Bilateral Choroidal Osteoma with Overlying Neovascularization and Subretinal Fluid Controlled Using Bevacizumab Intravitreal Injections

Ben Roach, OD

Abstract

A choroidal osteoma is a rare finding characterized by the replacement of normal choroidal tissue with an ossified tumor. This tumor is benign but can lead to complications including a secondary choroidal neovascular membrane (CNVM).

Case History

A 56 year old Hispanic female was referred for a retinal consultation following a diagnosis of nonproliferative diabetic retinopathy. Her chief complaint at the time of the visit was bilateral painful eyes. This patient has a medical history of Type II Diabetes and mental illness including major depressive disorder and Schizophrenia. To manage her mental illness she was prescribed anti-depressant and anti-psychotic medications including Wellbutrin, Klonipin, Benztopine, Haloperidol, and Trazodone. Her Diabetes is currently untreated. She has no known drug allergies. The patient's ocular history includes non-proliferative diabetic retinopathy in both eyes and long-standing unilateral refractive amblyopia in the left eye. The patient reported no history of ocular trauma.

 Pertinent findings

Best corrected visual acuity at the initial encounter was measured at 20/30 OD and 20/200 OS. Dilated fundus examination findings included a 3 disc-diameter area of yellow-white elevated tissue temporal to the macula with RPE hypopigmentary changes in the right eye and generalized RPE disruption in the corresponding area temporal to the macula in the left eye. An OCT scan of the macula confirmed the presence of bilateral choroidal masses with the right eye exhibiting overlying fibrosis, assumed CNVM, and subretinal fluid. Fundus autofluorescence photography displayed profound RPE disruption in the area of the lesion. A B-scan ultrasound was ordered to differentiate between a choroidal osteoma and other tentative diagnoses. The scan results displayed mildly elevated choroidal lesions with high reflectivity and posterior shadowing - signs that are highly indicative of a choroidal osteoma. To explain the complaint of ocular discomfort, mild superficial punctate keratitis was present in both eyes in conjunction with a poor tear break up time and a minimal tear meniscus.

 Differential diagnosis

Differential diagnoses for this case include choroidal metastasis, amelanotic choroidal nevus, amelanotic choroidal melanoma, choroidal hemangioma, choroidal granuloma, or cicatricial macular degeneration.

 Diagnosis and discussion

Diagnostic testing, history, and clinical appearance confirmed the diagnosis of bilateral choroidal osteomas. Choroidal osteomas are most common in females in their second or third decade of life. Bilaterality occurs in approximately 25% of cases and nearly 33% of patients develop an associated choroidal neovascular membrane. These lesions are most often located in the peripapillary area and can be asymptomatic unless accompanied by subretinal fluid, serous detachment, or fibrosis affecting the macula. Choroidal osteomas typically expand slowly over months to years following initial diagnosis.

 Treatment and management

There is no known treatment for choroidal osteomas; the tumor itself is monitored closely with consistent dilated examination. However, associated CNVM and/or subretinal fluid (if present) can be managed using intravitreal anti-VEGF injections. As with other conditions with associated CNVM, anti-VEGF has become standard therapy over focal laser and photodynamic
therapy. In this case, the patient was extremely apprehensive about any form of injection. She declined fluorescein angiography which was intended to confirm the high suspicion for a CNVM and elected to monitor the osteoma for the first two visits. At the third examination the overlying assumed CNVM with fibrosis had increased in size and the subretinal fluid had begun to approach the fovea. After demonstrating this progression to the patient, she agreed to proceed with an intravitreal injection of Bevacizumab (Avastin) in her right eye to preserve vision. One month later, marked reduction of subretinal fluid was noted. Continued therapy is planned in hopes of keeping this patient asymptomatic and preventing long term vision loss.

Conclusion

- Choroidal osteomas display unique properties and characteristics when observed with B-scan ultrasoundography, making the B-scan a critical tool for proper diagnosis.
- Comparison images and scans can be used to demonstrate the lesion and its expansion over time. This can be critical when discussing the need for timely intervention, especially with reluctant patients.
- Anti-VEGF therapy is currently the mainstay treatment for more common conditions including proliferative diabetic retinopathy and exudative macular degeneration. This method of treatment is proving to be an effective therapy for all conditions with associated choroidal neovascular membranes, including choroidal osteomas.

Bibliography


