

### **Case Report**

## **POTT'S PUFFY TUMOUR: A RARE COMPLICATION OF PANSINUSITIS**

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### **ABSTRACT**

We report an extremely rare case of Pott's puffy tumour in a 10 year old girl which occurred as a complication of chronic pansinusitis. Pott's puffy tumour, corresponding to frontal osteomyelitis causing erosion of the anterior wall of the frontal sinus and subperiosteal abscess, is a rare but serious complication of sinusitis or trauma to the region. It can occur even despite the use of antibiotics and requires surgical drainage of the abscess, excision of pathological tissues and obliteration of the frontal sinus by various materials. It can rarely progress to life-threatening intracranial extension. One must be extremely cautious in the presence of clinical signs suggestive of Pott's puffy tumour.

**Key Words:** *Pott's Puffy Tumour, Osteomyelitis, Pansinusitis, Child*

### **INTRODUCTION**

Pott's puffy tumour is characterized by frontal osteomyelitis causing erosion of the anterior wall of the frontal sinus and subperiosteal abscess (Amanou, 2000) presenting with fluctuating, painful swelling of the forehead (Blackman, 2005). It is a complication of frontal sinusitis, or, more rarely, trauma to this region. The pathogens most frequently incriminated are *Staphylococcus aureus*, *Streptococci* and anaerobic bacteria. The use of antibiotics has decreased the incidence of this complication of sinusitis (Babu, 1996).

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A 12-year-old girl presented to our outpatient department with a one-month history of frontal headache and nasal obstruction (Figure 1). Clinical examination revealed bilateral frontal and periorbital oedema and tenderness over bilateral frontal and maxillary sinus regions. Computed tomography of the face revealed features of pansinusitis with a bone defect measuring about 1 cm in diameter in the anterior wall of the right frontal sinus, opacification of both frontal, ethmoidal, maxillary sinuses and thickening of adjacent epicranial tissues. Treatment consisted of surgery and antibiotics. An endoscopic approach for surgical drainage of all sinuses with resection of necrotic fragments, and obliteration of the right frontal sinus with medium viscosity bone cement was undertaken. A sample of the contents of the abscess was collected for bacteriological culture. Initial antibiotic therapy consisted of empirical treatment with



**Figure 1: Image of the Patient**



**Figure 2: CT Scan Showing Bone Defect in Right Frontal Sinus**

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intravenous cefuroxime and amikacin. As cultures were negative, this treatment was continued for one week, followed by oral cefuroxime for six weeks. Broad-spectrum antibiotics were used immediately postoperatively and in the longer term due to the severity of the infection. The postoperative course was uneventful. Three months later, no abnormality was detected on clinical examination and computed tomography showed opacification of sinuses with no pathological signs. The patient was asymptomatic 6 months after surgery.

### **DISCUSSION**

Pott's puffy tumour was described by Percivall Pott in 1760 in *Injuries of the Head from External Violence* as a complication of trauma. This disease was subsequently observed as a complication of frontal sinusitis (Blackman, 2005). It has become very rare since the age of antibiotics, with very few cases reported in the recent literature (Plaza, 2005). This disease is more frequent in children and young male adults (Chandy, 2001).

The nasal sinus infection can be responsible for frontal osteomyelitis by direct extension of infection to bone or by thrombophlebitis of diploic veins. This extension of frontal osteomyelitis can erode the anterior wall of the frontal sinus and form a subperiosteal abscess generating a fluctuating and painful swelling of the forehead. The diagnosis of Pott's puffy tumour must be considered when clinical examination reveals a fluctuating and painful swelling of the forehead in a patient with sinusitis or a history of trauma to this region. The diagnosis is confirmed by CT examination of the face (Plaza, 2005). This case report presented the typical features of the disease: small girl with pansinusitis and a very painful fluctuating swelling of the forehead. Treatment consists of surgical drainage of the abscess, excision of necrotic fragments and intravenous antibiotics for 6 weeks, adapted to the pathogen (1,6). Endoscopic surgery gives good results (Chandy, 2001). As exposure of the entire frontal sinus and resection of all pathological mucosa is essential, obliteration of the frontal sinus can be easily performed. Obliteration materials may be synthetic, such as hydroxyapatite cement, or natural: bone, fat or cartilage (Alexandre, 1995). Hydroxyapatite cement is a safe and effective obliteration material for infected frontal sinus and for reconstruction of frontal sinus defects (Petruzzielli, 2002). This technique is associated with minimal morbidity and can achieve complete osseointegration (Synderman, 2001). Topical treatment is also important with nasal vasoconstrictors and mucolytics. Pott's puffy tumour can be complicated by potentially fatal intracranial extension such as extradural or subdural empyema, cerebral abscess and/or cerebral vein thrombosis (Kung, 2002).

### **CONCLUSION**

Complications of sinusitis have decreased as a result of the use of antibiotics, but continue to occur sporadically. Ear, nose and throat surgeons and primary care physicians must therefore be aware of this possibility. Pott's puffy tumour, although very rare, can be complicated by intracranial extension that can be fatal. Pott's puffy tumour should be attended to as early as possible. A combination of endoscopic surgical approach and intravenous antibiotics has shown favourable results.

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