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CLINICAL PATHOLOGIC REVIEWS

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Red Lesions of the Iris, Choroid, and Skin Secondary to Metastatic Carcinoma of the Thyroid: A Review

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Abstract. An 83-year-old man was seen with a history of bilateral progressive loss of vision of 1 month's duration. On examination, there was a reddish, nodular lesion adjacent to the right side of the nose. Slit-lamp examination revealed a reddish iris mass in the left eye. Ophthalmoscopic examination revealed two orange choroidal lesions in the right eye and a large subretinal hemorrhage in the posterior pole with a central reddish vascular lesion in the left eye. An excisional biopsy of the skin lesion was performed. A diagnosis of metastatic follicular thyroid carcinoma was made according to the histopathologic findings and immunohistochemistry. The patient had no known history of thyroid malignancy and a metastatic survey revealed widespread metastasis. The patient had a total thyroidectomy followed by two series of radioactive iodine ablation. The iris lesion completely resolved and the choroidal lesions in the right eye showed partial regression during the follow-up period. Ocular and skin metastasis secondary to thyroid carcinoma is uncommon. In a review of English literature we found reports of 12 clinically well-documented cases of choroidal metastasis and two cases of iris metastasis. Our case and review of the previous cases reveal that reddish/orange color is a commonly observed feature of the uveal metastasis of thyroid carcinoma. Although ocular and skin metastases from thyroid carcinoma are rare, this possibility should be considered in the differential diagnosis of reddish-colored iris and choroidal masses as well as reddish nodular lesions of the scalp, face, and neck. (**Surv Ophthalmol 52**:523–528, 2007.

Key words. choroidal metastasis • follicular thyroid carcinoma • iris metastasis • ocular metastasis • skin metastasis • thyroid carcinoma • uveal metastasis

Ocular metastasis secondary to thyroid carcinoma is uncommon. In the series of 227 cases of carcinoma metastatic to the eye or orbit reported by Ferry and Font[10] only one case had its origin from the thyroid gland. Stephens and Shields[19] reported 70 cases of carcinoma metastatic to the uvea and none had its origin in the thyroid gland. Shields and Shields[15] reviewed 520 cases with uveal metastasis and found only two cases with choroidal metastasis originating from the thyroid.

In a review of English literature we found reports of 12 clinically well-documented cases of choroidal metastasis[1,3–5,9,12–14,16–18,21] and two cases of iris metastasis.[2,20] We are describing a case with no prior diagnosis of thyroid cancer presenting with red iris, choroidal, and skin metastatic lesions.

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Case Report

An 83-year-old Hispanic man was seen with a history of bilateral progressive loss of vision of 1 month's duration. He had a past medical history of non-insulin-dependent diabetes mellitus, coronary artery disease, hypertension, and atrial fibrillation. The patient was referred from an outside ophthalmologist for tumors in both eyes. On examination visual acuity with best correction was 20/40 in the right eye and count fingers at 2 feet in the left eye. The left pupil was slightly irregular but there was no afferent pupillary defect. There was a reddish, nodular lesion, approximately 1 cm in diameter, adjacent to the right side of the nose (Fig. 1). The intraocular pressure by applanation measured 14 mm Hg in both eyes. Slit-lamp examination revealed bilateral pseudophakia with posterior chamber implants in good position. There was a reddish, elevated mass involving the iris from the 6 to 9 o'clock position in the left eye and the temporal aspect of the lesion in the 6 o'clock position had a cystic appearance (Fig. 2). Gonioscopic examination of the left eye revealed some peripheral anterior synechias at the margins of the lesion but the remainder of the angle was open with heavy pigmentation (Fig. 3). Transillumination showed no defects in the adjacent ciliary body. Ophthalmoscopic examination revealed two small, slightly elevated, orange, choroidal lesions, one just superior and the second one nasal to the right optic disk. In the left fundus there was a large subretinal hemorrhage in the posterior pole with a central reddish vascular lesion (Fig. 4). Fundus florescein angiography showed an irregular hyperfluorescence in the choroid above the disk at the site of the choroidal tumor in the right eye. The left eye showed a blockage of fluorescence from the subretinal blood. The clinical impression at this point was multiple unusual vascular tumors of iris, bilateral choroid and the skin. A decision was made to proceed with the excisional biopsy of the skin lesion adjacent to right side of nose for diagnostic purposes of these multiple unusual vascular tumors of both eyes and the skin. Histopathologic examination showed normal epidermis. The dermis was replaced by a circumscribed tumor containing follicles (glandular structures) of different sizes (Fig. 5). These structures were lined by cuboidal cells with abundant cytoplasm and round to oval nuclei with moderate mitotic activity (Fig. 6). Many thin-walled capillaries were present between the follicles and there were focal areas of intravascular extension. With immunohistochemistry the tumor cells were strongly positive for cytokeratin 7 (CK7), thyroglobulin, and thyroid transcription factor-1 (TTF-1), but were negative for carcino embryonic antigen (CEA), cytokeratin 20 (CK20), and prostate-

