ENT PATHOLOGY CLINIC

Ear ceruminous adenoma

Lester D.R. Thompson, MD

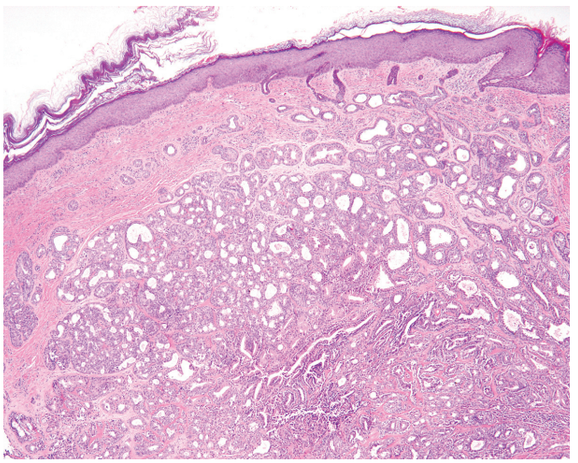

Figure 1. An H&E-stained slide shows a ceruminous adenoma's biphasic glandular proliferation. There is a lack of encapsulation, with fibrosis separating the epithelial cells. The surface epithelium is intact.

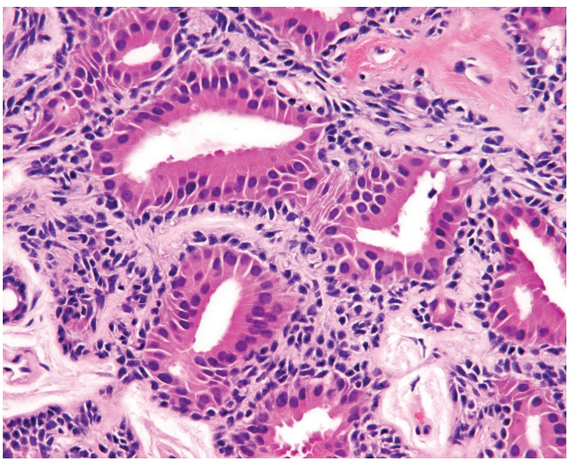

Figure 2. A high-power view shows the biphasic nature of the neoplasm. The inner apocrine, secretory cells have a brightly eosinophilic cytoplasm with small, yellow granules, subtended by a basal cell proliferation of smaller myoepithelial type cells with a high nuclear-to-cytoplasmic ratio.

Ceruminous adenoma, also called *ceruminoma, ceruminal adenoma, apocrine adenoma,* or even *cylindroma* in the past (the latter three terms are discouraged) is a benign glandular neoplasm of ceruminous glands (modified apocrine sweat glands) that arises solely from the external auditory canal. By definition, this tumor type cannot involve the auricular cartilages, ear lobe, or other such external ear apparatus.

Ceruminous adenoma accounts for <1% of all external ear tumors, usually affecting middle-aged (mean, 55 years) patients, without gender predilection. Patients usually present with a mass that is most often on the posterior wall of the outer one-third to outer one-half 0of the external auditory canal. There may be associated pain, hearing loss (sensorineural and conductive), tinnitus, or even paralysis of the nerves. Complete excision will be curative, with incomplete excision associated with an increased risk of recurrence.

Most of these tumors are small (mean, 1.2 cm), largely a function of the anatomic confines of the region. They are separated histologically into three types: (1) ceruminous adenoma; (2) ceruminous pleomorphic adenoma; and (3) ceruminous syringocystadenoma papilliferum, although the latter two are exceedingly uncommon. Regardless of the type, these tumors tend to be well circumscribed but unencapsulated (figure 1). There is frequently a background of dense, sclerotic fibrosis that may simulate invasion. The tumors are moderately cellular, arranged in a mixture of glandular and cystic patterns, each comprised of a dual cell population (figure 2).

The inner luminal secretory cells have apocrine decapitation secretions, or blebs, and abundant granular,

From the Department of Pathology, Southern California Permanente Medical Group, Woodland Hills Medical Center, Woodland Hills, Calif.

eosinophilic cytoplasm. Specifically, there are yellow-brown, ceroid, lipofuscin-like (cerumen) pigment granules within the cytoplasm of these luminal cells, which are surrounded by basal, myoepithelial cells lined up along the basement membrane. There is usually very limited pleomorphism and a lack of necrosis. Mitoses are inconspicuous.

A ceruminous pleomorphic adenoma is identical to a salivary gland pleomorphic adenoma, thus showing chondromyxoid matrix material juxtaposed to, and blended with, epithelium, with the added feature of ceruminous differentiation among the epithelial cells. It is important to separate a primary external auditory canal tumor from a parotid salivary gland tumor with local extension into the ear. The ceruminous papillary cystadenoma papilliferum has papillary projections lined by cuboidal to columnar cells, a dense plasmacytic infiltrate, and cells with ceruminous differentiation.

Immunohistochemistry is not necessary for the diagnosis, but stains can be used to highlight the biphasic nature of the tumor cells. The luminal cells will be positive for CK7, EMA, and pankeratin; the latter two are also positive in the basal cells. Additionally, the basal cells will stain with CK5/6, p63, and S-100 protein.

This tumor type is unique to the external auditory canal. With the exception of ceruminous adenocarcinoma, other neoplasms are rarely identified in this location. Ceruminous adenocarcinoma has an infiltrative and destructive growth pattern with pronounced cellular pleomorphism and prominent nucleoli. Mitoses and necrosis can be seen. Ceroid pigmentation is absent. Ceruminous adenocarcinoma is also divided into types, but it is the *not otherwise specified* (NOS) type rather than the adenoid cystic type that would give the most difficulty in the differential diagnosis.

Suggested Reading

Crain N, Nelson BL, Barnes EL, Thompson LD. Ceruminous gland carcinomas: A clinicopathologic and immunophenotypic study of 17 cases. Head Neck Pathol 2009;3(1):1-17.

Hicks GW. Tumors arising from the glandular structures of the external auditory canal. Laryngoscope 1983;93(3):326-40.

Mills RG, Douglas-Jones T, Williams RG. 'Ceruminoma'—a defunct diagnosis. J Laryngol Otol 1995;109(3):180-8.

Thompson LD, Nelson BL, Barnes EL. Ceruminous adenomas: A clinicopathologic study of 41 cases with a review of the literature. Am J Surg Pathol 2004;28(3):308-18.