Epidermoid cyst of the temporal region

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Epidermoid cysts are rare, slow-growing, benign, developmental cysts that are derived from abnormally situated ectodermal tissue. Epidermoid cysts may grow anywhere on the body and about 7% of them are located in the head and neck. In literature, very few epidermoid cysts have been reported in the temporal region. Histopathologically, they are lined with plain stratified keratin-producing squamous epithelium, although in some cases part of the lining is made up of mucous secreting and ciliated epithelium. This may suggest an endodermal rather than an ectodermal origin. We present and discuss the management of a patient presenting a posttraumatic epidermoid cyst of the temporal region. **(Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2011;112:e113-e116)**

Epidermoid cysts (ECs) are rare, slow-growing, benign developmental cysts derived from abnormally situated ectodermal tissue.[1-9] ECs may arise from the traumatic entrapment of surface epithelium or, more often, from aberrant healing of the infundibular epithelium during an episode of follicular inflammation.[1]

ECs are usually lined with plain, stratified, squamous epithelium and filled with laminated layers of horny material.[2,5] They exhibit no adnexal structure, but may contain cheesy keratinous material.[1,2,5] ECs may occur anywhere on the body, most commonly on the face, scalp, neck, chest, and upper back.[2] Their growth is slow and painless, and they attract little attention until their size causes annoyance.[1] Surgical excision is the most common treatment for such lesions.[2,3,5]

Computed tomography (CT) and magnetic resonance imaging (MRI) characteristics of ECs depend on the content of the cyst. ECs appear on CT images as expansile lesions with smooth sclerotic margins,[7] whereas typical MRI findings include well-circumscribed margins, iso- or slightly high signal intensity relative to adjacent muscles on T1-weighted images, and very high signal intensity on T2-weighted images.[6]

To our knowledge, ECs of the head and neck are relatively rare, although a few ECs in the temporal region have been reported.[3,4,10] The aim of this article was to present and discuss the management of a patient with a posttraumatic EC in the temporal region.

CASE REPORT

A 25-year-old man with an unremarkable medical history was referred to the Division of Maxillofacial Surgery, University of Torino, Turin, Italy, for the management of a slow-growing swelling in the right temporal region (Fig. 1). He reported a traumatic childhood event that affected the right temporal region. The patient presented with an esthetic complaint and slight pain and discomfort during mandibular function. On palpation, this lesion was soft, elastic, well limited, and not tender. Ultrasonography showed a subcutaneous, hypoechoic, homogeneous mass in the region of the right temporal muscle; a fine-needle aspiration biopsy suggested an EC. MRI confirmed the presence of a subcutaneous cystic lesion measuring approximately 8 × 1.5 cm in the right temporal region (Fig. 2).

We proposed the excision of the cystic lesion under general anesthesia, and the patient accepted this treatment option. A hemicoronal scalp incision was made behind the hairline and the lesion was exposed under the superficial layer of the temporalis fascia. The cystic mass appeared to extend into the temporal fossa. The entire lesion was excised and the incision was then sutured in layers.

Histopathological examination revealed that the cyst was lined by plain, stratified, keratin-producing squamous epithelium and filled with laminated layers of horny material (Fig. 3). The diagnosis of EC was thus confirmed.

The patient's postoperative course was uneventful and facial nerve function was normal. On the second postoperative day, the patient was discharged in good condition. The sutures were removed 10 days after the intervention. No sign of infection was observed.

Six months after the intervention, the short-term esthetic results were excellent and judged satisfactory by the patient (Fig. 4). He reported no pain or discomfort during mandibular function.

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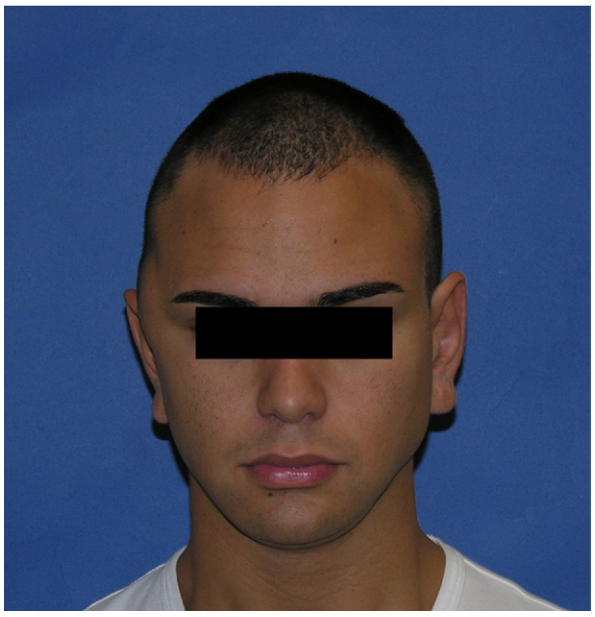

