Bevacizumab Therapy for Tamoxifen-Induced Crystalline Retinopathy and Severe Cystoid Macular Edema

Tamoxifen citrate, an oral antiestrogen, is most commonly used in low dosages (20 mg/d) as an adjuvant therapy for breast cancer. At significantly higher dosages (200 mg/d), it has also been used to treat malignant astrocytoma of the brain. Of its well-documented ocular toxic effects, potentially the most devastating is the development of crystalline maculopathy with associated cystoid macular edema (CME). Treatment consists of cessation of the medication, which may stabilize vision but rarely results in its recovery. We describe the first reported case, to our knowledge, of severe tamoxifen-induced CME resolved with intravitreal bevacizumab (Avastin) therapy.

Report of a Case. A 37-year-old man had bilateral decreased vision and metamorphopsia. His medical history was significant for anaplastic astrocytoma of the brain diagnosed 13 years earlier, for which he had undergone surgical resection, radiation, and chemotherapy. He had been receiving high-dose tamoxifen citrate (200 mg/d) for the previous 12 years, resulting in a cumulative dose of 876 g. At his initial visit, Snellen visual acuities were 20/60 OD and 20/80 OS. Anterior segment examination findings were unremarkable, without corneal or lenticular opacities. Funduscopic examination revealed extensive bilateral, refractile, white perifoveal crystalline deposits (Figure A and B). Similar refractile deposits were observed in the retinal periphery extending to the ora serrata. Severe CME was noted with bilateral honeycomb-like cystic spaces displaying significant late leakage on fluorescein angiography. Optical coherence tomography demonstrated central macular thicknesses of 764 µm OD and 818 µm OS and also confirmed the presence of crystals within the inner retina (Figure, C and D).

In coordination with the patient’s neuro-oncologist, tamoxifen was discontinued. Seven months later, vision was unimproved and CME was still severe. Both eyes were subsequently treated in staggered fashion with 3 initial intravitreal bevacizumab (1.25 mg) injections at monthly intervals, resulting in marked subjective and objective visual improvement within 2 weeks after the initial injections. Re-treatment at monthly follow-up visits was based on a central macular thickness greater than 250 µm on optical coherence tomography or decreased best-corrected visual acuity deemed to be secondary to macular edema.

Four years since his initial visit, the patient has received 6 bevacizumab injections in the right eye and 12 injections in the left eye. His most recent Snellen visual acuities were 20/20 OD and 20/30 OS. The CME has resolved bilaterally, with recent central macular thicknesses of 206 µm OD and 204 µm OS (Figure, G and H). Of note, there has been a considerable decrease in the density of macular crystals during the treatment period (Figure, E and F). The patient has not required any injections in more than 1 year.

Comment. The incidence of ocular toxic effects among patients receiving tamoxifen ranges between 0.9% and...
Disclosure of Resident Involvement in Ophthalmic Surgery

A n important objective of ophthalmic graduate medical education (GME) is to provide sufficient surgical training to ophthalmology residents so they are competent to enter comprehensive ophthalmic practice. This objective, however, must be balanced with a commitment to provide high-quality patient care, which includes respecting patients’ preferences to be informed about the degree of resident involvement in their eye surgery.1,4 Currently, the prevalence and details of disclosure policies regarding resident participation and barriers to their implementation in US ophthalmology GME programs are unknown. To help benchmark current practices and assist programs in formulating strategies to implement full disclosure policies, we surveyed US ophthalmology GME program directors (PDs) to determine current practices and policies regarding disclosure of resident involvement in ophthalmic surgery.

Methods. After receiving a study exemption from the Providence VA Medical Center Institutional Review Board, the FREIDA online database (http://www.ama-assn.org/go/freida) was used to identify all ophthalmology GME programs accredited by the Accreditation Council for Graduate Medical Education. Each facility was called to verify the PD’s contact information. An anonymous survey including multiple-choice and Likert-style questions (Table 1 and Table 2) was created at http://www.surveymonkey.com. The survey link was sent to all US ophthalmology GME PDs.

For editorial comment
see page 917

Results. One hundred seventeen PDs were surveyed; results are summarized in Table 1 and Table 2. The response rate was 45.3% (53 of 117 PDs). Fourteen of the 53 PDs (26%) reported that their program had an established policy on disclosing the level of resident involvement in ophthalmic surgery. In programs with an estab-