Clinical Variability of Ocular Involvement in Mycosis Fungoides

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Mycosis fungoides (MF) is the most prevalent subtype of cutaneous T-cell lymphoma, characterized by a monoclonal proliferation of CD4+/CD45RO+ helper T cells. It initially presents with erythematous plaques, patches, or tumors, but it may progress to involve the lymph nodes and visceral organs. Infiltration of the eye and ocular adnexa by MF is uncommon. Intraocular involvement most commonly occurs in patients who have advanced systemic disease, but the ophthalmic findings may rarely be initial presenting signs of MF. In this report, we describe 4 cases that demonstrate the clinical variability of ocular involvement in patients with MF. The study was approved by the institutional review board of California Pacific Medical Center. Patients provided written consent.

Report of Cases

Case 1
A man in his 50s presented in 2002 with a 2-month history of a rapidly enlarging isolated left lower eyelid mass. He had no systemic symptoms such as fever, chills, or malaise or a history of skin lesions. His examination was significant for an ulcerated 2.5 × 2.5 × 3-cm left lower eyelid mass that resulted in mechanical ectropion and periorbital edema. Inferior conjunctiva showed a giant papillary reaction while results of the remainder of the ocular examination were unremarkable. Biopsy of the mass was positive for cutaneous T-cell lymphoma consistent with MF, which was treated with local radiotherapy. The patient has had a very complicated clinical course, with several recurrences involving the upper and lower left eyelid, right upper eyelid, and multiple facial lesions (Figure 1). He underwent repeated radiotherapy, systemic chemotherapy, and multiple facial reconstructive surgical procedures. The relentless disease of the left upper eyelid resulted in severe exposure keratopathy and corneal scarring, with hand motion vision OS. He is currently alive with an active nasal lesion and is undergoing systemic chemotherapy with liposomal doxorubicin and pralatrexate.

Case 2
A woman in her 80s with a history of MF diagnosed in 1995 presented in 2012 with a 4-month history of vitritis in the left eye. She underwent a diagnostic vitrectomy and was referred to the Ophthalmic Oncology Clinic at California Pacific Medical Center for further management. Her examination was significant for 1+ vitreous cell in the left eye. There was no anterior segment inflammation or chorioretinal lesions. Vitreous cytologic evaluation showed numerous large cerebriform nuclei in the background of necrosis, which was consistent with MF (Figure 2). The patient was treated with intravitreal injections of methotrexate, 400 μg, with a good response. No evi-
Evidence of active ocular disease was noted on her examination 8 months after the treatment. The patient died 4 months later of complications from systemic disease.

Case 3
A 50-year-old man presented in 1993 with a 1-month history of progressive vision loss in the left eye. His medical history was significant for hairy cell leukemia diagnosed in 1988, which was successfully eradicated with systemic chemotherapy. After developing skin lesions and nodules in late 1992, he was diagnosed with T-cell lymphoma consistent with MF. On examination, his visual acuity was 20/20 OD and hand motion vision OS. There was a positive afferent papillary defect in the left eye. Results of examination of the right eye were unremarkable. Results of examination of the left eye were significant for the presence of 2+ anterior vitreous cells and a large amelanotic posterior pole choroidal mass that measured $14 \times 9 \times 2.5$ mm and involved the fovea (Figure 3). The patient underwent transscleral fine-needle aspiration biopsy of the choroidal mass, which was positive for T-cell lymphoma consistent with MF. His left eye was treated with 30 Gy of photon radiotherapy for 3 weeks. The patient died of aggressive systemic disease several months later.

Case 4
A nearly 40-year-old man with a history of T-cell lymphoma consistent with MF diagnosed in 1994 presented in 1997 with a 1-week history of progressive vision loss and severe pain in the left eye. His vision was 20/20 OD and counting fingers at 1 ft OS. Intraocular pressures were 8 mm Hg OD and 33 mm Hg OS. Results of examination of the right eye were unremarkable. Results of anterior segment examination of the left eye were significant for 3+ conjunctival hyperemia, moderate corneal edema, fine keratic precipitates, 3+ anterior chamber cells, and flare and hypopyon with a small hemorrhage involving the inferior third of the anterior chamber. There were trace cells in the anterior vitreous. Results of the fundus examination were
normal. Results of the anterior chamber fine-needle aspiration biopsy were positive for T-cell lymphoma consistent with MF. Radiotherapy was recommended for the management of the intraocular involvement. The patient died of aggressive systemic disease 4 months later.

Discussion

Mycosis fungoides is a rare disease and accounts for 4% of non-Hodgkin lymphoma cases, with an annual incidence of 6.4 cases per million. Ocular abnormalities in MF are uncommon and occur in 2% of affected patients. Most ophthalmic findings are related to the eyelid and ocular surface disease. Ectropion is the most common manifestation of the ocular disease, which is indirectly caused by infiltration of the facial skin or by direct tumor involvement of the eyelid skin. The eyelid disease is usually difficult to manage and may lead to vision loss due to corneal scarring. The eyelid mass described in case 1 illustrates an isolated lesion originating in the lower eyelid as an initial manifestation of MF, which has not been previously reported, to our knowledge. In addition to the eyelid skin, the ocular surface may also be directly infiltrated by the tumor cells, resulting in nodular lesions on the conjunctival and caruncle.

Intraocular involvement is rarer and generally affects patients with extensive systemic disease. As evidenced by our cases, the clinical presentation of intraocular MF is clinically variable. Isolated anterior chamber involvement was seen in the patient in case 4, which has only been reported once. Isolated vitritis, panuveitis, chorioretinal lesions, and optic nerve infiltration have been described with MF previously. Intraocular disease is usually managed with radiotherapy or intravitreal injections of methotrexate. Vitreous involvement in the patient in case 2 was successfully treated with intravitreal methotrexate. Poor prognosis has been observed in patients with intraocular MF; all patients in this report who had intraocular involvement died of rampant systemic disease.

Conclusions

This case series demonstrates clinical variability of ocular involvement in patients with MF. The most common clinical findings are related to eyelid disease, which may result in corneal scarring and vision loss. We have reported a unique case of an isolated eyelid mass as an initial presentation of MF. Intraocular involvement signifies advanced systemic disease and portends a poor prognosis, as demonstrated by the cases in this report. Although rare, this case series suggests that ocular involvement should be taken into consideration in patients with a history of MF who present with new ocular symptoms before the alternative diagnosis is assigned.

REFERENCES