

Pott's Puffy Tumor a Rare Disease Complicated by Neurological Disorders

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Abstract

Pott's puffy tumor is a rare entity usually seen as a complication of frontal sinusitis including a subperiosteal scalp abscess associated with frontal bone osteomyelitis. The most common Intracranial complication is subdural empyema or brain abscess sometimes requires surgical treatment. Pott's puffy tumor is more common in children but it can also be seen in adults. We report a case of a 15-year-old female who presented to our department of neurosurgery with Pott's puffy tumor resulting from frontal sinusitis, complicated by subdural empyema, and was successfully treated with drainage surgery and long-term antibiotic therapy.

Keywords: Frontal osteomyelitis; Pott's puffy tumor; Sinusitis; Subdural empyema

Case Report

A 15-year-old girl presented with a 2-week history of gradually enlarging mass of the left forehead, headache, fever, swelling, erythema, and tenderness were present in the left frontal and periorbital region. He had no history of sinusitis or head trauma. Physical examination revealed fever (39 °C), and a 3×2 cm fluctuant mass above the left eyebrow and over the frontal sinus. Clinical examination of the cranial nerves, the visual field, and the vision was normal. On the neurological level, the patient is conscious and has motor aphasia. Routine tests were performed on blood samples on admission, and the results were: a leukocyte count of $11.3 \times 10^3 /\mu\text{L}$ with 81% neutrophils, and a C-reactive Protein:54mg/L, computed tomography scan of the brain showed frontal sinusitis with a subperiosteal abscess in the left frontal region, and left frontal subdural empyema (**Figure 1**). The Surgical exploration revealed a subperiosteal abscess and osteomyelitis of the frontal

bone and subdural empyema successfully evacuated.

Discussion

Pott puffy tumor is a rare clinical entity. Sir Percival Pott, a British surgeon, was the first to describe it in 1768, as a complication of cranial trauma. Later, a clear relationship was observed between this lesion and untreated frontal sinusitis. It has also been reported after mastoid surgery, dental infections and insect bites rarely [1]. The sinus of frontal begins to be aerated at the age of 6 and achieved its development at the age of 15, adolescents are more inclined to this lesion, but Pott puffy tumors can also be seen in younger age groups [2]. Intracranial complications represent around 60% and 85% of cases in adults and nearly 100% in children [3]. Subdural or epidural empyema, frontal brain abscesses, cavernous sinus thrombosis, but also cortical venous thrombosis, and acute meningitis can be described [4]. All these complications are most often sec-

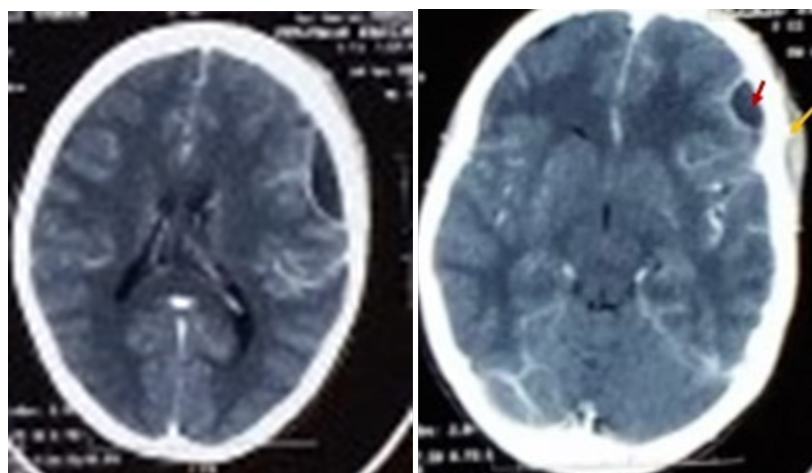


Figure 1: Contrast-enhanced head CT scan with evidence of left frontal subdural empyema and soft tissue swelling with abscess of frontal scalp.

ondary to frontal osteomyelitis.