Fig. 1. Preoperative image of the patient. A swelling in the right temporal region can be appreciated.

This article was exempted from review by the human studies committee of our institutional review board, and we followed the guidelines of the Helsinki Declaration.

DISCUSSION

ECs have been considered to be ectodermal inclusion cysts lined by squamous epithelium.[7] Although they are relatively rare lesions, ECs may grow anywhere on the body and about 7% are located in the head and neck.[4,5] In particular, they occur in the calvarium, orbit, and intracranially in the posterior and middle fossae. Very few ECs in the temporal region have been reported.[3,4,10]

Subcutaneous ECs develop through the proliferation of epidermal cells within circumscribed dermal spaces. ECs can be divided into congenital and acquired types, depending on pathogenesis.[3,4,7] Two theories have been proposed to explain EC formation. First, ECs may develop through the congenital inclusion of ectodermal tissue during embryogenesis, with the fusion of 2 epidermal surfaces during early intrauterine life. Second, ECs may form through the traumatic entrapment of the surface epithelium in the deeper mesenchymal tissue as a result of surgical or accidental trauma.[1] In our case, traumatic pathogenesis appeared to be responsible for EC formation.

These cysts present in the first 4 decades of life. In contrast to dermoid cysts, ECs are typically located in the lateral scalp.[7] The EC reported here was located laterally, in the region of the right temporal muscle.

Clinically, ECs usually manifest as slow-growing, nontender, well-circumscribed swellings that enlarge over years or decades.[7] In our case, the EC reached noticeable dimensions and the patient reported discomfort related to the compression of the temporal muscle. The clinical diagnosis of EC is typically confirmed by ultrasonographic and radiographic imaging and fine-needle aspiration biopsies.

The characteristics of ECs on CT and MRI depend on the content of the cyst. ECs appear on CT images as expansile osteolytic lesions with smooth sclerotic margins. These cysts may remodel or erode the bone. Rarely, ECs show increased attenuation owing to the formation of calcium soaps. MRI is superior to CT in showing the extension of the soft-tissue component.[7] According to Suzuki et al.,[6] typical MRI findings of subcutaneous epidermal cysts include well-circumscribed margins, iso- or slightly high signal intensity relative to adjacent muscles on T1-weighted images, and very high signal intensity on T2-weighted images that resemble a fluidlike signal. Usually, no enhancement is visible within unruptured cysts. ECs should be investigated using CT or MRI before surgical intervention to rule out the possibility of intracranial extension.[4]

During surgery, ECs have the typical appearance of a cystic lesion filled with a creamy fluid. The treatment of ECs consists of surgical enucleation, with or without inclusion of the overlying skin. Several techniques have been proposed for the treatment of smaller lesions, such as punch incisions, elliptic incisions, and minimal excision techniques.[2,8,9] In our case, the cyst was removed via a hemicoronal incision behind the hairline to avoid temporal branches of the facial nerve and to obtain a positive esthetic result. The patient's postoperative facial nerve function was normal and the short-term esthetic results were excellent.

Histologic investigation should always be performed after cyst removal to rule out more infrequent conditions, such as basal cell and pilomatrix carcinomas.[4] Histopathologically, ECs are lined with plain, stratified, keratin-producing squamous epithelium, although part of the lining may be composed of mucous-secreting, ciliated epithelium. Such cases may be endodermal, rather than ectodermal, in origin.[5] They lack ectodermal appendages, such as hair and sweat glands, but contain a cheesy, keratinaceous material within the lumen owing to the squamous epithelial lining.[1] The recurrence of ECs is unlikely and no malignant transformation has been reported to date.[1]

In conclusion, ECs, even those with noticeable dimensions, may be treated readily if properly identified