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Website: www.e-tjo.org
DOI: 10.4103/tjo.tjo_59_20

Significant improvement of ocular clinical pictures of iris metastasis from small-cell lung cancer after systemic chemotherapy

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Abstract:

The uveal tract is the most common ophthalmic site of ocular metastasis from systemic tumors due to the luxurious blood flow within the choroidal tissue. However, iris metastasis from systemic cancer is uncommon, accounting for only 8% of cases of uveal metastasis. There are several methods for the treatment of iris tumor. Here, we reported a case of iris metastasis from small-cell lung cancer. The tumor shrunk after systemic treatment for lung cancer and showed no recurrence after a 4-month follow-up.

Keywords:

Iris metastasis, lung cancer, chemotherapy

Introduction

The uveal tract is the most common ophthalmic site of ocular metastasis from systemic tumors due to the luxurious blood flow within the choroidal tissue. However, iris metastasis from systemic cancer is uncommon, accounting for only 8% of cases of uveal metastasis.^[1] The primary tumor originated was in the breast (33%), lung (27%), skin (12%), kidney (7%), esophagus (3%), and others (19%).^[2,3] The main ocular symptoms were pain and blurred vision. The main findings were corectopia and secondary glaucoma.^[2] The morphology of iris metastasis tumor included stromal nodules, ill-defined iris thickening, unifocal (78%) or multifocal (21%) mass, and visible intrinsic vessels.^[2,4,5] Management for iris metastasis included systemic chemotherapy, external beam radiotherapy, plaque radiotherapy, surgical excision, enucleation, and palliative

observation. Patients with systemic malignancy and distal metastasis should be treated with systemic chemotherapy, but external beam radiotherapy or plaque radiotherapy is required for the treatment of focal metastases, while it was refractory to systemic treatment. Most of the ocular outcome is satisfied. Following treatment, ocular metastatic tumor control without recurrence can be achieved in 95% of cases.^[5] The survival rate was based on the primary tumor status and type.

Case Report

A 54-year-old female visited our outpatient department (OPD) for ocular surface redness over the right eye for 2 days. Her past ocular history was unremarkable, while she had a history of small-cell carcinoma over the right upper lobe of the lung with liver metastasis. The tumor immunoprofile discloses cytokeratin (+), thyroid transcription factor-1 (-), synaptophysin (-),

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How to cite this article: Huang LY, Hsia NY, Lai CT, Tien PT, Lin CJ, Lin JM, *et al.* Significant improvement of ocular clinical pictures of iris metastasis from small-cell lung cancer after systemic chemotherapy. Taiwan J Ophthalmol 2021;11:402-4.

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Submission: 18-06-2020
Accepted: 07-09-2020
Published: 06-11-2020

Ki-67 (proliferative index about 25%), and Hep-Par 1 (-). She had received systemic chemotherapy with the regimen of cisplatin and etoposide and then shifted to carboplatin and etoposide due to unacceptable side effects in the past 5 months. The series examinations showed a partial response to the chemotherapy.

The patient underwent an ocular examination. Best-corrected visual acuity was 0.9 oculus dexter (OD) and 1.0 oculus sinister (OS). Intraocular pressure (IOP) was measured by a noncontact tonometer and was 22 mmHg OD and 19 mmHg OS. Slit-lamp examination of the right eye revealed injected bulbar conjunctiva, a transparent clear cornea, 1+ flare and 2+ anterior chamber cells, a pinkish-white, vascularized iris mass at 9 o'clock to 12 o'clock meridians, and a mild nuclear sclerotic cataract [Figure 1]. Fundoscopy of the right eye revealed normal presentation with cup-disc ratio of 0.4. The examination of the left eye did not identify any significant abnormalities. B-scan ultrasonography of both eyes showed no space-occupying lesions at the posterior segment.

A biopsy of iris tumor was performed for cytogenetic testing under the request of a pulmonologist. The procedure was done with a tooth forceps and microscissors. During the course, mild hemorrhage from the biopsy site was noted and gradually stopped after anterior chamber irrigation. The pathologic report revealed metastatic carcinoma of lung origin. Then, we kept systemic chemotherapy for her at chest medicine OPD and regularly follow-up at ophthalmic OPD. However, iris metastasis tumor bleeding developed at 1 month later after ocular biopsy [Figure 2], and visual acuity decreased to light perception; IOP was 30 mmHg in her right eye. After treatment with tranexamic acid and topical hypotensive agents, the bleeding stopped, blood clot resorbed, visual acuity improved to 0.3, and IOP was 15 mmHg. During the OPD follow-up, the iris metastasis tumor gradually shrunk, the anterior chamber was deep and clear, and best-corrected visual acuity improved to 0.8. After a 4-month follow-up, there was no evidence of significant ocular recurrence or metastatic disease [Figure 3].