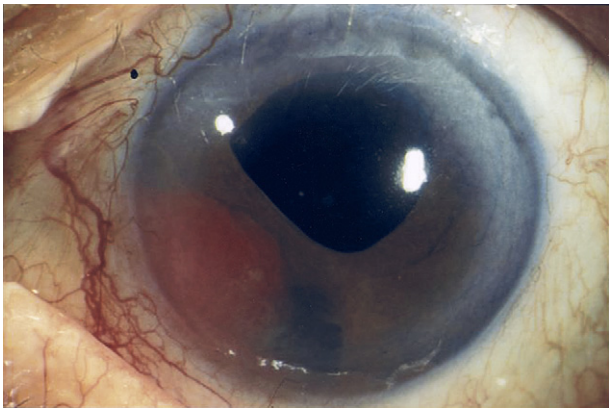

Fig. 2. Slit-lamp photograph of the left eye showing a reddish, elevated mass involving the iris and chamber angle from the 6 to 9 o'clock position.

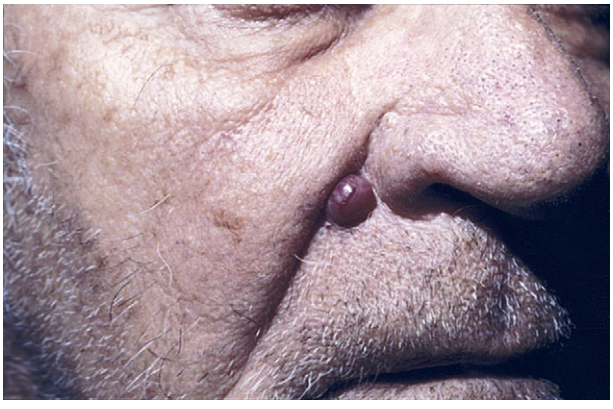

Fig. 1. Photograph showing a reddish, nodular lesion, approximately 1 cm in diameter, adjacent to the right side of the nose.

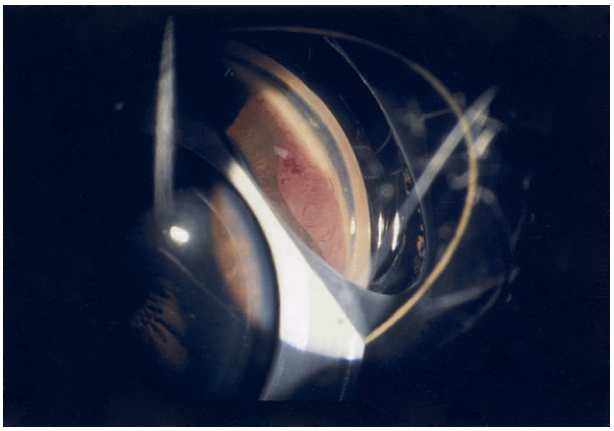

Fig. 3. Gonioscopy picture showing a reddish, elevated mass involving the iris from the 6 to 9 o'clock position with some peripheral anterior synechias at the margins of the lesion.