An Iris Metastasis from Malignancy of the Lungs- Clinical, Diagnostic and Therapeutic Evaluation of a Case Report

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ABSTRACT

Introduction: Iris metastases are uncommon and rarely the first presentation of malignancy from the lungs. They usually present with pain or blurred of vision secondary to anterior segment reaction such as anterior uveitis, secondary glaucoma and spontaneous hyphema.

Case Report: Here we report a rare case of small cell adenoma of the lungs with iris metastasis. This case presented to us initially as a whitish iris mass. Examination revealed a whitish, vascularized tumor was occupying the temporal part of the anterior chamber. Computerized tomography (CT) orbit showed a hyper-density near the lens and CT of the chest revealed a heterogeneous mass in the left upper lobe lungs, abutting the chest and pericardium. The histo-pathological findings from CT guided lungs biopsy diagnosed adenocarcinoma of the lungs. The patient pass away within 2 months before any intervention could be carried out.

Conclusion: Iris metastases of lungs adenocarcinoma carried very bad prognosis. Occurrences of metastatic lesions in the eye are considered as preterminal events if carcinoma of the lung is the primary tumor.

Keywords: Iris mass, Iris metastasis, small cell lungs cancer

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Introduction: Iris metastases are uncommon and rarely the first presentation of malignancy from the lungs. They usually present with anterior segment reaction which including anterior uveitis (44%), secondary glaucoma (7%) and spontaneous hyphema.[1] Here we report a rare case of small cell adenoma of the lungs with iris metastasis. This case presented to us initially as a whitish iris mass.

Case report: RR, a 57year-old male, presented to us with complaints of a rapidly growing whitish mass in his right

eye for one month. No significant medical or surgical history was forthcoming. However, he did admit to being a chronic smoker for many years.He noted the mass was growing bigger rapidly, for which he sought treatment.

Ocular examination revealed best corrected visual acuity of 6/36 OD and 6/24 OS with intraocular pressure in the right and left eye 25 mmHg and 12 mmHg, respectively. The right cornea had scatter fine pigmented keratic precipitates and the anterior chamber was deep with cell 2+. A whitish, slightly elevated, vascularized tumor was occupying the temporal part of the anterior chamber (Figure1). The pupil was elongated shape, fixed and non-reactive to light. Right fundus view was hazy due to anterior chamber inflammation. However, B-scan showed normal vitreous and a flat retina. The fellow's eye examination was unremarkable. The rest of the physical examination was unremarkable, apart from generalized reduced air entry in both lungs with basal precipitation in the left lower lungs zone.

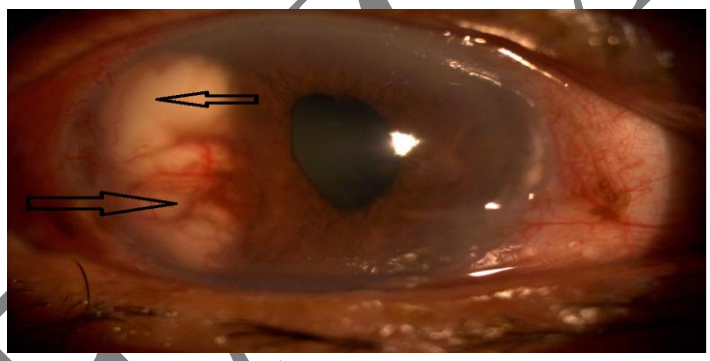

Figure 1: Whitish, vascularized tumor filling the temporal anterior chamber

Chest x- ray revealed diffuse heterogeneous consolidation at the left upper lung zone. Computerized tomography (CT) of orbit and brain showed a hyper-density near the lens, whereas the left eye was normal (Figure2). CT of the chest revealed a heterogeneous mass, measuring 48mm x 45mm with speculated margin in the left upper lobe, abutting the chest and pericardium (Figure3).

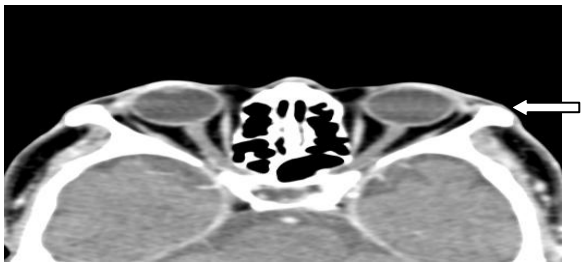

Figure 2: Right eye hyper-density near speculated the lens

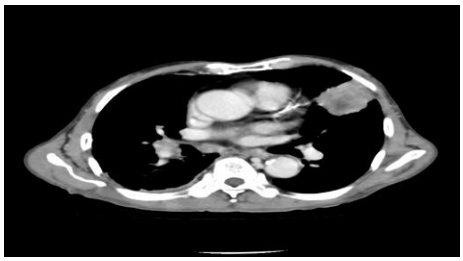

Figure 3: Heterogeneous mass with margin in left upper lobe

CT guided lungs biopsy was done by respiratory team and the histopathological examination showed strips of fibrocollagenous tissue infiltrated by malignant cells forming vague glandular pattern. The cells exhibited marked nuclear Pleomorphism and abundant cytoplasm (Figure4). The cells were positive for Thyroid Transcription factor-1 (TTF-1) (Figure5). The stroma showed marked desmoplastic reaction with dense lympho-Plasmacytic cell infiltration. The histopathological findings were consistent with a diagnosis of adenocarcinoma of the lungs.

