presence of spirochetes in the muscle warrants antibiotic treatment. The role of steroid therapy is unclear, although such treatment might abate the inflammatory response as the *B burgdorferi* organisms are eradicated.

The mechanism for lacrimal gland inflammation apparent in our patient was unclear, and tissue biopsy would have been required to differentiate between direct infiltration and sterile inflammation.

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**Financial Disclosure:** None reported.


**Figure 1.** A 71-year-old man with black tears was found to have a necrotic, invasive uveal melanoma. A, Black, pigmented debris was noted on the left lower eyelid and cheek. B, Episcleral melanocytosis inferonasally and massive extraocular extension of the uveal melanoma temporally. Note the black mucus lining the inferior fornix and dried on the upper eyelid and cilia. C, B-scan ultrasonography showed an echodense intraocular mass with a slightly more lucent base. D, Magnetic resonance imaging revealed an intraocular mass with an epibulbar and orbital component.


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**Black Tears (Melanodacryorrhea) From Uveal Melanoma**

The ocular surface is protected by a thin, 3-layered, clear tear film. Systemic and local diseases can affect the content and color of the tear film. Bloody tears (hemolacria [Latin] or hematodacryorrhea [Greek]) are a red discoloration of the tears associated with several conditions, including epistaxis, contact lens irritation, severe anemia, coagulopathies (hemophilia), conjunctival vascular tumors, Osler-Weber-Rendu disease, nasolacrimal sac tumors, and conjunctival melanoma. Additional conditions that can change the color of bodily secretions such as tears (rifampicin and fluorescein). In this article, we describe a patient with black tears (nigrolacria [Latin] or melanodacryorrhea [Greek]) who was found to have an extensively necrotic uveal melanoma by extraocular extension (EOE).

**Report of a Case.** A 71-year-old white man experienced painless blurred vision of the left eye for 2 months. During the previous 2 weeks, foreign-body sensation and black tears with black mucus production were noted. He had a chest trauma a few months before.
On examination, visual acuity was 20/30 OD and hand motions OS. Intraocular pressure was 22 mm Hg OD and 39 mm Hg OS. The periocular skin and cilia in the left eye displayed dried black debris from diffuse black tears (melanodacryorrhea) and black mucus on the ocular surface and in the fornix (Figure 1A). Ocular melanocytosis as a heterochromic dark brown iris and patchy episcleral pigmentation was found in the left eye (Figure 1B). On the temporal surface of the eye was an extensive, solid, pigmented mass that invaded the sub-Tenon space, the subconjunctival space, and the conjunctival epithelium. A mature cataract precluded a fundus view. Ocular ultrasonography disclosed an 18.0/110-mm, partially echodense mass with prominent intrinsic vascular pulsations (Figure 1C). Magnetic resonance imaging showed an enhancing, solid intraocular mass with EOE onto the anterior surface of the globe and into the orbital lacrimal fossa (Figure 1D). The final diagnosis was iridociliochoroidal melanoma with EOE. The tumor elevating the conjunctiva is largely necrotic (D, hematoxylin-eosin, original magnification ×250; E, bleach, original magnification ×250).

Comment. Extrascleral extension of uveal melanoma is a known risk factor for metastatic disease.5 Massive orbital extension of uveal melanoma is uncommon. The Collaborative Ocular Melanoma Study found EOE in 3% of eyes with medium choroidal melanoma and 8% of eyes with large choroidal melanoma.3

Our patient was unusual in that the large melanoma had egressed through 2 gaping scleral sites, leading to massive EOE. Moshari et al6 found more common scleral inflam-
formation (scleritis) in melanomas with necrosis than without necrosis in 334 eyes (76% vs 18%, respectively). This could predispose to scleral perforation and allow EOE. The inflammation, along with the remote history of trauma, could explain the 2 gaping scleral defects in our patient. Additionally, conjunctival epithelial invasion likely led to pigment dispersion into the tears and mucus.

