EMERGENCY CASEBOOKS

Osteomyelitis of calvarium after trivial scalp laceration

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A 16 year old girl had been swimming in the River Trent where she sustained a cut to her forehead after diving in. Within two days there was diffuse swelling around her eyes and forehead which had appeared to settle over the course of the week. However, at 10 days after injury a forehead lump had developed that continued to increase in size over a 14 day period while observed as an accident and emergency (A&E) outpatient. At this point a plain radiograph of the skull was performed that showed an area of osteomyelitis (fig 1). Further imaging with computed tomography showed an area of soft tissue swelling with underlying osteomyelitis of the frontal bone (fig 2), although the inner table was not breached. Although systemically well and not demonstrating any neurological signs, she was admitted for a course of antibiotics and to have the collection aspirated. She was given intravenous ciprofloxacin, metronidazole and fucidin, initially intravenously for four days before conversion to oral doses. Culture of the aspirate grew *Escherichia coli* that was sensitive to ciprofloxacin. Triple therapy was continued for three weeks and ciprofloxacin for a further six weeks on the advice of the microbiologists. Throughout this time she remained well and repeat skull radiographs showed no progression of the lytic area. At five months after injury she was well and skull radiography showed continued resolution of the osteomyelytic lesion, although she will be followed up closely.

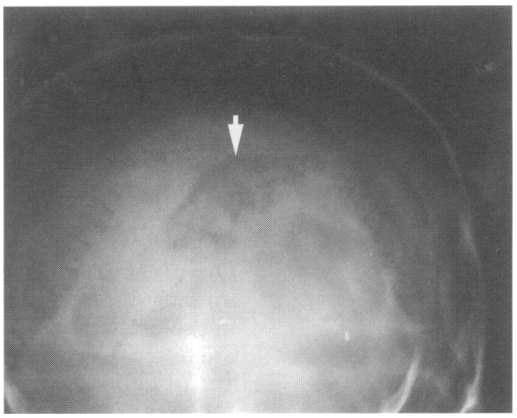

Figure 1 Skull radiograph showing area of osteomyelitis and sequestrum formation.

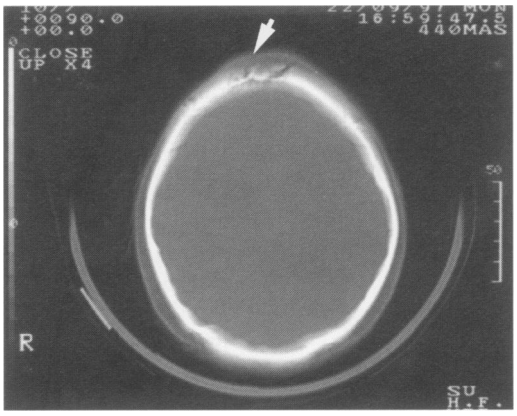

Figure 2 Computed tomography showing soft tissue swelling and underlying osteomyelitis of the frontal bone.

Osteomyelitis of the skull bones is a rare occurrence, although there are a number of recognised causes described in the literature, the commonest being osteomyelitis of the skull base secondary to sinus infection, or in the immunocompromised.[1] It has also been recognised in neonates when secondary infection occurs as a rare complication of the relatively common cephalohaematoma[2] and in those patients who develop it in relation to pin site infection from halo traction or after cranial surgery. Cases secondary to minor trauma, however, are exceedingly rare, there being only one report in the recent literature. In this instance infection occurred after scalp injury from a human tooth.[3]

Management of minor head injuries and the associated soft tissue injury constitutes a significant part of the work load in an A&E department. Oddities such as this can be missed unless a high index of suspicion is maintained when any trivial case fails to respond in an expected way to routine management. Our advice in such circumstances is to seek early neurosurgical and microbiological referral so that appropriate high dose antibiotics can be started as soon as possible.

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1 Malone DG, O'Boynick PL, Ziegler DK, *et al.* Osteomyelitis of the skull base. Neurosurgery 1992;30:426–31.
2 Ellis SS, Montgomery JR, Wagner M, *et al.* Osteomyelitis complicating neonatal cephalohaematoma. Am J Dis Child 1974;127:100–2.
3 Phillips NI, Robertson IJA. Osteomyelitis of the skull vault from a human bite. Br J Neurosurg 1997;11:168–9.