the number of involved nodes is small, a situation more common in patients with positive SLNs than in those who develop clinically apparent disease. It is not unreasonable to assume that this pattern is also true for conjunctival melanomas. Therefore, the potential for improved regional control and survival offers a rationale for studying SLN biopsy in patients with conjunctival melanoma.

At present, the role of adjuvant systemic therapy for conjunctival melanomas is unclear. Since nodal disease is a powerful prognostic factor for distant failure, SLN biopsy may allow for early detection of high-risk patients. If this is the case, then patients with nodal disease can be offered protocols for systemic adjuvant therapy in addition to complete surgical dissection of the involved basins. Adjuvant therapy may consist of systemic administration of interferon or chemotherapy, or a combination of these approaches.25-28 Despite the additional surgery time required for SLN biopsy and the potential risk of facial nerve damage if the nodes are in the parotid area, the likely improvement in nodal staging and the possible survival benefit offered by this technique warrants its further study in patients with conjunctival melanoma and possibly other ocular adnexal tumors with a propensity for metastasis to the regional nodes. A larger-scale study needs to be undertaken to evaluate the rate of positivity of SLNs in patients with conjunctival melanoma. Our experience with SLN biopsy for conjunctival melanomas suggests that this technique can be done safely and should be considered for lesions that are thicker than 1 mm; it should be performed, however, in the confines of an institutional review board–approved protocol so that observations about the rate of positivity of SLNs can be reliably reported in the future. It is important to point out that while our observations in this single patient validate the concept that SLN biopsy should be considered for patients with high-risk melanomas of the conjunctiva, they should not be interpreted as recommendations for routine SLN biopsy in every patient with conjunctival melanoma.

Bita Esmaeili, MD
Houston, Tex
David Reifler, MD
Grand Rapids, Mich
Victor G. Prieto, MD, PhD
M. Amir Ahmad, MD
Lillie Hidaji, BA
Ebrahim Delpassand, MD
Merrick I. Ross, MD
Houston

The authors have no relevant financial interest in this article. We thank Stephanie Deming for her invaluable editorial contribution to this report.

Corresponding author and reprints: Bita Esmaeili, MD, Ophthalmology Section, Department of Plastic Surgery, Box 443, M. D. Anderson Cancer Center, 1515 Holcombe Blvd, Houston, TX 77030 (e-mail: esmaeili@mdanderson.org).


Metastasis of Acinic Cell Carcinoma of the Parotid Gland to the Contralateral Orbit

Acinic cell carcinoma is an uncommon low-grade malignant tumor of the salivary glands, in which some cells resemble normal acinic cells. Most of these tumors occur in the parotid gland.1,2 Women are affected more often than men, and the age at occurrence is earlier than in other salivary gland cancers.2 Most cases are unilateral, and bilateral involvement has rarely been reported. Conversely, an unusual case of synchronous acinic cell carcinomas of the left parotid and right submandibular glands has previously been described.3

(Reprinted) ARCH OPHTHALMOL/VOL 121, DEC 2003 WWW.ARCHOPHTHALMOL.COM

©2003 American Medical Association. All rights reserved.
The superficial portion of the neck showed an unusual appearance, and ultrasonography of the biopsy suggested an epithelial neoplasm. A fine-needle aspiration of a right parotid mass of 2 months' duration. Referred to and seen in the Ophthalmology Department with a right parotid swelling. A 54-year-old white woman came to the Maxillofacial Department with a right parotid mass. The primary tumor previously excised. After exclusion of any other distant metastasis with a computed tomographic scan of the abdomen and chest, radiotherapy to the left orbit was performed.

Although acinic cell carcinomas rarely metastasize, they have a high tendency to recur locally if they are incompletely excised. We describe a patient with acinic cell tumor arising in the parotid gland, with metastases to the contralateral orbit, submandibular salivary gland, and submandibular lymph node.

