Pott's puffy tumour

A previously healthy 39-year-old man presented with a right forehead mass that had been growing for 3 months. He had also had a throbbing frontal headache for 1 month. There was no history of diabetes or intravenous/intranasal drug abuse. He was afebrile and the forehead mass measured 5 cm in diameter. The skin was erythematous with pointing of the mass, which was tender, and fluctuation could be demonstrated. Right periorbital oedema was found. Cranial nerves were normal. Other systemic reviews were normal. Complete blood count showed neutrophil predominant leukocytosis (white blood cell count, 19 x 10^5/L [normal range, 4.5-11.0 x 10^5/L]). Liver and renal function tests were normal. Skull X-ray showed right frontal coin-shaped radiolucency (Fig 1). Computed tomography scan of the brain with contrast showed a 2.5 x 5.5 x 6 cm well-circumscribed hypodense lesion in the scalp over the right forehead connecting to another 1.5 x 2.5 x 3 cm intracranial extra-axial lentiform hypodensity with rim enhancement through the eroded right frontal sinus (Figs 2 and 3). A preoperative diagnosis of Pott's puffy tumour with extradural empyema was made. The patient had immediate surgery. Bicoronal scalp incision with drainage of the abscess and adequate debridement with ablation of the right frontal sinus was performed (Fig 4). Pus contained *Streptococcus milleri*, which was sensitive to penicillin. A section of abscess wall showed fibrous necrotic material with acute and chronic inflammatory infiltrate. The patient was treated with high-dose intravenous benzylpenicillin for 3 weeks, followed by amoxicillin orally for a further 3 weeks. Computed tomography scan of the brain after 2 weeks showed resolution of the abscess and he fully recovered from the disease and surgery with no neurological deficit.

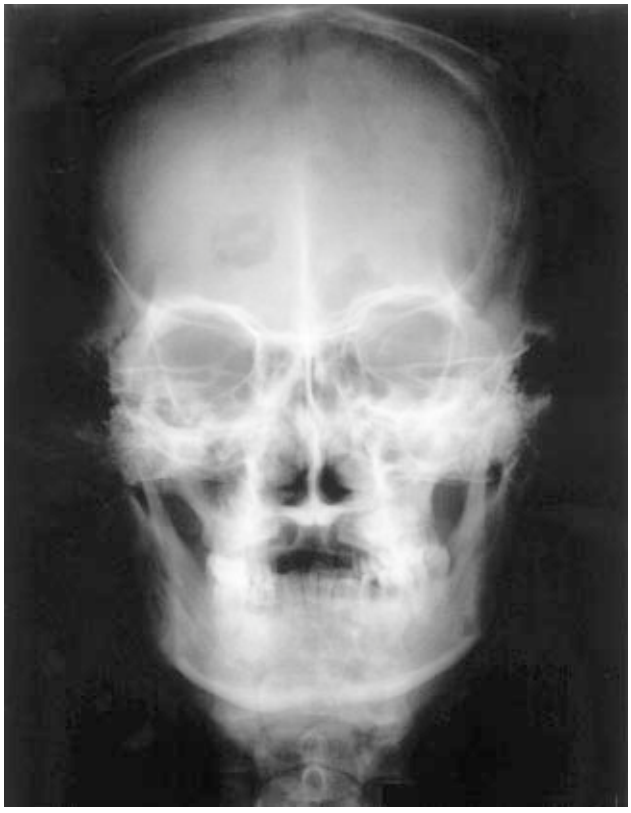

Fig 1. Skull X-ray showing a coin-shaped radiolucency

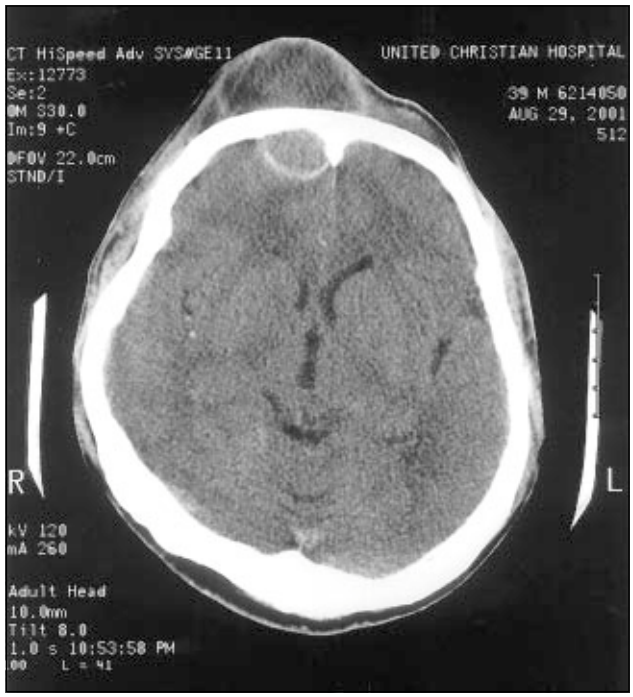

Fig 2. Computed tomography brain scan with contrast showing subgaleal and extradural abscesses

