Carcinoma of the Lacrimal Canaliculus Masquerading as Canaliculitis

A patient experiencing epiphora was diagnosed both clinically and intraoperatively as having canaliculitis. Pathologic examination of canalicular “concretions” disclosed carcinoma arising in the lacrimal canaliculus, a rare occurrence.

Report of a Case. A 66-year-old woman had complained of rightsided epiphora for 2 years. Various allergies were diagnosed and drops prescribed, affording no relief. Ultimately, an inner canthal mass was noted and interpreted as a walled-off abscess of the lower canaliculus, extending into the sac. Palpation produced no punctal discharge. Irrigation through the superior system revealed blockage at the sac level. The diagnosis was old canaliculitis with pyocele. A right dacryocystorhinostomy was performed, including a canaliculotomy that exposed gelatinous material and “concretions.” The sac appeared normal. Curettage of the lower canaliculus was performed.

Histopathologic examination showed multiple papillary configurations containing atypical epithelial cells surrounding fibrovascular cores. Areas of elongated, spindle-like cells with scant cytoplasm were present, as well as zones of atypical squamous cells with abundant eosinophilic cytoplasm, intercellular bridges, and mitotic figures (Figure 1). In situ hybridization for human papillomavirus (HPV) was positive using combined probes for HPV types 16/18, but negative for types 31/33 and 6/11. The lacrimal sac showed chronic inflammation but no tumor.

Computed tomography of the orbits showed a 1.7 × 2.0-mm right medial canthal soft tissue mass extending into the ethmoid sinus (Figure 2). Extraocular muscles, globes, and optic nerves were unremarkable. Further surgery involved piecemeal excision of the tumor, as well as the upper and lower canaliculi, with Jones tube placement. Pathologic examination showed similar tumor in inner canthal tissue but not in the nasal mucosa or eyelids. One week after surgery, nasal endoscopy identified the stoma and Jones tube but no tumor. Three months later, a mass resembling a pyogenic granuloma was noted in the inferior conjunctival fornix, near the tube (Figure 3). The mass was excised and pathologic examination showed recurrent carcinoma. Computed tomography demonstrated a 1.5-cm soft tissue mass of the right lacrimal fossa with possible erosion of the ethmoid bone.

Surgical exploration of the previous dacryocystorhinostomy site disclosed a small amount of additional tumor surrounding the Jones tube. The tube was removed and the tumor excised, proving again to be carcinoma. Subsequent radiation therapy was given to the right medial orbit using a 3-dimensional conformal plan with a total of 6300 rad (6300 cGy). An orbital computed tomographic scan repeated 3 months later showed no increase in radiographic soft tissue nodularity and no new osseous abnormality. No evidence of recurrence of the tumor was noted during the next 2 years of follow-up. An uneventful cataract extraction was performed in the right eye during this period.

Comment. Although lacrimal sac masses, encountered infrequently in ophthalmic practice, are usually inflammatory, a variety of neoplasms may occur, three fourths being of epithelial origin. The rare carcinomas of the lacrimal sac nearly always arise in the sac mucosa, producing such signs as epiphora, bloody tears, epistaxis, and a mass extending above the medial canthal tendon. Only 2 cases of carcinoma originating primarily in the canaliculus with extension into the sac have been reported. In one, a papillary squamous cell carcinoma was excised and recurred aggressively, requiring major reexcision. In the other, an ulcerated medial canthal mass contained transitional carcinoma, possibly of multicentric origin, in the canaliculus and sac with vascular and lymphatic spread. Diagnostic confusion in our case related to absence of the classic signs of bloody tears or a mass superior to the canthal tendon.

Spread from lacrimal sac carcinomas may occur locally to the orbit and nasolacrimal duct or systemically by lymphatic or hematogenous routes. Two of the patients described by Ryan and Font died of local invasion. In a report from China, the patients of Ni et al had more advanced disease and a 37.5% death rate, presumably owing to late diagnosis. Half of the patients showed extension beyond the sac, 40% showed proptosis, and half showed bony invasion.

Human papillomavirus has been demonstrated in epithelial neoplasms of the urogenital tract, cervix, and larynx. Benign lesions tend to harbor types 6 and 11, whereas malignant lesions contain
types 16, 18, 31, and 33. In one report, approximately 50% of 17 squamous tumors of the conjunctiva and lacrimal sac contained HPV DNA types 6, 16, and 18. Types 6 and 11 are commonly found in conjunctival papillomas; however, HPV types 16 and 18 have been found in normal conjunctiva in 32% of subjects, rendering their role in oncogenesis unclear. The mechanism of HPV-16 carcinogenesis in squamous cell carcinomas of the head and neck may involve the inactivation of the P53 gene by HPV E6 oncoprotein.

The terminology of malignancies arising from the stratified columnar sac epithelium is controversial. Some pathologists prefer squamous cell carcinoma to transitional carcinoma, noting that the elongated spindle-shaped “transitional” epithelium is found in genitourinary tract pathology. Our case showed mixtures of atypical spindle-shaped epithelial cells and malignant squamous cells with abundant eosinophilic cytoplasm and intercellular bridges, a combination similar to that of conjunctival intraepithelial neoplasia. The term epidermoid carcinoma has been used synonymously with squamous cell carcinoma and transitional carcinoma, while mucoepidermoid denotes the addition of mucin-producing cells.

Treatment of lacrimal sac carcinomas is primarily surgical with frozen section control, which is rendered difficult by the convoluted anatomy of the inner canthal nasolacrimal system. Radiotherapy is recommended only as an adjunct to radical surgery wherein exenteration has been performed or when the tumor has extended into the paranasal sinuses or nose.

Although a high index of suspicion is invaluable in the early diagnosis of these uncommon neoplasms, routine pathologic examination of lacrimal sac biopsy specimens following dacryocystorhinostomy should uncover clinically unsuspected pathology. One study addressed the controversy regarding the need to routinely

Figure 1. The surgical specimen contained atypical epithelial cells in papillary configuration. A, Fronds of atypical epithelial cells (hematoxylin-eosin, original magnification ×64). B, Mixture of atypical elongated transitional cells and squamous cells (original magnification ×160). C, Atypical spindle-shaped transitional cells (original magnification ×400).
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Slowly Progressive Vision Loss in Giant Cell Arteritis

Vision loss in patients with giant cell arteritis (GCA) typically occurs over the course of seconds to days and often involves the other eye soon after. We describe a patient with arteritic anterior ischemic optic neuropathy and unusually slow progression of reversible vision loss for 1 month in the fellow eye.

Report of a Case. A 93-year-old man taking warfarin sodium (Coumadin) because of atrial fibrillation woke with sudden painless vision loss in the right eye. Visual acuity was counting fingers OD and 20/30 OS. He identified 10 of 10 Ishihara...