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When a mastoid swelling is not mastoiditis

T. Hung, M.A., F.R.C.S., P. Huchzermeyer, F.R.C.S.

Abstract
A case is reported of swelling over the mastoid process due to subgaleal abscess possibly secondary to trivial cutaneous trauma. The diagnosis was difficult as subgaleal abscess is an extremely rare condition especially after the advent of the antibiotic era. The route of entry of the infection to the subgaleal space was unclear as there was no skin puncture. The absence of substantial trauma excluded subgaleal haematoma as a precondition. We would like to discuss the possible aetiologies and the management of this rare case in the light of the limited information available in the world literature.

Key words: Abscess; Skull; Mastoid; Erysipelas

Introduction

The subgaleal space is formed beneath the epicranial aponeurosis. The aponeurotic layer is the occipito-frontalis that is fibrous over the dome of the skull but muscular in the occipital and frontal regions. This muscle arises from the superior nuchal line of the occipital bone, gains a fascial insertion into the zygomatic arch, and inserts anteriorly into the subcutaneous tissues of the eyebrows and nose.

Emissary veins connecting dural sinuses and superficial scalp veins occupy the subgaleal space along with loose connective tissue. Rupture of the bridging veins as a result of shearing force can lead to haematoma formation. The presence of scalp laceration in association with haematoma may lead to the development of an extensive subgaleal abscess.[1]

Case report

A 52-year-old Caucasian woman presented to the Ear, Nose and Throat Department with a two-week history of painful and erythematous swelling of the scalp in the left temporal region. There was no history of head trauma. She was treated by her GP with oral flucloxacillin. Despite the two-week course of antibiotics, the temporal swelling continued to enlarge and extended to both the pre-auricular and mastoid regions. She was referred to us with a diagnosis of 'mastoiditis'. She does suffer from a dry and itchy scalp and admitted to intermittent scratching with her fingers. There was no history of otorhinological symptoms. She was taking mesalazine for her ulcerative colilitis which was in remission.

The patient looked toxic on admission. Her temperature was 38° Celsius. There was a tender and fluctuant 10 × 8 cm area of swelling spanning the left temporo-parietal region to the mastoid region. There was no obvious skin abrasion. Left cervical lymphadenopathy was noted. Examination of the ear, nose and throat was normal. No focal neurological signs were elicited. There was a neutrophilia of 13.1 × 10^9/Litre and an erythrocyte sedimentation rate of 74 mm/hr. She was commenced on intravenous co-amoxiclav. An urgent computed tomogram (CT) of the head and brain was requested.

The CT showed an enhancing collection at the subgaleal space extending throughout the temporo-parietal region (Figure 1). There was no intracranial collection or opacity of the paranasal sinuses.

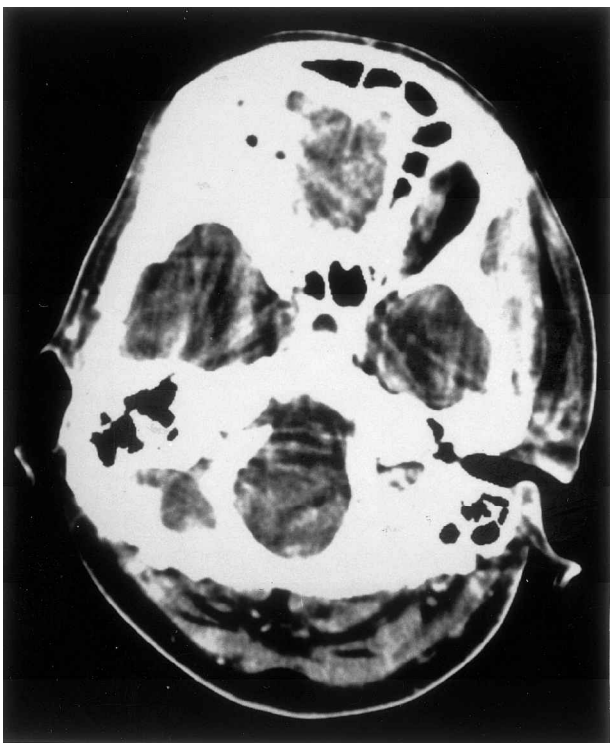

Fig. 1
CT scan showing subgaleal fluid collection in the left temporoparietal region.

From the Department of Otolaryngology, St George's Hospital, London, UK.
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Conservative treatment was adopted after consulting the neurosurgical team. The abscess was decompressed by needle aspiration under aseptic condition. Twenty ml of pus was sent for culture and sensitivity.

The responsible micro-organism was found to be *Streptococcus milleri*. The patient received repeated aspirations and antimicrobial treatment. She was discharged after symptomatic improvement and the last aspirate was shown to be sterile. A search for metastatic abscesses proved negative.

The patient was asymptomatic when reviewed in the out-patient clinic two weeks later.

Discussion

The formation of subgaleal abscess is mostly associated with badly treated overlying traumatic scalp lacerations or needle electrode insertion for foetal monitoring.[2] Prasad *et al*.[3] reported a rare case of subgaleal abscess secondary to the underlying osteomyelitis of the skull. Moreover Durand *et al*.[4] described a seven-year-old boy presenting with a posterior subgaleal abscess as a complication of minimally symptomatic paranasal sinusitis. The source of infection in our patient is unclear as there is a lack of visible evidence of scalp trauma and an apparently normal CT of the paranasal sinuses, skull and brain. Mesalazine-induced leucopenia was not a contributory factor as she had a leucocytosis as a result of the infection.

Operative debridement and drainage of subgaleal abscesses is favoured in the literature.[1,2,5,6] However all the subgaleal abscesses reported are associated with a major wound and a florid nidus of infection. The choice of conservative management is inappropriate in those cases as surgery is required to eradicate the source of infection and for the repair of the wounds. A major source of infection is lacking in our case. Simple aspiration and antibiotics treatment were sufficient as the infection was localized.

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Address for correspondence:
Mr Terry Hung, M.A., F.R.C.S.,
16 St Clements Mansions,
Lillie Road,
Fulham,
London SW6 7PG, UK.

Fax: +44 (0)20 7381 8432

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