CASE REPORT

ACINIC CELL CARCINOMA OF THE PAROTID GLAND PRESENTING AS AN EXTERNAL AUDITORY CANAL MASS

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Accepted 22 April 2003
Published online 23 September 2003 in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/hed.10347

Abstract: Background. The fissures of Santorini have long been known as a gateway for disease to pass from the external auditory canal to the periparotid and neck spaces. Although anatomically understandable, description of disease that originates in the parotid gland and extends through the fissures to the external auditory canal is rare. This is, in fact, the first presentation of such a patient at our institution in a previously untreated patient.

Methods. A 43-year-old woman was seen with a mass in her right external auditory canal. Further evaluation found this to be the presenting finding of a parotid neoplasm. The patient also had a right marginal mandibular paresis. Biopsy of the external auditory canal mass provided a diagnosis of an acinic cell adenocarcinoma. She underwent a right lateral temporal bone resection, type III modified neck dissection, and radical parotidectomy with facial nerve sacrifice and rectus abdominus reconstruction with facial nerve grafting.

Results. Pathologic examination of the specimen revealed an acinic cell carcinoma of the right parotid gland with focal dedifferentiation into a high-grade adenocarcinoma.

Conclusions. Care should be taken with auditory canal masses to remember the possibility that disease is extending from the parotid through the fissures of Santorini, and evaluation and management should proceed accordingly.

Keywords: Acinic cell carcinoma; fissures of Santorini; parotid neoplasm

Malignant otitis externa has long been described to extend from an external auditory canal through the fissures of Santorini into the parotid and neck spaces. Initially described by the Italian anatomist in the eighteenth century, these fissures are clefts in the anteroinferior aspect of the cartilaginous portion of the external auditory canal.

Acinic cell carcinoma is also a well-described entity. Most commonly seen in the parotid gland, acinic cell carcinoma has been described in the mandible, accessory parotid gland, maxillary sinus, lacrimal gland, and oral cavity sites, including the palate, lip, buccal mucosa, and tongue.

We present a case of acinic cell carcinoma of the parotid gland that presented as an external auditory canal mass.

CASE REPORT

A 43-year-old woman was seen by her internist for a routine examination, at which time a small mass was found in her right external auditory canal (Figure 1). The patient had no other significant medical or surgical history and reported no otorrhea, trismus, otalgia, or change in her hearing. Physical examination revealed no other findings in or around the ear, with no palpable parotid mass or lymphadenopathy. The patient...
FIGURE 1. Endoscopic photograph of the right auditory canal depicting a small mass in the anterior inferior quadrant.

FIGURE 2. Axial CT revealing a $3 \times 1.7$ cm right-sided deep lobe parotid lesion just adjacent to the mastoid process with no radiographic signs of erosion into the base of skull or mandible.
was referred for further evaluation to an otolaryngologist, who biopsied the area, providing a diagnosis of acinic cell adenocarcinoma. The patient also had a weakness of the marginal mandibular branch of the facial nerve. The patient had a normal audiogram and a CT, which revealed a \(3 \times 1.7\) cm right-sided deep lobe parotid lesion, which was adjacent to the mastoid process with no erosion of the base of skull or mandible (Figure 2). Because of the invasive nature of the tumor noted by the clinical presentation of partial compromise of facial nerve function, the patient was counseled on the need for extensive surgery to ensure removal of disease. The patient underwent a right lateral temporal bone resection, type III modified neck dissection, and radical parotidectomy with facial nerve sacrifice and rectus abdominus reconstruction with facial nerve grafting and received postoperative radiotherapy.

RESULTS
Pathologic examination of the specimen revealed an acinic cell carcinoma of the right parotid gland with a focal dedifferentiation into a high-grade adenocarcinoma (Figure 3). The maximum diameter of the tumor was 3.0 cm, with invasion of the temporal bone and facial nerve. No lymphovascular invasion was noted, and all margins, including the facial nerve margins, were free of tumor. On evaluation of the neck contents, 27 lymph nodes were found to be free of tumor.

DISCUSSION
In the evaluation of the isolated mass in the external auditory canal, the physician must fully evaluate the extent of the mass before succumbing to the temptation of biopsy. Once a mass is discovered, imaging is often helpful to determine the true extent of the lesion and its relationship to the middle ear, pinna, brain, temporomandibular joint, parotid gland, and surrounding vasculature. In these cases, it often helps for the practitioner to directly contact the imaging technologist to ensure that 1-mm cuts are obtained. After imaging, a biopsy for tissue diagnosis is recommended.

Numerous lesions can occur in the external auditory canal. Benign bony lesions such as osteomas and exostoses can be differentiated on imaging from fibrous canal hypertrophy. Malignancies include cutaneous neoplasms such as squamous cell, basal cell, melanoma, Merkel cell, and primary malignancies of the minor salivary/eccrine glands of the auditory canal, primary malignancies and metastatic disease occurring in the temporal bone, and direct extension of parotid masses as seen in this case. Salivary gland neoplasms also have different cell types varying from low-grade benign masses to high-grade

**FIGURE 3.** Dedifferentiated acinic cell carcinoma (H & E stain, original magnification \(\times 400\)). (A) Differentiated acinic cell component. (B) Dedifferentiated component with necrosis.
malignant processes. Tissue diagnosis is helpful, because this will guide the surgical management with regard to nodal basin dissection. Whereas local excision of the primary tumor should definitely be achieved even in the absence of prior diagnosis, operative findings and final pathologic findings can help guide decisions for postoperative adjuvant therapy.

Acinic cell carcinoma typically arises in the parotid gland, although as mentioned previously, other sites have been reported. These tumors usually bode a favorable prognosis in relation to other parotid tumors. Although these tumors rarely metastasize, they are prone to local recurrence if not completely excised. In the most extensive review to date, locally extensive disease was almost certainly followed by local recurrence and death, regardless of the extent of primary surgery. Cure rates were found to be 76%, 63%, and 55% at the 5-, 10-, and 15-year marks, respectively. In the same review, cervical lymph node metastasis occurred in 16% of the patients, with 12% exhibiting distant metastases.

In the presented case, the locally aggressive nature of the disease necessitated a lateral temporal bone resection with parotidectomy with facial nerve sacrifice and neck dissection. Without impacting on surgical margins, the pinna was spared. The rectus abdominus free flap graft assisted in aesthetic reconstruction of the deep space deficit and the facial nerve graft. Because of the local aggressive nature of the disease, the high-grade adenocarcinoma differentiation, as well as the bony invasion and perineural spread, the patient underwent radiation therapy and remains under continued follow-up. At this time she is 2 years from her initial surgery and remains free of disease.

**Acknowledgment.** The authors thank Dr. Andrew G. Huvos and Dr. Karim Khetani for their assistance with this manuscript.

**REFERENCES**