**Report of a Case.** A 54-year-old white woman came to the Maxillofacial Department with a right parotid mass of 2 months' duration. Results of a fine-needle aspiration biopsy suggested an epithelial neoplasm, and ultrasonography of the neck showed an unusual appearance of the superficial portion of the parotid and submandibular glands, and an enlarged submandibular lymph node. In January 2002, a right partial parotidectomy with sampling of the right submandibular lymph node was performed. Histologic examination showed that the parotid gland contained acinic cell carcinoma (Figure 1) extending to within 0.2 mm of the surgical excision margin, with a possibility of incomplete excision. Four mitoses in 40 high-power fields were noted in the tumor cells. The right submandibular lymph node contained a tumor growing in nests of large tumor cells showing vesicular nuclei with prominent nucleoli and granular cytoplasm, suggesting metastatic acinic cell carcinoma.

A magnetic resonance image of the head and neck was performed 3 weeks after the surgery and could not exclude residual tumor in the parotid gland because of postoperative changes in the parotid area. Incidentally, the image demonstrated a lesion approximately 1 cm in diameter in the left orbit that was intracanal, lying between the medial rectus muscle and the optic nerve, and that did not appear to arise from either structure (Figure 2).

Initially, the orbital lesion was not thought to be related to the salivary gland tumor, as an early metastasis with contralateral spread from the acinic cell carcinoma was believed to be very unlikely. It was therefore decided to monitor the orbital lesion with repeat magnetic resonance imaging at a later date. A right total parotidectomy with sacrifice of a part of the facial nerve, excision of contents of the right submandibular triangle, and supramental node sampling were performed. Histologic examination demonstrated complete excision of the residual tumor in the parotid bed. There was an island of tumor within the excised right submandibular gland that was believed to be either metastatic or a synchronous tumor.

Postoperative adjuvant radiotherapy was carried out, during which time the patient visited her optometrist with symptoms of blurred vision and diplopia. The latter was controlled with the addition of a 10–prism diopter Fresnel prism base out to the distance segment of the spectacle.

In June 2002, the patient was referred to and seen in the Ophthalmology Department for consideration of eyelid surgery to reduce the exposure of the right eye that resulted from the surgically induced facial nerve palsy. By this time, however, her diplopia had also increased.

Examination demonstrated 10- and 12-prism diopter esophoria for near and distance, respectively, with slight left proptosis. The previously arranged follow-up magnetic resonance imaging was done 2 weeks later and showed enlargement of the orbital lesion with displacement of the optic nerve (Figure 3). The diplopia was worse, with considerable limitation of elevation, depression, and adduction of the left eye.

Excision biopsy of the orbital mass was performed. At surgery the mass was found to lie between the medial rectus muscle and the eye. The lack of a capsule and its gelatinous consistency prevented excision in toto, with the posterior portion in particular requiring piecemeal removal. Histologic examination showed the mass to be acinic cell carcinoma (Figure 4), compatible with the primary tumor previously excised. After exclusion of any other distant metastasis with a computed tomographic scan of the abdomen and chest, radiotherapy to the left orbit was performed.

![Figure 1](https://example.com/figure1.png) Acinic cell tumor arising in the parotid tissue with a small group of normal parotid acini (bottom left) (hematoxylin-eosin, original magnification ×200).

![Figure 2](https://example.com/figure2.png) Axial magnetic resonance image of the orbits showing a lesion approximately 1 cm in diameter in the left orbit.
On follow-up in December, 11 months after the initial diagnosis of acinic cell carcinoma of the parotid gland, the patient had no evidence of tumor and had left convergent squint causing intermittent diplopia.

Comment. We found 2 reported cases of distant metastasis from parotid gland tumor to the orbit4,5 in the English-language literature. The primary tumors were mixed parotid tumor4 and polymorphous low-grade adenocarcinoma.5

Acinic cell carcinoma represents approximately 5% to 17% of all salivary gland cancers1,2 and can very rarely arise from the lacrimal gland.6 Spiro et al7 reported a distant metastasis rate of 12%, mainly to lung, bone, and brain. On gross pathological examination, acinic cell carcinoma is fairly well circumscribed and may appear encapsulated. Four histopathologic patterns have been described: solid, microcystic, papillary-cystic, and follicular.1 It is not uncommon for these patterns to coexist in the same tumor. Batsakis et al8 categorized acinic cell carcinoma into low-grade and high-grade neoplasms.

