Conjunctival T-cell Lymphoma

A Clinicopathologic Case Report

Abdulrahman Al-Muammar, MBBS, William G. Hodge, MD, PhD, James Farmer, MD

Objective: To report a patient with conjunctival T-cell lymphoma, an extremely rare entity.

Design: Single case report.

Methods: Based on clinical examination, an excisional biopsy and immunostaining were performed on the conjunctival lesion. For management, we excised and performed triple freeze-thaw cryotherapy to the involved area, and we consulted the oncology service.

Main Outcome Measures: T-cell and B-cell markers, and clinical examination of the lesion.

Results: Both examination and laboratory assessment revealed no evidence of systemic involvement. Conjunctival biopsy showed expansion of the substantia propria with an infiltrate of chronic inflammatory cells (including lymphocytes, plasma cells, and eosinophils), and prominent lymphocyte exocytosis with reactive epithelial changes. The CD-45 RO (T-cell marker) was strongly positive, whereas the CD-20 (B-cell marker) was negative. The T-cell receptor gene rearrangement was positive with beta clonality, confirming the diagnosis of T-cell lymphoma.

Conclusions: T-cell lymphoma is a rare but possible diagnosis of gelatinous conjunctival lesions. The oncology consultants were reluctant to treat the patient with systemic chemotherapy or radiation because extraconjunctival extension could never be documented. The answer to the question of what is the most appropriate treatment for conjunctival T-cell lymphoma remains unknown. *Ophthalmology 2006;113: 459–461 © 2006 by the American Academy of Ophthalmology.*

The most common type of eye/ocular adnexal lymphoma is non-Hodgkin's B-cell with extranodal marginal zone (MALT type),[1] whereas the T-cell and T/natural killer-cell lymphoma type is rare, accounting for only 1% to 3% of all lymphomas in these sites.[2] Most cases of ocular T-cell lymphoma represent an extension of mycosis fungoides,[3] or secondary manifestation of systemic lymphoma.[1] This report presents a patient with a primary unspecified, peripheral T-cell lymphoma of the conjunctiva, an extremely rare entity.

Case Report

A 57-year-old female presented with redness and tearing in her right eye for 3 months. Visual acuity was 20/200, and slit-lamp examination revealed an elevated gelatinous, erythematous, nodular conjunctival lesion in the supratemporal aspect, extending to the limbus. The rest of the eye examination and ultrasound biomicroscopy were normal. Ocular and medical histories were not contributory.

An excisional biopsy was performed. Light microscopy was undertaken. Immunostaining for T- and B-cell markers were performed. T- and B-cell receptor gene rearrangements were studied to further specify the type of tumor present.

The conjunctival biopsy showed expansion of the substantia propria with an infiltrate of chronic inflammatory cells, including lymphocytes, plasma cells, and eosinophils, and prominent lymphocyte exocytosis with reactive epithelial changes (Fig 1). Within the lymphocytic population, there were both small lymphocytes and larger, atypical ones, which on high power had enlarged convoluted nuclei (Fig 2); these same lymphocytes were found in the epithelium. Immunostaining was performed; the CD-45 RO (T-cell marker) was strongly positive, whereas the CD-20 (B-cell marker) was negative. T-cell receptor gene rearrangement was positive with beta clonality, confirming the diagnosis of T-cell lymphoma. Further B-cell analysis, including immunoglobulin gene rearrangement and evidence of t(14:18) translocations, was negative.

For management, we excised and performed triple freeze-thaw cryotherapy to the involved area and consulted oncology. Both examination and laboratory assessment revealed no evidence of systemic involvement. Based on their diagnosis of a localized tumor, the oncology service recommended orbital radiation therapy in a dose of 2500 centigrays in 10 fractions.

Six months later the patient returned with an elevated limbal lesion in the superior temporal quadrant of the right eye. Conjunctival biopsy showed features similar to the original biopsy, but the infiltrate was less prominent, and the cytologic atypia in the larger lymphocytes was less striking than the previous. Immunohistochemical staining showed likely recurrence of the peripheral T-cell lymphoma. We elected to start the patient on topical mitomycin (0.04%) 4 times a day in the right eye for three 1-week cycles. She has been followed up for 24 months with no recurrence.

Originally received: April 28, 2005.
Accepted: October 6, 2005. Manuscript no. 2005-380.

From University of Ottawa Eye Institute, Ottawa, Canada.

Correspondence to William G. Hodge, MD, PhD, University of Ottawa Eye Institute, 501 Smyth Road, Ottawa, ON, K1H 8L6, Canada. E-mail: whodge@ottawahospital.on.ca.

ISSN 0161-6420/06/$–see front matter
doi:10.1016/j.ophtha.2005.10.042

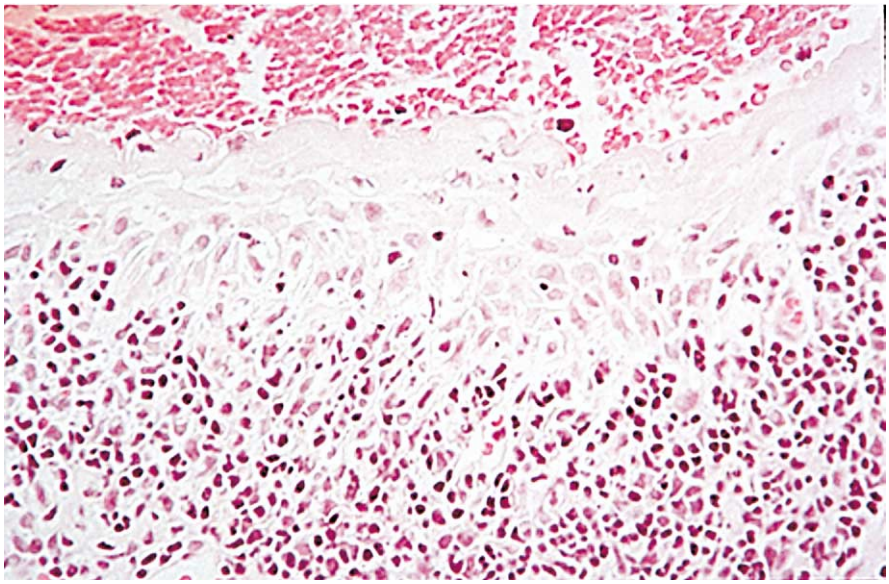

Figure 1. Biopsy of conjunctiva showing expansion of the substantia propria with an infiltrate of chronic inflammatory cells and prominent lymphocyte exocytosis with reactive epithelial changes.

