Pott's puffy tumor

A condition still to be considered

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ABSTRACT

In the era of antibiotics, Pott-Puffy Tumor (PPT) is a rarely recognized entity. An 11-year-old girl presented with headache, fever for one week, and frontal swelling for 3 days. On examination, she was febrile, congested nasal mucosa with yellowish nasal discharge and frontal swelling; tender not fluctuating with normal eye mobility. Computed tomography (CT) scan of brain and paranasal sinus revealed opacity of maxillary, left ethmoid, frontal sinus opacity and epidural collection in the right frontal region with post contrast enhancement. An extracranial superficial swelling with fluid collection at the same level of epidural collection. The patient underwent bilateral antral washout and left frontal sinus trephination, which had resulted into a complete resolving of symptoms and an avoidance of further invasive surgical intervention.

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Sinusitis is a common disease in children. Fortunately, serious sequelae, intracranial complications of sinusitis are relatively uncommon in the era of antibiotics. Clayman et al[1] reported 3.7% incidence of complications in a study of 649 patients with sinusitis. Despite antibiotics, the treatment failure can occur as a result of lack of local therapy. Pott's puffy tumor (PPT) presents with intermittent or progressive soft-tissue swelling of the forehead due to edema[2] accumulation of pus,[3] or granulation tissue over the infected bone. This report presents a case of PPT which responded very well to early and simple minimal invasive surgical intervention.

Case Report. An 11-year-old girl presented to the emergency department with headache, fever for one week and frontal swelling for 3 days. There is no history of recent upper respiratory tract infection, head trauma or neurological deficit. The patient had been treated with antibiotics prior to presentation with no improvement. On examination her temperature was 39.5°C. The nose was congested with yellowish nasal discharge bilaterally and frontal swelling was tender, not fluctuating with normal eye mobility. There are no diplopia, visual impairment or neurological deficits. On admission, non-contrast CT scan of the brain and paranasal sinus revealed opacity of maxillary sinuses left ethmoid and frontal sinuses opacity with soft tissue swelling in frontal region just in front of frontal sinus (**Figure 1 & 2**). The patient was started on cefuroxime and metronidazole antibiotics empirically. Her fever kept fluctuating and frontal swelling increased. On the second day of admission, CT scan of brain and paranasal sinuses with contrast was repeated, which showed the previous findings in paranasal sinuses and epidural and extracranial collection with post contrast enhancement (**Figure 3**). The patient underwent bilateral antral washout and left frontal sinus trephination. Postoperatively, she had a dramatic improvement, her fever settled down and swelling decreased gradually. Consultation of neurosurgeon had been made regarding epidural collection and he recommended to continue the same management. Three months later, the patient was seen in a clinic with repeated CT scan, which revealed a small epidural lesion but there is no evidence of collection and the the superficial extracranial swelling regressed.

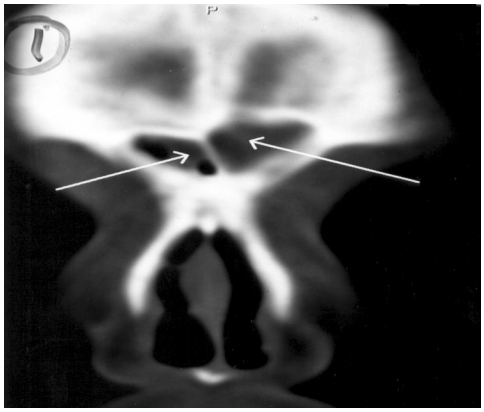

Figure 1 - A coronal CT scan view of paranasal sinuses showed opacity of frontal sinuses.

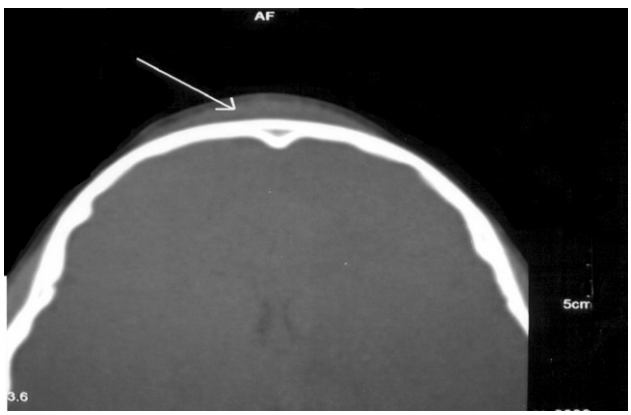

Figure 2 - An axial CT scan view of brain demonstrating soft tissue swelling of forehead.

Discussion. In 1775, Sir Percival Pott described a subperiosteal abscess of frontal bone as complication of osteomyelitis, appearing as a puffy, indolent tumor of forehead.[1,2] Seventy-five percent in all cases of osteomyelitis have been observed as a complication of frontal sinusitis.[2,3] Pott puffy tumor becomes a rare intensity in the era of antibiotics; it has been a rare entity where only 21 pediatric cases have been reported, and our case will be case number 22.[4]

From 1977, only 28 cases of PTT have been described mostly in teenagers.[2,3,5,6] Extension of frontal sinusitis is possible in 3 ways namely, the first route, via the posterior table of frontal bone causing epidural collection which may progress into abscess, subdural and meningitis; the second route, is through the anterior table resulting superiosteal abscess (PPT); and the third route, which is inferiorly causing intraorbital abscess.[2,3,5,7-9]

In our case, the disease extended through first and second route, causing epidural and superiosteal

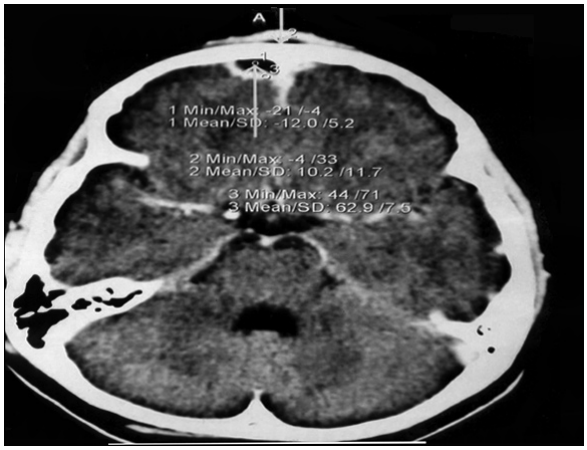

Figure 3 - An axial CT scan view of brain with contrast showed epidural and extracrainal collection with rim enhancement.

collection respectively. Computed tomography scan is the most definitive modality for diagnosis of PPT, and when combined with contrast, it is the best choice for visualizing both intracranial as well as extracranial complications.[7] Management of PPT requires multidisciplinary approach. The liberal use of antibiotics alone may mask the clinical features that herald the onset of intracranial complications. Different surgical approaches include frontal trephine, antral washout, and external frontal frontoethmoidectomy, combined frontal sinus trephine and endoscopy with or without placement of a stent in the frontonasal duct and functional endoscopic sinus surgery with opening of the frontonasal duct (positive and negative) stenting has been reported.[10] In our case, although the patient had developed an early intracranial but extradural collection, however, early intervention in a form of antral washout and left frontal sinus trephination with proper antibiotics were adequate to avoid further deteriorations and a need for invasive surgical procedure.

In conclusion, although PPT is considered a rare entity in the era of antibiotics. High index of suspicion, early diagnosis and management could save patients from serious sequelae and necessity of invasive surgical intervention.

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