Discussion

In 2014, Shields *et al.* reported the largest series, including 107 eyes with metastatic tumors of the iris, concluded that primary tumors were more likely to originate from the breast and lung. Shields *et al.* also reported pain and blurred vision as the most common presentation of these patients. The pain may be related to secondary glaucoma or severe inflammation. In our case, she had mild inflammation and normal IOP, lead to no ocular pain but ocular surface redness. Most of the cases had

previously treated malignancy with a definite origin, but rare cases not, which required a systemic survey

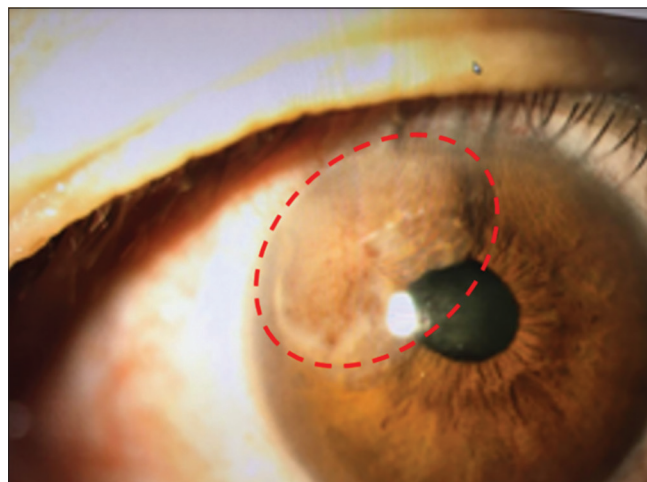


Figure 1: A pinkish-white, vascularized iris mass at 9 o'clock to 12 o'clock meridians (circle)

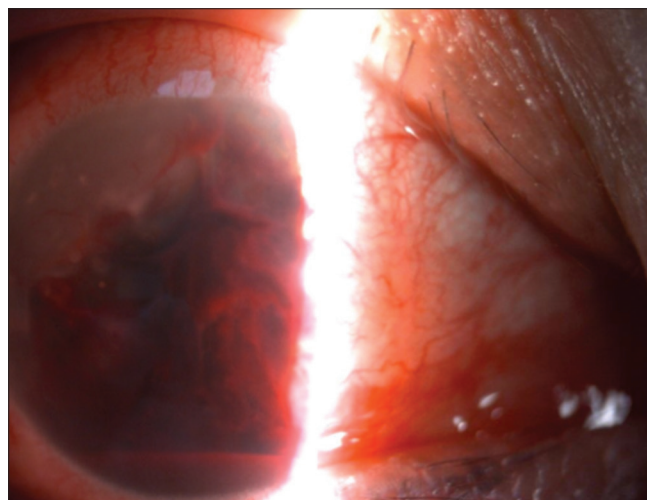


Figure 2: Tumor bleeding developed after 1 month of biopsy

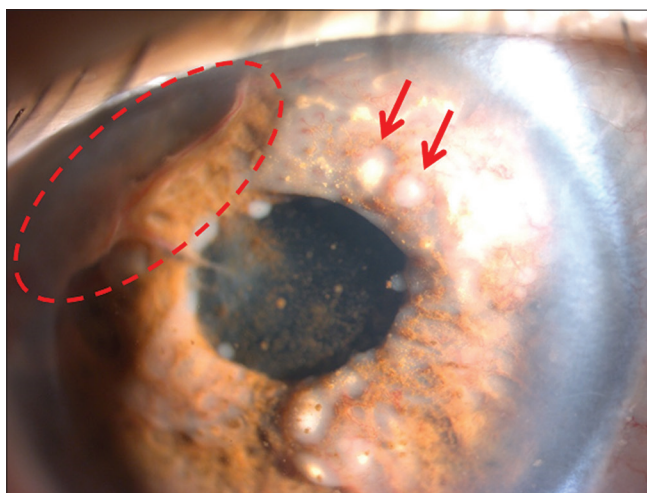


Figure 3: Shrinkage of iris metastasis tumor (circle) after systemic chemotherapy treatment. Focal iris atrophy and multiple whitish nodules (arrow) may be likely associated with iris metastatic tumor regression and blood clot absorption

for primary malignancy. Distinguished iris metastasis from melanomas is important. In these cases, cytological evaluation of fine-needle aspirates or small incisional iris tumor biopsy was extremely helpful in distinguishing melanoma from metastatic neoplasm.^[6,7] Small incisional iris tumor biopsy should be performed carefully. Because most of the metastatic tumor is highly vascularized, and surgical intervention may carry some risk of postoperation bleeding, the prevention for hemorrhage, such as intraocular gas injection into anterior chamber or vitreous cavity, and management for intraocular bleeding such as anterior chamber irrigation and aspiration for the blood clot should be always the savage for surgical complication. For the possible complications of fine-needle aspiration or small incisional biopsy, we should closely monitor hyphema and elevated IOP. Management of iris metastasis included systemic chemotherapy, external beam radiotherapy, plaque radiotherapy, surgical excision, enucleation, and observation. Patients with distal metastasis should be treated with systemic chemotherapy, but external beam radiotherapy or plaque radiotherapy is required for the treatment of focal metastases, while it was refractory to systemic treatment. Most of the ocular outcome is satisfied. Following treatment, the recurrence rate of ocular metastatic tumors from lung origin can decrease to 5% of cases.^[5] However, the survival rate was based on the primary tumor status and type.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands

that her name and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

The authors declare that there are no conflicts of interests of this paper.

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