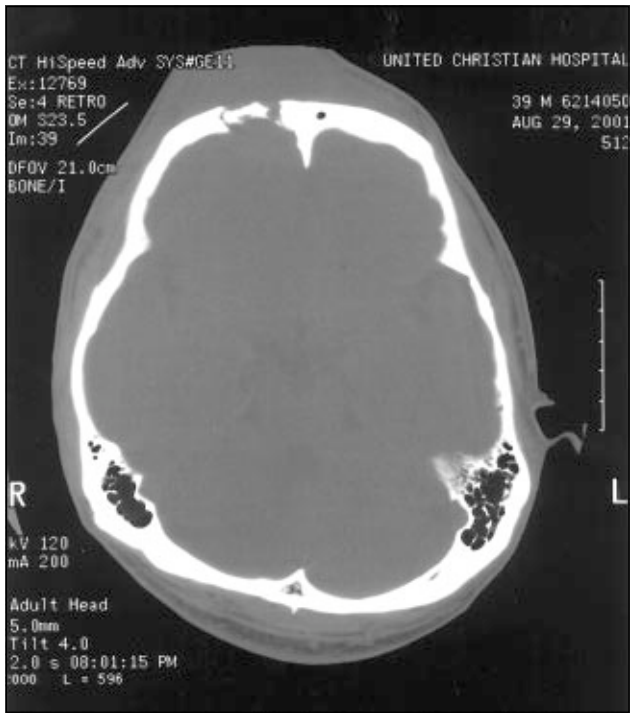

Fig 3. Computed tomography brain bone window showing eroded right frontal sinus

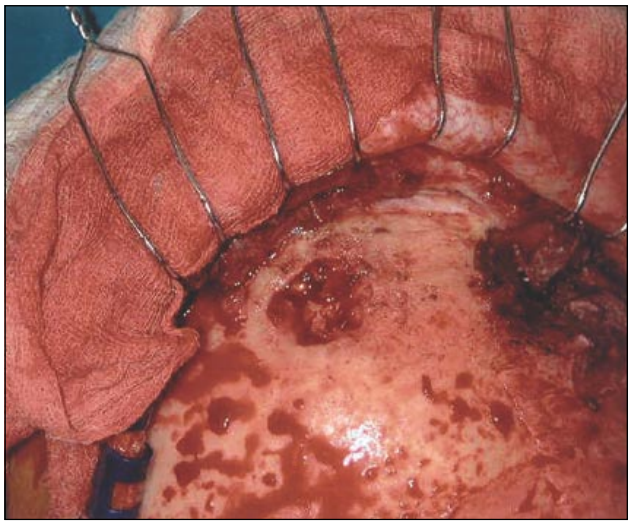

Fig 4. Intra-operative photograph showing eroded right frontal bone

Sir Percivall Pott described Pott's puffy tumour in 1768 as a local subperiosteal abscess due to frontal bone suppuration resulting from trauma.[1,2] Pott reported another case due to frontal sinusitis in 1775. These remain the most common causes of the condition, although fewer cases have been reported since the introduction of antibiotics. Most patients presented with an indolent forehead swelling with or without systemic septic features, which were often mistaken for a 'simple scalp abscess' or 'infected sebaceous cyst'. Simple drainage will result in recurrent collection or complications from spreading infection. The condition requires open drainage with adequate soft tissue and bony debridement. Intracranial complications include extradural empyema, subdural empyema, brain abscess, and venous or sinus thrombosis.[3-5] *Streptococcus milleri* is the most common organism related to chronic sinusitis reported in the literature. *Staphylococcus*, *Bacteroides*, or mixed growth have also been reported.[4] However, the bacteriology will be different from acute sinusitis (*Streptococcus pneumoniae* or *Haemophilus influenzae*). In chronic sinusitis, mucosal hyperaemia and swelling closes the sinus ostia and leads to a fall in oxygen tension within the sinus. This favours the growth of micro-aerophilic and anaerobic strains, for example *S milleri*.

Pott's puffy tumour is a rare condition of subperiosteal abscess formation due to frontal osteitis. The most common cause is partially treated suppurative chronic frontal sinusitis. The condition can be complicated by life-threatening intracranial spread of infection. Early diagnosis with awareness of this condition is the key to preventing complications.

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