Subretinal lipid exudation associated with untreated choroidal melanoma

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Subretinal lipid exudation in an untreated choroidal melanoma is very rare. It is seen following plaque radiotherapy in choroidal melanoma. There is only one case report of untreated choroidal melanoma with massive lipid exudation in a patient with metastatic hypernephroma. We report here a rare case of untreated choroidal melanoma with lipid exudation. Subretinal exudation that is rarely seen following plaque brachytherapy was noted at the borders of this untreated tumor. Lipid exudation partially resolved following brachytherapy.

Key words: Choroidal melanoma, hard exudates, lipid exudation

Choroidal melanoma usually appears as a variably pigmented, dome- or mushroom-shaped mass. Orange pigment or drusen may be associated with choroidal melanoma. Prominent clumps of orange pigment (lipofuscin) at the level of the retinal pigment epithelium (RPE) indicate an active tumor, while presence of drusen indicates chronicity of the tumor. Lipid exudation may occur following plaque radiotherapy for posterior uveal melanoma, but is uncommon in an untreated melanoma. Lipid exudation associated with an untreated choroidal melanoma has so far been reported in only one patient who had metastatic hypernephroma. We herein report the rare occurrence of lipid exudation occurring in an untreated choroidal melanoma.

Case Report

A 59-year-old gentleman presented with complaints of metamorphopsia of two weeks, in his right eye. There was no history suggestive of any systemic malignancy. On examination, his best corrected visual acuity was 20/30, N6 in his right eye and 20/20, N6 in his left eye. His right eye showed a presence of 1+ cells in the anterior chamber and anterior vitreous, but an otherwise normal anterior segment. His left eye was normal.

Right eye fundus showed cystoid macular edema, a dark brown, dome-shaped mass lesion at the 9 o’clock meridian, of 5 disc diameter in extent and 4 mm in height [Fig. 1]. Multiple bright yellowish-white deposits in clumps were seen intraretinally and subretinally at the posterior border of the lesion [Fig. 2].

Optical coherence tomography (OCT) was performed to document the cystoid macular edema in the right eye. OCT of the right macula showed loss of foveal contour, hyporeflective spaces with septae, consistent with cystoid macular edema [Fig. 3]. The peripheral location of the tumor precluded fluorescein angiography.

The combined A-mode and B-mode ultrasonography of the right eye showed a dome-shaped mass 8.66 mm, the longest basal diameter, and 3.66 mm in height with low-to-medium
Figure 1: Fundus photograph of right eye showing cystoid changes at macula

Figure 2: Fundus photograph of right eye showing lipid exudation at the posterior border of choroidal melanoma

Figure 3: Optical coherence tomography of right eye shows loss of foveal contour, hyporeflective spaces with septae suggestive of cystoid macular edema

Figure 4: AB mode ultrasonography shows a dome shaped choroidal mass

Figure 5: (a, b) MRI of the orbits shows a dome shaped choroidal mass, hyperintense to vitreous in T1 weighted images and hypointense in T2 weighted images

Figure 6: Fundus photograph of right eye after brachytherapy showing partial resorption of lipid exudation
internal reflectivity, without orbital shadowing, but with minimal choroidal excavation; the findings were suggestive of choroidal melanoma [Fig. 4].

Magnetic resonance imaging (MRI) of the orbits showed a focal lesion that was hyperintense in T1 weighted images and hypointense in T2 weighted images, suggestive of melanoma [Figs. 5a-b]. There was no extraocular extension of the tumor.

Following a normal metastatic disease evaluation, the patient underwent episcleral brachytherapy with Ru106 delivering 8500 cGy to the tumor apex. Follow-up after seven months of brachytherapy showed partial resorption of the lipid exudation, with reduction of the tumor basal diameter from 8.66 mm to 6.53 mm and tumor height from 3.66 mm to 2.56 mm [Fig. 6].

**Discussion**

Lipid exudation in a choroidal melanoma following plaque radiotherapy may occur due to radiation-induced incompetence of the tumor blood vessels, aggravated by serum lipid abnormalities, analogous to lipemia retinalis.[1] The association of the lipid exudation and exudative retinal detachment with increased tumor thickness possibly reflects a more extensive tumor vasculature in these tumors. In addition, vascular anomalies such as abnormal, dilated, and leaking intraretinal capillaries around the margin of the choroidal melanoma have been documented on fluorescein angiography. Tumor ischemia, resulting in soluble angiogenic factor production, is the proposed etiology of these retinal vascular abnormalities.[4,5] These retinal vascular abnormalities occur with mushroom-shaped tumors, as they are associated with outer retinal ischemia. Other vascular changes associated with choroidal melanoma are areas of capillary nonperfusion, retinal neovascularization, and arteriovenous communication. Lipid exudation after plaque radiotherapy is associated with poor ocular outcome.[1]

Kremer et al. have reported lipid exudation in an untreated melanoma.[2] Our case report describes a similar occurrence in a patient with a dome-shaped melanoma. Vascular incompetence at the posterior border of the lesion or subretinal neovascularization could have been the cause for lipid exudation in our patient. Alternately, a resolving exudative retinal detachment in a tumor that is spontaneously becoming dormant may have resulted in precipitation of a subretinal lipid. A fluorescein angiogram may have yielded additional information, but it was difficult, due to the peripheral location of the tumor. An OCT, although not essential for diagnosis in this patient, was performed, to document the cystoid macular edema associated with a peripheral melanoma. The partial resorption of the lipid following brachytherapy may be taken as an indirect indicator of tumor response to radiation.

This case indicates that the presence of lipid exudation associated with an intraocular mass lesion does not rule out a choroidal melanoma.

**References**

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