Peribulbar Oncocytoma: High-Frequency Ultrasound With Histopathologic Correlation

Madhavi Kurri, MD
Paul T. Finger, MD
Julian P. S. Garcia, Jr., MD
Susan Schneider, MD

Abstract. The clinical, ultrasonographic, and histopathologic characteristics of an oncocytoma of the conjunctiva are described. A 49-year-old woman presented with a red-orange lesion adjacent to the caruncle in her left eye. A clinical examination including high-frequency ultrasound was performed prior to excisional biopsy of her tumor. High-frequency ultrasound demonstrated an epibulbar tumor with low internal reflectivity and a cystic component. There was no involvement of the underlying sclera. Multiple hypoechoic components of the tumor stroma were correlated to multiple cystic glandular structures on histopathologic evaluation. The excised tumor was diagnosed to be an oncocytoma. [Ophthalmic Surg Lasers Imaging 2006;37:154-156.]

INTRODUCTION

Ocular oncocyotomas are rare, benign tumors commonly found near the caruncle and with a predilection for elderly women.1,2 They rarely occur on the bulbar conjunctiva or eyelid.3 The tumor is composed of transformed epithelial cells from glandular ducts and represents age-related metaplastic and neoplastic proliferation of glandular epithelium. This case report illustrates the clinical, high-frequency ultrasonographic, and histopathologic characteristics of this tumor.

CASE REPORT

A 49-year-old woman presented with a 5-year history of a slow-growing tumor on her left eye. Ophthalmic examination revealed a best-corrected visual acuity of 20/20 in both eyes. Slit-lamp examination revealed an elevated red-orange, polyloid tumor adjacent to the caruncle in the left eye (Fig. 1). Results of anterior segment and dilated funduscopic examination were normal in both eyes. High-frequency ultrasonography (OTI HF 35-50 High Frequency Ultrasound System; Ophthalmic Technologies Inc., Toronto, Ontario, Canada) of the lesion demonstrated an oval tumor with low internal reflectivity (Fig. 2). There was no involvement of the underlying sclera (Fig. 2). Multiple hypoechoic components of the tumor stroma were correlated to multiple cystic glandular structures seen on histopathology (Fig. 3).
After a full discussion of the risks and benefits of treatment, informed consent was obtained and an excisional biopsy was performed. Histopathologic evaluation revealed a small, benign neoplastic proliferation of oncocytes forming a multinodular tumor in the substantia propria. Cystic glandular structures were noted (Fig. 3, left). Histopathology also demonstrated that the tumor was composed of large cells with abundant eosinophilic granular cytoplasm. The cells were tall and either were arranged in sheets or formed tubular structures (Fig. 3, right). This histopathology was diagnostic of oncocytoma. Eighteen months after surgery, there has been no recurrence of the tumor.

**DISCUSSION**

Schaffer was the first to recognize and coin the term "oncocytans," referring to the swollen and granular cells that aggregate to form tumors in glandular tissue. These tumors have been described in various sites, including the salivary gland tissue of the head and neck, parathyroid gland, pituitary gland, kidney, testes, adrenal gland, breast, and the gastrointestinal tract. Oncocytomas account for 3% of all tumors seen
in the ocular adnexa and were first described by Radnot in 1941.5

Biggs and Font studied 18 patients with oncocytic lesions involving the ocular adnexa and found that the predilection for developing these tumors was higher in elderly women and most common in the caruncle and adjacent bulbar conjunctiva.6

Oncocytomas are polypoid in configuration and well vascularized. The tumor has distinctive microscopic and ultrastructural features. Cells with granular and eosinophilic cytoplasm produced by accumulation of altered mitochondria are a salient feature. These features combined with the tumor's relation to advancing age demonstrate that oncocyes represent the age-related accumulation of altered mitochondria in secretory epithelium. Although these tumors are largely benign, rare instances of malignant transformation of oncocytomas have been reported.6,7

Ultrasonographic evaluation of conjunctival oncocytic tumors has not been described. We found the high-frequency ultrasound a useful tool in the preoperative evaluation of ocular adnexal tumors.8,9 The nature (including cystic components), extent of the tumor (including depth), and involvement of the underlying sclera can be visualized and help plan excision.

Although nevi, pyogenic granulomas, and sebaceous gland hyperplasia can be found in the caruncle, the presence of a red-orange, polypoidal lesion should suggest the possible diagnosis of an oncocytoma in an elderly woman. Interestingly, our patient did not belong to the typically elderly age group. Herein, the value of high-frequency ultrasound in the management of this tumor has been clearly demonstrated.

REFERENCES