Adenoma of the Retinal Pigment Epithelium Simulating a Juxtapapillary Choroidal Neovascular Membrane

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We report a case of an adenoma of the retinal pigment epithelium that clinically simulated a juxtapapillary choroidal neovascular membrane in a 60-year-old man. Fluorescein angiography supported the diagnosis of a juxtapapillary choroidal neovascular membrane in his left eye. After 13 years the lesion became slightly pigmented and the optic disc became swollen. The possibility of choroidal melanoma with optic disc invasion was considered, and the eye was enucleated. The lesion proved histopathologically to be an adenoma of the retinal pigment epithelium.


Choroidal neovascular membrane (CNVM) is a common condition that has typical clinical and fluorescein angiographic features. It usually occurs in older patients as a variant of age-related macular degeneration. Sometimes a CNVM can develop in a juxtapapillary location, usually on the temporal margin of the optic disc.1 Adenoma of retinal pigment epithelium (RPE) is a rare tumor that often simulates a choroidal melanoma.2,3 It generally occurs as an abruptly elevated, pigmented mass in an extramacular location and does not resemble a CNVM. Rarely, an adenoma of the RPE can be clinically nonpigmented.3 We report a case of clinicopathologic correlation of an atypical juxtapapillary adenoma of the RPE that simulated a CNVM and was followed for 12 years with that diagnosis.

REPORT OF A CASE

In 1986, a 60-year-old man developed the gradual onset of painless visual impairment in his left eye. He was seen by a retinal specialist and was treated with laser photocoagulation for a presumed CNVM on the temporal margin of the optic disc. The lesion apparently remained stable. The patient was first examined by one of us (M.M.) in June 1998. The right eye was entirely normal. The visual acuity in the affected left eye was 6/9, and fundus examination disclosed a yellow-pink plaquelike lesion temporal to the optic disc measuring 3 × 3 × 1 mm. A crescent-shaped subretinal hemorrhage was present on the temporal margin of the lesion, with scattered cells in the overlying vitreous (Figure 1). A rim of localized subretinal fluid was present on the temporal and inferior margins of the mass. Fluorescein angiography showed early hyperfluorescence and late intense leakage compatible with a CNVM. No further treatment was given.

At the time of follow-up examination in June 1999, his visual acuity was finger counting at 2 ft, the lesion was thicker and had become slightly pigmented, and the optic nerve was slightly more hyperemic (Figure 2). Fluorescein angiography showed early, lacy hyperfluorescence of the lesion and late leakage into the surrounding retina (Figure 2). B-scan ultrasonography demonstrated an elevated mass measuring 2.3 mm in thickness with acoustic hollowness (Figure 3). A-scan ultrasonography showed a solid lesion with medium internal reflectivity. Orbital magnetic resonance imaging demonstrated an enhancing mass near the optic disc but no demonstrable extension posteriorly into the optic nerve.
The patient was informed of the possibility of a small, growing choroidal melanoma with optic disc invasion, and he was given the options of observation or enucleation. Because of the possibility of melanoma in an eye with minimal visions, he elected to have enucleation. This was done without complication, and the patient had an uneventful postoperative course.

**PATHOLOGICAL FINDINGS**

Gross and microscopic examination of the sectioned eye revealed an ovoid mass that measured $4 \times 4 \times 3$ mm, which covered the temporal margin of the optic disc (Figure 5). Microscopically, the tumor was composed of cords of amelanotic cells with slightly pleomorphic round-to-oval nuclei and fairly prominent nucleoli (Figure 6). The tumor cells rested on periodic acid–Schiff–positive septa (Figure 7). Rare mitotic figures were evident. At its apex, tongues of tumor cells invaded the overlying sensory retina. There was a shallow retinal detachment adjacent to the tumor. The nearby retina also contained pools of proteinaceous fluid in the outer plexiform layer, consistent with hard exudates.

The tumor cells showed intense immunoreactivity for vimentin and cytokeratin marker CAM 5.2 (Figure 8). There was mild immunoreactivity to S100 protein and cytokeratin marker AE3. Melanoma-specific antigen HMB 45 was nonreactive. Despite the mild cytologic atypia (pleomorphic nuclei with prominent nucleoli), the favored diagnosis by 2 ophthalmic pathologists was pleomorphic adenoma of the RPE.

**COMMENT**

Adenoma of the RPE is a rare intraocular neoplasm that can resemble a choroidal melanoma. In a recently reported series of tumors of the RPE, the authors outlined the salient features that help differentiate these tumors from choroidal melanoma. Tumors of the RPE usually are dark black, often invade the
sensory retina, develop a dilated retinal feeding artery and draining vein, and cause exudative retinopathy.\textsuperscript{1,2} Adenoma of the RPE can sometimes arise in a juxtapapillary location, where it can simulate a melanoma or melanocytoma.\textsuperscript{3-5} In addition, few clinicians are aware of the fact that a neoplasm of the RPE can be clinically amelanotic.\textsuperscript{6} Even when adenoma of the RPE is amelanotic, it still appears as an elevated nodule, and its tumorous proportions are generally obvious.\textsuperscript{6}

The tumor reported herein closely simulated a juxtapapillary CNVM clinically and angiographically. When it enlarged and compressed the optic disc, the possibility of a small juxtapapillary choroidal melanoma with optic disc invasion was considered, and the eye was enucleated. The diagnosis of adenoma of RPE was not suspected clinically. In retrospect, the retinal hemorrhage and exudation were subtle clues to the underlying diagnosis, since such changes are frequently associated with adenoma of the RPE but would be unlikely with a small melanoma. Neoplasms of the RPE have not been known to metastasize. However, they can be locally aggressive by producing exudative retinal detachment, vitreous hemorrhage, cataract, and orbital extension.\textsuperscript{7} It is feasible that such advanced tumors could exhibit metastasis, but, to our knowledge, this has not been convincingly documented.

The histopathologic findings in our case were consistent with other reported tumors of the RPE. This neoplasm can superficially resemble an epithelioid cell choroidal melanoma. However, there are several histologic features that help distinguish RPE adenoma from epithelioid cell melanoma. The cells constituting RPE adenomas are located on the inner surface of Bruch’s membrane and do not involve the choroidal stroma, where melanoma resides. The epithelial cells, which may be pigmented or amelanotic, often are arranged in linear segments on the surface of periodic acid–Schiff–positive connective tissue septa or may form papillary or tubular patterns. Immunohisto-
chemical analysis also is useful in confirming the diagnosis. Tumors of the RPE are nonreactive for melanoma marker HMB 45 but usually show immunoreactivity for cytokeratin markers such as CAM 5.2. Care must be taken in the analysis of immunohistochemical data, however, because uveal melanoma cells with the so-called interconverted phenotype can coexpress cytokeratins 8 and 18 and vimentin.8

In summary, a lesion that appeared for more than 12 years to be a juxtapapillary CNVM was found histopathologically to be a pleomorphic adenoma of the RPE. It is possible that other similar cases may have been diagnosed as CNVMs and were either observed or treated with laser photocoagulation. Ophthalmologists should be aware that neoplasms of the RPE can resemble a CNVM.

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Ramon L. Font, MD, provided an opinion on the pathology of this case.

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REFERENCES