic lesions and erosions as in the case of our patient. The bacteriological examination returned sterile in our case as was in most of the cases, this can be explained by the sterilization of the infectious site by prior antibiotic therapy [13]. As our case had a progression of his disease bifrontal craniotomy with debridement and biopsy was done. CONCLUSION Since the advent and widespread use of antibiotics we have seen fewer and fewer reported cases of Pott's puffy tumor. The diagnostic should be considered in front of any fluctuant swelling of the frontal area and it is often confirmed with computed tomography. Prompt medical and surgical treatments are the essential keys to avoid the risks of intracranial sequelae. We recommend a minimally invasive approach for any beginner form without intracranial extension and without significant bone lysis under the guise of a good antibiotic therapy.

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