Case Report

Iris Metastases as an Unusual Ocular Manifestation in Renal Cell Carcinoma

Abstract

The most common intraocular malignancy in adults is metastases from a systemic malignancy. The choroid is the most common site followed by iris and ciliary body; other sites being orbit, eyelids, lacrimal glands, extraocular muscles, and bulbar conjunctiva. However, iris metastases from renal cell carcinoma (RCC) have been reported sparsely in the literature. The present case report describes the unique morphology of iris metastases thought initially to be a benign iris cyst which later proved to be secondary metastases from RCC. This article also describes briefly the review of the relevant literature and the management protocol in such patients.

Keywords: *Iris metastases, ocular metastases, renal cell carcinoma*

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Introduction

Renal cell carcinoma (RCC) is the most common type of renal tumor noted in adults mostly in the age group of 50–70 years.[1,2] Metastasis from RCC most likely is noted in the lungs, bone, liver, adrenal glands, and brain. Iris metastases of RCC are very rarely seen, with Shields[1] series of 512 patients of metastatic tumors to uvea demonstrating only 40 (7.8%) patients with iris metastases, of which only one patient had primary from RCC. Metastases to the iris most commonly have their origin from breast, lung or skin melanoma, and hence, iris metastasis from RCC is considered a predictor of the poor prognosis, indicative of extensive disease. The rationale behind this hematogenous spread is the rich vascular proliferation, which leads to distant metastasis. An extensive search into the available review of the literature revealed only four reported cases till date. Herein, we report an unusual case of an iris metastasis from RCC in a 70-year-old male.

Case Report

A 70-year-old male presented to our ophthalmology clinic with chief complaints of a white spot in the right eye associated with pain and diminution in the vision for 3 months. On examination, his best-corrected visual acuity was 6/12 in the right eye and 6/9 in the left eye. His intraocular pressure in the right eye was 44 mm of Hg and 16 mm Hg in the left eye (noncontact tonometry). On slit-lamp evaluation, there was a cystic, translucent, multi-lobulated mass of size 4 mm × 2.5 mm at 3–6 O' clock position, with surrounding iris neovascularization [Figure 1]. Left eye findings were unremarkable. Dilated fundus evaluation was normal. Gonioscopy in the right eye revealed open angles except for occludable angles at 4–5 O' clock due to anterior pull of the iris by the iris mass. The cystic mass looked like a benign cyst, but likelihood of suspicious metastases could not be ruled out until histopathology had been performed, and hence, we further intrigued the patient for a proper history. On further inquiry, he gave the past surgical history of right-sided nephrectomy 1 year ago. He denied any adjuvant therapy thereafter. He was a known hypertensive and all other systemic examinations were within the normal limits. There was no lymphadenopathy. Fine-needle aspiration cytology (FNAC) of the iris cyst was done through trans-limbal approach which demonstrated clumps of large polygonal clear epithelial cells, with abundant foamy cytoplasm, vesicular nucleus suggestive of RCC metastases. Immunohistochemistry confirmed the origin as the cells were positive for vimentin and cytokeratin [Figure 2]. Oncology

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referral was sought for an extensive metastatic workup. He underwent computed tomography (CT) scans of the chest, abdomen, and pelvis along with ultrasonography of the abdomen. Unfortunately, CT chest showed multiple lung hilar and parenchymal lesions suggestive of extensive distant metastases [Figure 3]. Secondary glaucoma was managed with topical antiglaucoma medications such as Brimolol twice daily and Dorzolamide three times daily. Palliative chemotherapy with Pazopanib 800 mg once daily was advised by the oncology department, and the patient was asked to review after 2 weeks. Unfortunately, he was lost to follow-up. He came to us after 4 months with incompliance to both ocular and chemotherapeutic medications. His pain and redness had subsided, but he had lost his valuable sight in the right eye due to uncontrolled secondary glaucoma. Palliative chemotherapy was again started after proper blood investigations, but meantime, he succumbed to death after one cycle.

Discussion

RCCs represent 3% of all adult malignancies. Men are commonly affected between the age group of 30 and 60 years.[3] The most frequent metastatic sites are lung (76%), regional lymph nodes (66%), bone (42%), and liver (41%).[4] Ocular metastases from RCC are very rare, even though the actual incidence is not known.[5] RCC metastasizes through hematogenous route, and hence, the vascular coat of the eye, the uveal tract, is most commonly involved. However, according to a review by Shome *et al*.,[6] out of 71 patients with RCC, the orbit was the most frequently involved site in 27 cases followed by the choroid (20 cases), iris (eight cases), nonspecified sites (six cases), and ciliary body (four cases). The other uncommon sites were lacrimal gland, extraocular muscles, external adnexa, and conjunctiva. Most common intraocular malignancies seen in adults include secondary metastases usually from the breast, lungs, gastrointestinal tract, kidney, and skin. Among the intraocular metastasis, the most predominant site involved is the choroid (88%), iris (9%), and ciliary body in 2% followed by other rare sites such as orbit, extraocular muscles, eyelids, and conjunctiva.[6]