Discussion

The clinical signs of conjunctival lymphoma typically appear as a gelatinous, inflammatory mass of the bulbar conjunctiva. Initial clinical differential diagnosis includes scleritis, carotid cavernous fistula, or squamous dysplasia. Pathologically, T-cell lymphoma may demonstrate a mixed chronic inflammatory infiltrate with lymphocyte exocytosis into the epithelium without necrosis. Immunohistochemical evaluation on fresh tissue for T-cell markers as well as T-cell receptor gene rearrangement studies substantiates T-cell neoplasia.

Conjunctival T-cell lymphoma is a very rare entity. Our search strategy uncovered only 3 other reported patients.[4–6] In all 3 patients, the conjunctival lymphoma was part of a systemic lymphoma, and systemic chemotherapy was undertaken. In 1 case,[5] the patient was still alive after 18 months of follow-up, but in the other 2 cases the patients died at 1 month[6] and 11 months[4] after diagnosis. Our patient seems to this point to have isolated disease and we believe

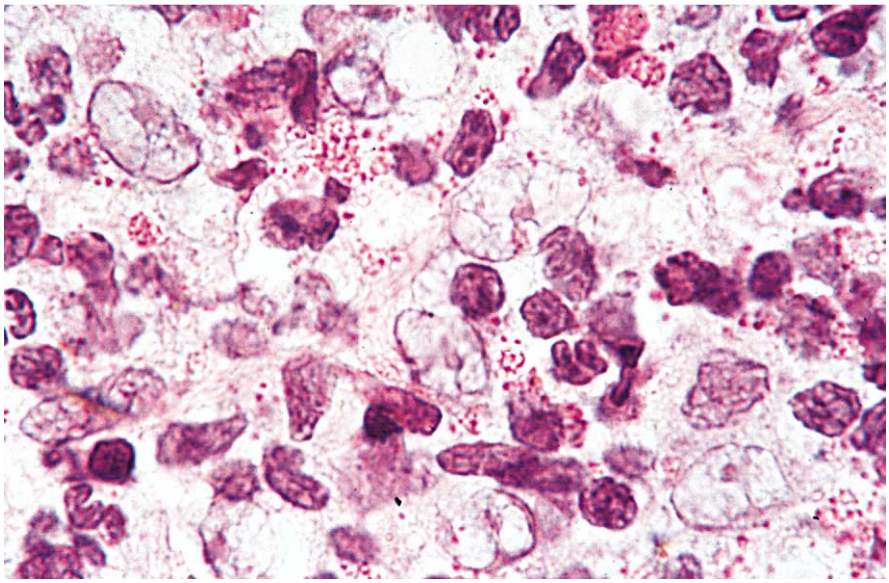

Figure 2. The chronic inflammatory infiltrate within the substantia propria on further examination revealed predominantly lymphocytes, but included plasma cells and eosinophils. Within the lymphocytic population were both small lymphocytes and larger atypical ones, which on high power had enlarged convoluted nuclei.

that patients with no systemic involvement with T-cell lymphoma have not been reported. The use of topical mitomycin C for this lesion is also unique thus far.

Peripheral T-cell lymphoma is considered a high-grade lymphoma[7]; nevertheless, the oncology consultants were reluctant to treat this with systemic chemotherapy or radiation because extraconjunctival extension could never be documented. Ultimately, the treatment of this patient encompassed excision, cryotherapy, local radiation, and topical mitomycin C. The answer to the question of what is the most appropriate treatment for conjunctival T-cell lymphoma is not known.

References

1. Coupland SE, Foss HD, Assaf C, et al. T-cell and T/natural killer-cell lymphomas involving ocular and ocular adnexal tissues: a clinicopathologic, immunohistochemical, and molecular study of seven cases. Ophthalmology 1999;106: 2109–20.
2. Coupland SE, Krause L, Delecluse HJ, et al. Lymphoproliferative lesions of the ocular adnexa. Analysis of 112 cases. Ophthalmology 1998;105:1430–41.
3. Leib ML, Lester H, Braunstein RE, Edelson RL. Ocular findings in cutaneous T-cell lymphoma. Ann Ophthalmol 1991; 23:182–6.
4. Shields CL, Shields JA, Eagle RC. Rapidly progressive T-cell lymphoma of the conjunctiva. Arch Ophthalmol 2002;120: 508–9.
5. Hu FR, Lin JC, Chiang IP, Yeh KH. T-cell malignant lymphoma with conjunctival involvement. Am J Ophthalmol 1998; 125:717–9.
6. Widmer S, Tinguely M, Egli F, Thiel MA. Lethal Epstein-Barr virus associated NK/T-cell lymphoma with primary manifestation in the conjunctiva. Klin Monatsbl Augenheilkd 2005; 222:255–7.
7. Bhatia S, Paulino AC, Buatti JM, et al. Curative radiotherapy for primary orbital lymphoma. Int J Radiat Oncol Biol Phys 2002;54:818–23.