

Abstract:

Title: Cancer-associated retinopathy (CAR) masquerading as Normal Tension Glaucoma: Clinical, ERG, and serological evidence of retinopathy prior to a known diagnosis of cancer.

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Purpose: Although rare, symptoms of Cancer-associated retinopathy (CAR) can develop prior to known diagnosis of cancer; in cases where there is an increased clinical suspicion, a full oncologic work up is mandatory. Early diagnosis of cancer is a key prognostic indicator in long term patient outcomes. Distant systemic symptoms may be a manifestation of underlying malignancy and of the importance of prompt investigation when a thorough history raises clinical suspicion of malignancy. Without clinical suspicion of malignancy, the initial ocular manifestations of CAR can masquerade as normal tension glaucoma as seen in this case.

Case: We herein report a 51-year-old Caucasian female presented to ophthalmology clinic via referral for blurred vision, increased cup-disc ratio, visual field defects, diplopia, and headaches. Patient was being treated with latanoprost and timolol for normal tension glaucoma which did not stabilize her optic nerve and visual field deficits. A concern for cancer associated retinopathy developed after her past medical history was significant a family history for breast carcinoma. Blood samples returned positive for antiretinal antibodies against 28-KDA and 46-KDA proteins. Breast MRI and biopsy revealed a ductal carcinoma in the left breast. She underwent lumpectomy with adjuvant chemoradiation. After oncologic treatment, her visual acuity returned to baseline and the Humphry visual field defects completely resolved.

Discussion: Breast cancer is the most common cancer in adult females according to the National Institute of Health. The diagnosis of CAR is difficult due to the fact there is no standardized diagnostic criteria. It is characterized by the presence of circulating antiretinal antibodies along with electroretinographic (ERG), visual field abnormalities, and subjective symptoms. The prompt diagnosis with treatment of underlying disease process can lead to favorable visual and oncologic outcomes in patients such as the one presented in this case. Given the nonspecific symptoms of CAR, it's clinical presentation can often mimic other more common ophthalmic pathologies such as normal-tension glaucoma. Our case provides an example of normal intraocular pressures, decreased visual acuity, and visual field deficits that continued to worsen despite optimal treatment for normal tension glaucoma. This is the **first** reported case where cancer associated retinopathy was the presenting symptom of the distal primary breast carcinoma.

Conclusion: This case represents the importance of having CAR in the differential diagnosis when a patient is not clinically responding to treatment for normal-tension glaucoma. As an ophthalmologist, you are a physician first and must always be suspicious of systemic disease when the clinical course does not show an expected response to treatment. You could be the first to diagnose a malignancy and save a patient's life.