Prostate cancer is the most common malignant neoplasm in men in developed countries and the second most common worldwide.1 Androgen deprivation therapy is often used for recurrent or metastatic disease. Gonadotropin-releasing hormone agonists such as leuprolide acetate are the most frequently used medications for this purpose.2

Prostate cancer rarely metastasizes to the choroid. A large retrospective study found prostate cancer to be the primary site in only 6% of patients with uveal metastasis.3

In addition to hormonal therapy, patients with choroidal metastasis have been traditionally treated with external beam radiation or brachytherapy.4 We report a case of choroidal metastasis from prostate cancer successfully treated with leuprolide alone.

Report of a Case. A 71-year-old man had a 3-month history of progressive loss of vision in the left eye. His medical history was significant for prostate adenocarcinoma treated with radical prostatectomy 7 years previously. The cancer was limited to the capsule and there was no lymph node involvement. His prostate-specific antigen level had shown a gradual increase from 0.012 to 5.6 ng/mL (to convert to micrograms per liter, multiply by 1.0) over a 4-year period. Social history was negative for smoking. On examination, he had best-corrected visual acuity of 20/20 OD and hand motions OS. His left fundus examination demonstrated an amelanotic choroidal mass involving the superotemporal arcade associated with subretinal fluid (Figure 1). Ocular echography displayed a choroidal mass measuring 20 × 17 mm in basal dimension with an apical height of 10 mm. The mass demonstrated central hy-
poechoic areas and had variable internal reflectivity, mostly medium to high (Figure 2).

A systemic workup was obtained, including magnetic resonance imaging of the brain and orbit, computed tomography of the chest, abdomen, and pelvis, and a bone scan. Computed tomography demonstrated multiple pulmonary nodules and prominent lymph nodes. The bone scan showed left iliac and right clavicle hot spots. Biopsy of the lung lesion confirmed metastatic prostate adenocarcinoma. His ocular lesion was presumed to be metastatic from the same primary cancer. He was treated with oral ketoconazole, 200 mg 3 times a day for 7 weeks, and 1 dose of intramuscular leuprolide acetate, 22.5 mg. At 7 weeks, visual acuity remained hand motions but the patient had a subjective improvement in vision. Ocular echography demonstrated a slight decrease in the apical dimension of the tumor. Ketoconazole was then discontinued while leuprolide acetate was maintained at a 30-mg intramuscular injection every 4 months. Four months after the initial visit, his visual acuity improved to 20/60 and retinal pigment epithelial changes appeared on the surface of the tumor. The tumor size decreased to 14.5 × 10 mm in basal dimension and a maximum apical height of 4 mm. Ten months later, the patient's visual acuity declined to counting fingers due to macular hemorrhages and choroidal atrophy. The tumor continued to decrease in size over several years. At the 5-year follow-up, the tumor has indistinct basal dimensions and a maximum apical height of 1.6 mm on echography.

Comment. In recent years, 2 cases of choroidal metastasis from prostate cancer have been successfully treated with hormonal therapy without radiation. One patient received bicalutamide in combination with a luteinizing hormone–releasing hormone agonist, and another received bicalutamide in combination with triptorelin pamoate. The follow-up periods for these patients were 14 months and 2 years, respectively.

Our case was successfully treated with a single intramuscular injection of leuprolide every 4 months without any radiation or combination therapy. Leuprolide administration causes an initial increase in the gonadotropin level, which may last several weeks. The initial short course of ketoconazole treatment in our case was to counteract this effect. Ketoconazole reduces androgen production and also acts as an androgen receptor agonist. Even though the tumor involved the macula, the initial vision recovery was remarkable. Unfortunately, the vision was compromised by retinal hemorrhages and choroidal atrophy. Several options were offered to the patient, but he opted to not have further intervention. Subsequently, a chorioretinal macular scar developed.

To our knowledge, this is the first case of choroidal metastasis from prostate cancer successfully treated by single-agent androgen deprivation therapy and 5-year follow-up. We recommend considering leuprolide monotherapy for management of similar cases, reserving radiotherapy for unresponsive tumors.

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Reduction of Vascular Endothelial Growth Factor A in Human Breast Milk After Intravitreal Injection of Bevacizumab but Not Ranibizumab

Anti–vascular endothelial growth factor (VEGF) drugs such as bevacizumab (Avastin) and ranibizumab (Lucentis) are increasingly used in patients with choroidal neovascularization owing to causes other than wet age-related macular degeneration, such as myopia and chorioretinitis, and in patients with macular edema due to retinal vein occlusion or diabetes mellitus. These conditions often affect younger patients and include women of child-bearing potential. There are only very limited data about the use of anti-VEGF agents in pregnant or nursing women.

In this case study, serum and breast milk of a 32-year-old patient were analyzed for the concentrations of VEGFA and bevacizumab before and after intravitreal injection of bevacizumab and ranibizumab.

Methods. A 32-year-old woman, who was breastfeeding her 12-week-old son, was diagnosed as having scar-associated choroidal neovascularization in her left eye. Treatment with intravitreal bevacizumab was recommended. With preliminary data of VEGFA concentrations after the first injection of bevacizumab available, the treatment was changed to ranibizumab. After 3 injections, no signs of active choroidal neovascularization were detected. Informed consent was obtained before any study-related procedure was performed. The institutional review board waived approval. The study was con-