Melanodacryorrhea is extremely rare, and our review of the published literature yielded no results. Despite its rarity, the presence of black tears should prompt an evaluation for an underlying, invasive melanoma with EOE.

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Financial Disclosure: None reported.

Funding/Support: This work was supported by the Retina Research Foundation of the Retina Society, Cape Town, South Africa (Dr C. L. Shields), the Paul Kayser International Award of Merit in Retina Research, Houston, Texas (Dr J. A. Shields), a donation from Michael, Bruce, and Ellen Ratner, New York, New York (Drs C. L. Shields and J. A. Shields), Mellon Charitable Giving from the Martha W. Rogers Charitable Trust, Philadelphia, Pennsylvania (Dr C. L. Shields), the LuEsther Mertz Retina Research Foundation, New York (Dr C. L. Shields), the Eye Tumor Research Foundation, Philadelphia (Drs C. L. Shields and J. A. Shields), and the Noel T. and Sara L. Simmonds Endowment for Ophthalmic Pathology, Wills Eye Institute (Dr Eagle).


**COMMENTS AND OPINIONS**

**Fluctuation of Intraocular Pressure as a Predictor of Visual Field Progression**

We read with interest the article by Hong et al.1 The authors studied the functional outcomes of 408 eyes that underwent combined glaucoma and cataract surgery with insertion of an intraocular lens. The eligible eyes were required to have intraocular pressures (IOPs) below 18 mm Hg during a mean (SD) follow-up of 9.2 (3.6) years. The authors conclude that, despite a seemingly equivalent mean IOP, eyes that had a higher standard deviation of IOP (SD > 2 mm Hg) during the follow-up period were more likely to progress compared with eyes that demonstrated a lower standard deviation of IOP (≤ 2 mm Hg).

The role of IOP fluctuation as a predictor of glaucoma progression beyond that of mean IOP reduction is controversial. Post hoc analysis of data from the Advanced Glaucoma Intervention Study suggests that IOP fluctuation is a major risk factor for visual field progression in glaucoma.2 However, methodological concerns have been raised. A recent analysis of data from the Early Manifest Glaucoma Trial failed to find a significant role for IOP fluctuation in that study sample.3 The study by Hong et al could have been a major contribution to our knowledge in this regard. Unfortunately, major methodological shortcomings invalidate the conclusions.

The facts that a large number of eyes (408 eyes) were operated on by a single surgeon and that they were followed up for an average of more than 9 years are the main strengths of this study. Also, cataract extraction at the time of glaucoma surgery removes a potential source of confounding. However, there are several methodological issues.

The authors have failed to mention how the cutoff point of 2 mm Hg was selected for dividing the study sample. A priori determination of such classification criteria is of major importance in such settings. Preliminary exploratory analyses of data to find an appropriate cutoff point would potentially bias the results and compromise the validity of the findings.

The authors used Swedish interactive thresholding algorithm (SITA)—standard visual fields for following up patients. The SITA software for Humphrey Field Analyzer (Carl Zeiss Meditec International, Dublin, California) became available in 1997. The authors should comment on how the data from full-threshold and Sita-standard visual fields were combined for performing pointwise linear regression analysis.

The authors have not mentioned the long-term outcomes of their study sample or whether additional laser or incisional surgical procedures were needed. Since the IOP standard deviation data are reported for the whole duration of follow-up, additional surgical procedures could lead to a higher fluctuation and would be potentially associated with a higher rate of progression, because at least some of the second surgical procedures were likely done for progressing eyes.

The authors have failed to list the baseline and follow-up parameters in the 2 groups. Indeed, it would have been more meaningful to compare the above characteristics in the progressing and nonprogressing groups as a preliminary step to a multivariate analysis.

Most importantly, multivariate analysis was not performed to adjust for the other known or potentially significant predictive factors for progression. Given the variable follow-up of patients, survival analysis methods with time-dependent factors would have been most appropriate.