The most common symptoms are fever, headache, swelling in the periorbital or scalp regions, and rhinorrhea. For some authors, an erythematous and frontal swelling or fluctuant swelling in the midline of the forehead associated with fever should be considered as pathognomonic of Pott puffy tumor [5]. In the present case, the patient presented in addition to headache and frontal swelling, signs of neurological disorders such as motor aphasia.

A positive diagnosis is made by imaging performed as an emergency because early diagnosis and treatment are vital for the prevention of intracranial complications. Cerebral CT with contrast injection is the exam of choice to obtain the diagnosis. It shows frontal sinusitis, osteomyelitis characterized by bone erosion, and subperiosteal abscesses and may be associated with intracranial extension, especially sub or extradural empyema and frontal abscesses that increase morbidity and mortality [6].

The most frequently incriminated germs are staphylococcus, streptococcus, and anaerobes, however anaerobic and microorganisms polymicrobial are dominant in intracranial complications [7]. In our case, no germs were identified. The therapeutic management of Pott's puffy tumor is based on the combination of antibiotic therapy and surgical treatment which would prevent possible complications. Antibiotic therapy should be started as soon as possible after the diagnosis is suspected, it is most often administered intravenously and it must be broad-spectrum, targeting the majority of germs, it is then adapted to the germ identified by bacteriological examination. The duration of this antibiotic therapy is 4 to 8 weeks due to the presence of osteomyelitis but also to complications. Parida et al reported that all patients underwent surgical intervention and that treatment with broad-spectrum antibiotics continued for 6–8 weeks [8]. The ideal combination would be based on penicillin or vancomycin, 3rd generation cephalosporins, and metronidazole. Surgical management is variable and may be limited to percutaneous drainage or trephination, a craniotomy may be necessary in case of serious intracranial complication to de-

crease morbidity and shorten hospital stay [9]. Pott's tumor is a complicated infection, usually seen in the setting of untreated or poorly treated sinusitis. serious entities can develop, including intracranial complications, which increase morbidity and mortality. This requires early surgical management and intravenous antibiotic therapy.

Conclusion

Pott's tumor is a complicated infection, usually seen in untreated or poorly treated sinusitis. serious entities can develop, including intracranial complications, which increase morbidity and mortality. this requires early surgical management and intravenous antibiotic therapy.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Babu RP, Todor R, Kasoff SS. Pott's puffy tumor: the forgotten entity. Case report. *J Neurosurg*. Janv, 1996; 84(1): 110-112.
2. Rogo T, Schwartz RH. Pott puffy tumor in a 5-year-old girl with frontal sinusitis. *Ear Nose Throat J*. févr, 2013; 92(2): E24-26.
3. Ciobanu AM, Ro T, VI CT, Tihoan C, Popa MC, Boer MC. Frontal epidural empyema (Pott's puffy tumor) associated with Mycoplasma and depression. p 5.
4. Apostolakos D, Tang I. Image Diagnosis: Pott Puffy Tumor. *Perm J*, 2016; 20(3): 15-157.
5. Rehman A, Muhammad MN, Moallam FA. Pott puffy tumor: a rare complication of sinusitis. *Ann Saudi Med*. Févr, 2013; 33(1): 79-80.
6. Joo MJ, Schapira KE. Pott's Puffy Tumor: A Potentially Deadly Complication of Sinusitis. *Cureus*, 2019; 11(12): e6351.
7. Verbon A, Husni RN, Gordon SM, Lavertu P, Keys TF. Pott's puffy tumor due to *Haemophilus influenzae*: case report and review. *Clin Infect Dis*, 1996; 23(6): 1305-1307.
8. Parida PK, Surianarayanan G, Ganeshan S, Saxena SK. Pott's puffy tumor in pediatric age group: a retrospective study. *Int J Pediatr Otorhinolaryngol*, 2012; 76(9): 1274-1277.
9. Goldberg AN, Oroszlan G, Anderson TD. Complications of frontal sinusitis and their management. *Otolaryngologic Clinics of North America*. Févr, 2001; 34(1): 211-225.