Low-grade tumors are broadly interpreted as those most closely resembling the architecture of a normal salivary lobule. High-grade tumors are poorly differentiated and resemble the early phases of embryonic development of acini.

Controversy persists regarding the prognostic value of assigning grade by histologic analysis of acinic cell carcinoma.2 In a recent report by Hoffman et al,2 the high-grade cancers were significantly associated with age of more than 30 years, advanced stage, and distant metastasis at initial manifestation.

In our case, the acinic cell tumor was found in the parotid gland, the submandibular gland, and a lymph node. The primary tumor seemed to be partially encapsulated, but mitotic figures were seen, suggesting malignant potential. Metastasis to the orbit occurred very early in the disease process and was discovered only incidentally. The metastatic tumor in the orbit had grown considerably in 5 months, causing proptosis and diplopia.

Tarek A. Saleh, FRCSEd
Kim N. Hakin, FRCOPhth
Michael J. Davidson, FRCSEd
Taunton, England

We thank David Turner, FRCPath, PhD, Department of Pathology, Taunton and Somerset Hospital, Taunton, England, for his advice.

Corresponding author: Tarek A. Saleh, FRCSEd, Eye Department, Taunton and Somerset Hospital, Musgrove Park, Taunton, Somerset TA1 5DA, England.

Retinal Astrocytic Hamartomas: Unexpected Findings in a Giant Panda

We report the unexpected findings of bilateral retinal astrocytic hamartomas in a giant panda. The eyes of Hsing-Hsing, a giant panda that had renal failure, chronic hypertension, degenerative joint disease, and progressive ulcerative keratitis, were examined grossly and histologically. Most of the findings were related to Hsing-Hsing’s debilitated condition or to normal anatomic variations between giant pandas and humans. These findings included anatomic features typical of a carnivore and metastatic calcification of the cornea and tapetum secondary to renal failure, retinal arteriolar sclerosis and hemorrhage due to hypertension, and bilateral corneal ulcers due to septicemia. Bilateral retinal astrocytic hamartomas were also unexpectedly found. The clinical importance of retinal astrocytic hamartomas is discussed.

Report of a Case. We report a case of retinal astrocytic hamartomas of unknown cause in the eyes of a 28-year-old male giant panda (Ailuropoda melanoleuca). The eyes were obtained from Hsing-Hsing (Figure 1), who was euthanized at the Smithsonian National Zoological Park (Washington, DC) because of advanced renal failure leading to several degenerative conditions including chronic renal failure, degenerative joint disease, chronic epistaxis, decreased mobility, progressive keratitis, and bilateral corneal ulcers with reduced vision. The Smithsonian National Zoological Park (Washington, DC) submitted both eyes to the ophthalmic pathology division at the Armed Forces Institute of Pathology (Washington, DC) for examination in November 1999.

Hsing-Hsing and his mate Ling-Ling came to the United States in 1972 in exchange for a pair of musk oxen, as gestures of goodwill between the United States and the People’s Republic of China. The pandas were instant celebrities seen by millions of people and taken into the hearts of children everywhere.

Ling-Ling died of heart failure in 1992. At her death, she and Hsing-Hsing were aged 23 years and believed to be the oldest giant pandas living outside of the People’s Republic of China. Hsing-Hsing developed arthritis and was castrated to treat a testicular tumor at the age of 26 years. During the last year, he displayed remarkable resilience despite kidney failure and associated symptoms.

Both eyes included findings related to Hsing-Hsing’s physical state, in addition to the unexpected finding of retinal astrocytic hamartomas. There were no other lesions supportive of tuberous sclerosis. There have been only 2 previous reports of ocular pathologic findings in giant pandas, and neither described retinal astrocytic hamartomas.1,2

Astrocytic hamartomas are benign tumors. In humans, these tumors are more commonly associated with tuberous sclerosis (Bourneville disease) and less frequently seen in neurofibromatosis 1 (von Recklinghausen disease) and neurofibromatosis 2 or as isolated occurrences.3,5 These hamartomas are usually found in the retina and optic disc. Because of the strong association between tuberous sclerosis and retinal astrocytic hamartoma in humans,