International Journal of Early Childhood Special Education (INT-JECSE)
DOI:10.9756/INTJECSE/V14I5.390 ISSN: 1308-5581 Vol 14, Issue 05 2022

A Case Report on Pott's Puffy Tumor – A Rare Inflammatory Etiology Affecting Skull

Anand J[1,*], Santhanam R[2]
[1]Department of General Surgery, Sree Balaji Medical College and Hospital, Chennai, India
[2]Department of Neurosurgery, Sree Balaji Medical College and Hospital, Chennai, India
***Corresponding Author:**
Anand J
Junior Resident,
Sree Balaji Medical College and Hospital,
Chromepet,
Chennai- 600044
Email:ajanand003@gmail.com

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

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

INTRODUCTION

Pott described osteomyelitis of the skull to be caused by extradural hemorrhage and bone contusion [1]. Later Van Launelongue classified it into two different types, primary or hematogenous osteomyelitis and secondary or contiguous osteomyelitis [1]. At present it is believed that skull osteomyelitis have many different etiologies. It is usually caused by ear infections, immunocompromised or diabetic patients [2,3]. Paranasal infections rarely predisposeto skull osteomyelit is [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 underlying pericranium from the skull [4,5]. Frontal bone osteomyelitis associated with collection of subperiosteal abscess is termed as Pott's puffy tumour [6].

Calvarial tuberculosis is another separate and rare presentation that have almost similar clinical features. It can occur commonly in developing countries. About 0.1-3.7% of Calvarial TB occurs of all skeletal TB infections [7]. As greater amount of cancellous bone with diploicchannels 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].

CASE REPORT

A male patient of age 56 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 had history of fever on and off for 1 month, frontal headache on and off for 2 months. Patient also gives a history of trauma to forehead 3 months back. The patient is a known diabetic for 3 months. On examination the swelling was firm, immobile, non tender, no localised rise in temperature, smooth surface, skin over the swelling was normal. All baseline investigations were done. Patient's ESR was elevated, but his total counts were within normal limits. MRI brain 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 pachymeningealenhancemen (Figures 1 and 2). MRA brain was normal.

Contrast enhanced CT was done and it revealed an 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 (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.

DISCUSSION

Pott's puffytumor one of the rare condition arising secondary to acute sinusitis or head trauma**.** It is an osteomyelitis of frontal sinus complicated 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 more susceptible to abscess formation because it is thinner than the posterior table. The incidence of cranial osteomyelitis overall was ranging from 57 to 95 cases annually [12].

The diagnosis should be considered when there is a combination of both swelling and pain in the frontal region. 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 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.

REFERENCES

1. Chandra Prasad K, Chandra Prasad S, Mouli N, Agarwal S. Osteomyelitis in the head and neck. Acta oto-laryngologica. 2007 Jan 1;127(2):194-205.
2. Strumas N, Antonyshyn O, Caldwell CB, Mainprize J. Multimodality imaging for precise localization of craniofacial osteomyelitis. Journal of Craniofacial Surgery. 2003 Mar 1;14(2):215-9.
3. Peterson LJ, Ellis E, HUPP JR TM. Contemporary Oral and Maxillofacial Surgery. Mosby. St. Louis. 2003.
4. Rowlands RG, Lekakis GK, Hinton AE. Masked pseudomonal skull base osteomyelitis presenting with a bilateral Xth cranial nerve palsy. The Journal of Laryngology & Otology. 2002 Jul;116(7):556-8.
5. Ng J, Connolly DJ, Rittey CD, Mordekar SR. Skull base osteomyelitis leading to lateral medullary syndrome in a child. European Journal of Paediatric Neurology. 2007 Mar 1;11(2):111-4.
6. Elyassi AR, Prenzel R, Closmann JJ. Pott puffy tumor after maxillary tooth extraction. Journal of Oral and Maxillofacial Surgery. 2012 Mar 1;70(3):e190-2.
7. Samson SK, Kulkarni V, Chacko AG. An unusual presentation of calvarial tuberculosis.(Tuberculosis). Postgraduate Medical Journal. 2002 Mar 1;78(917):184-7.
8. Kothari PR, Kumar T, Jiwane A, Kulkarni B, Kalgutkar A. Tuberculous osteomyelitis: A bizarre presentation. Indian J Surg. 2003 Nov 1;65:515-6.
9. Diyora B, Kumar R, Modgi R, Sharma A. Calvarial tuberculosis: A report of eleven patients. Neurology India. 2009 Sep 1;57(5):607.
10. Raut AA, Nagar AM, Muzumdar D, Chawla AJ, Narlawar RS, Fattepurkar S, Bhatgadde VL. Imaging features of calvarial tuberculosis: a study of 42 cases. American Journal of Neuroradiology. 2004 Mar 1;25(3):409-14.
11. Jho DH, Young M, Xu C, Richter B. Pott's puffy abscess: Moniker change from historical misnomer of Pott's puffy tumor. Interdisciplinary Neurosurgery. 2020 Jun 1;20:100643.
12. Rothholtz VS, Lee AD, Shamloo B, Bazargan M, Pan D, Djalilian HR. Skull base osteomyelitis: the effect of comorbid disease on hospitalization. The Laryngoscope. 2008 Nov;118(11):1917-24.
13. Miloundja J, Bamba JS, Mouba JF, Ondo TE, Mwanyombet L, Lawson JM, N'zouba L. Complications cranioencéphaliques des sinusites bactériennes chez l'enfant et l'adolescent: étude de huitcasvus à Libreville (Gabon). Cahiers d'étudeset de recherchesfrancophones/Santé. 2011 Oct 1;21(4):215-20.