Choroidal metastases are usually dome-shaped with reddish-orange hue owing to high vascularity and must be distinguished from choroidal hemangioma and amelanotic uveal melanoma. Iris and ciliary body metastases are often clinically missed if previous history is not suggestive of systemic malignancy. Wyzinski *et al*.[5] reported a case of simultaneous bilateral iris metastases from RCC. Mancini *et al*.[7] described a rare case of metachronous solitary ciliary RCC metastasis 6 years after radical nephrectomy. Alasil *et al*.[8] reported a ciliary body RCC metastasis that presented as angle closure glaucoma and responded to proton radiotherapy. Iris metastases are often unilateral and clinically present as secondary glaucoma with ocular pain and discomfort. These lesions are initially yellow nodules

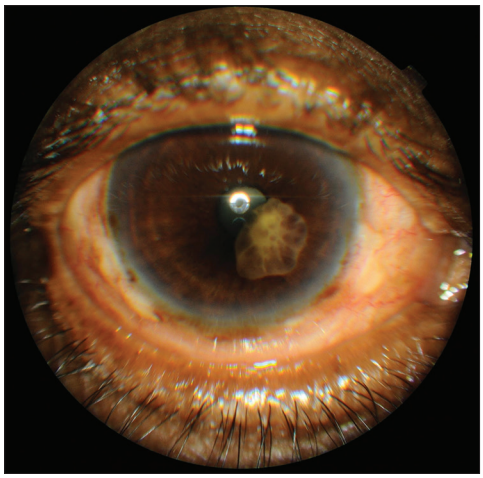

Figure 1: Cystic, translucent, multi-lobulated mass of size 4 mm × 2.5 mm at 3–6 O' clock position, with surrounding iris neovascularization

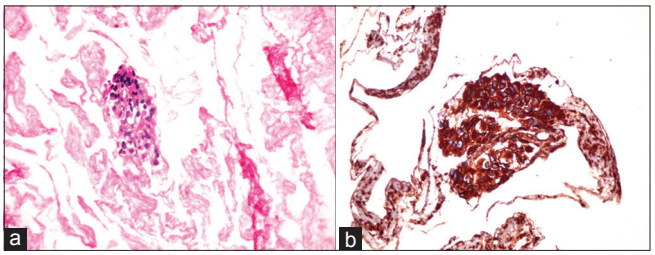

Figure 2: (a) H and E stained histopathology specimen (iris cyst fine-needle aspiration cytology) showing large polygonal clear epithelial cells, with abundant foamy cytoplasm, vesicular nucleus suggestive of renal cell carcinoma metastases. (b) Immunohistochemistry positive for vimentin and cytokeratin

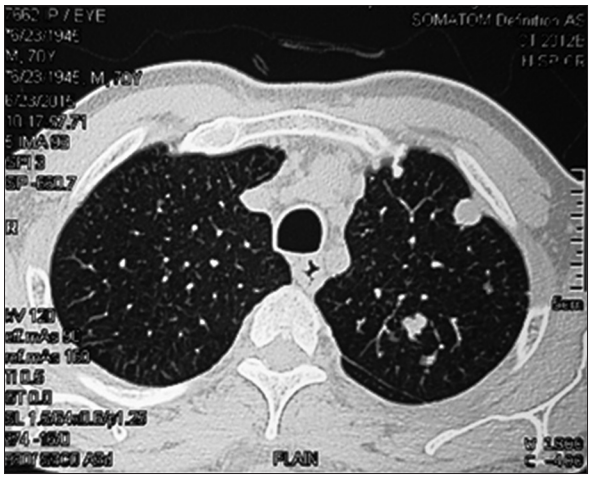

Figure 3: Computed tomography of the chest showing multiple lung hilar and parenchymal lesions suggestive of metastases

which may later turn pink owing to rich vascular supply and may extend to the angle of the anterior chamber. The unique feature in our patient was the atypical morphology of the iris metastases. It was a multilobulated translucent cyst attached to the iris collarette suggestive of a benign iris cyst. The diagnosis would have been easily missed if confirmatory FNAC would not have been performed and

the underlying systemic spread to the lungs would also have been left undiagnosed. The symptoms were variable and with no definite characteristic shape, it is indeed a diagnostic dilemma. Thus, this case highlights the importance of biopsy and a confirmatory histopathological evaluation in the diagnosis of metastatic RCC.

The management of such patients is by a multidisciplinary approach, i.e., treating the primary tumor with surgery, adjuvant chemotherapy, radiotherapy, or immunotherapy. The ocular metastasis is treated with an aim for cure when it represents a solitary metastasis or excised for esthetic and functional reasons in an advanced stage of the disease.[9]

The possibility of metastasis should always be kept in mind for any suspicious lesion of the eye in cases of RCC, even though the primary malignancy has been treated years ago. RCC surveillance for at least 10 years even after nephrectomy has been recommended by several urologists while few others suggest a lifelong follow-up.[10,11] Our case report would emphasize the need for metastatic surveillance and timely management to save both life and sight.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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