EXTERNAL AUDITORY CANAL CHOLESTEATOMA AND KERATOSIS OBTURANS: THE ROLE OF IMAGING IN PREVENTING FACIAL NERVE INJURY

Edward D. McCoul, MD, MPH, Matthew B. Hanson, MD

Department of Otolaryngology, SUNY Downstate Medical Center, Brooklyn, New York

Objectives

We sought to report a series of external auditory canal cholesteatoma (EACC), to contrast with the similar entity of keratosi obturans (KO), and to identify aspects of disease presentation that may lead to complications.

Methods

Six cases of EACC diagnosed between 2005 and 2008 were identified from clinic records. Six cases of KO diagnosed during the same period were included for comparison. Imaging studies were reviewed for evidence of bony erosion and proximity of disease to vital structures.

Results

All 6 patients with EACC had diagnosis confirmed by computed tomography (CT) imaging that demonstrated widening of the bony external auditory canal. Four of these patients had critical erosion of bone adjacent to the facial nerve. In contrast, two patients with KO underwent CT imaging, neither of which demonstrated significant bony erosion or expansion. One patient manifested KO as part of a dermatophylactid reaction, and one developed osteomyelitis of the temporal bone. The essential component of treatment in all cases was microscopic debridement of the ear canal. Patient characteristics are summarized in the accompanying tables.

Discussion

EACC is a rare entity affecting the external ear. Otoscopic examination of EACC reveals a canal wall ulceration or defect in the bony canal just lateral to the tympanic annulus. The true extent of EACC may not be apparent on clinical examination alone, making imaging studies essential to establishing a diagnosis and avoiding iatrogenic complications. KO is a closely-related entity that is believed to be more common and less destructive. Recent reviews of the literature have failed to demonstrate consistent clinical signs or symptoms to distinguish these two entities.

Treatment of EACC may be limited to frequent cleaning and debridement of keratin debris in the outpatient setting. If chronic pain is present or the lesion is more extensive, surgical management may be necessary. Removal of a large EACC may be precluded by severe pain, which may be a sign of deeper penetration of the disease process, and warrants a CT scan to better define the depth of invasion and the extent of bony erosion. If the instrumentation does not produce excessive pain, complete office removal may be possible.

Once the ear canal is adequately cleaned, any expansion of the canal wall should be evaluated further by CT scan. It is important to refrain from anesthetizing the ear to facilitate patient comfort during cleaning, as this may mask an important sign of deep tissue invasion by an EACC. Attempts at removal of dense cerumen impaction should always be attempted under microscopic visualization. Attempts at irrigation of such an ear are contraindicated, as the hydraulic pressure may cause erosion of epithelium and formation of EACC.

In the present series, all patients were treated with serial microscopic debridement in the office, without the need for debridement under anesthesia. Interval recurrence was minimal and amenable to further office debridement, suggesting a potentially effective alternative to traditional surgical management.

A special consideration must be made when CT imaging demonstrates extensive dehiscence of the facial nerve in its course through the fallopian canal. Although not seen in this series, we believe that debridement in the operating room is warranted in such a case. Surgical debridement allows safe dissection and identification of the facial nerve in an uninvolved segment and safe removal of cholesteatoma with the benefit of facial nerve electromyography. Additional study is needed to support this recommendation.

Conclusions

EACC may produce significant erosion of bone with exposure of vital structures, including the facial nerve. Because of the clinical similarity to KO, misdiagnosis is possible. Temporal bone imaging should be obtained prior to attempts at debridement of suspected external canal keratosis. Increased awareness of these uncommon conditions is warranted to prompt appropriate investigation and prevent iatrogenic complications such as facial nerve injury.