Our clinical impression was a right iris metastatic tumour from the adenocarcinoma of the lung (Stage IV). Before any intervention could be carried out the patient passed away 2 months later.

Figure 4

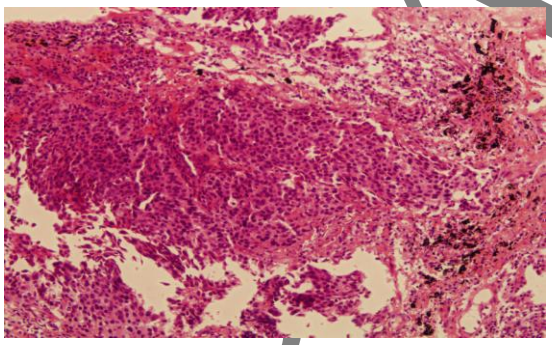

Figure 5

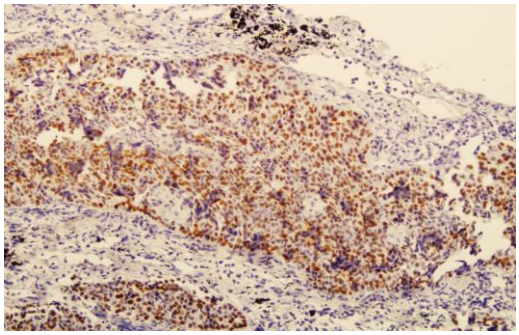

Figure 4: H&E staining of the small cell lungs cancer iris metastases; magnification x 200

Figure 5: Positive immune-staining of the small cell lungs cancer iris metastases with thyroid transcription factor-1 (TTF-1) ; magnification x 200

Discussion:

Metastastic carcinoma to the eye is the most common intraocular malignancy. Metastases to the eye developed in approximately 0.7% of patients with lung cancer[2]. The mechanism of the intraocular metastasis is dependent on hematogenous dissemination of the tumor cells. Anatomy of the arterial blood supply to the eye dictates the predilection of tumor cell

deposits within the eye. Within the uvea, choroid is the most commonly affected site (88%), followed by the iris (9%) and ciliary body (2%)[3]. The rarity of metastatic tumors in the anterior uvea can be explained on the basis of blood supply.

It is crucial to differentiate between iris metastatic lesion and primary malignant iris melanoma. Iris metastatic lesions are typically flatter and multifocal and often bilateral which grows more rapidly and may involve any quadrant. Grossly it usually present as a solid, amelanotic, white, pink or yellow iris mass.[4] On the other hand, iris melanoma typically appear as a localized, dark brown to tan iris tumor. About three-quarters of them involve the inferior iris[5].Generally, iris melanomas with classic pigmentation or irregular coloration can be easily differentiated from iris metastatic lesion. However, non-pigmented melanomas are more challenging to be a differential diagnosed.

The diagnosis of ocular metastases is primarily based on clinical findings supplemented by imaging studies. Ultrasound biomicroscopy can be used to assess the extent and the margin of the lesion, whereby the iris metastases tend to be echogenic, but the melanoma tends to be echolucent.[6] B-scan can identify any metastatic choroidal mass and secondary retinal detachment especially in a patient with no fundus view. Fluorescein angiography of the iris shows tumour vessels with dye leakage in iris metastasis. Nevertheless, it is less useful in differentiating a metastasis from a primary intraocular neoplasm. CT of the ocular structures can reveal deposits in the choroid and the orbit.

Fine-needle aspiration biopsy appears to be a reliable and safe technique for establishing the diagnosis when diagnosis cannot be established by non-invasive procedures and it is diagnostic in greater than 90% of the cases.[7] In this case, the obvious clinical feature and positive finding of CT guided lungs biopsy confirmed the diagnosis and an invasive diagnostic procedure was not necessary.

Ophthalmic management of ocular metastases aims to preserve and restore the vision, alleviation of ocular symptoms and to maximize the quality of life. Topical steroid and anti-glaucoma treatment are useful to reduce the uveitis as well as the intraocular pressure. The tumor may undergo regression with chemotherapy for the primary tumor. In unresponsive cases, a short course of linear accelerator beam radiotherapy can be given and it can achieve a success rate of over 80%. [3]

Furthermore, anti-vascular endothelial growth factor therapy can be used to slow the progress of maculopathy and neuropathy as well as spare vision after local radiotherapy. [8] There was case report showing that intracameral anti-vascular endothelial growth factor was used to treat iris metastasis and the outcome was excellent.[9]

On the other hand, other than diagnostic biopsy, surgery has not played an important role as it increases the probability of morbidity.

The short-term visual prognosis is usually good after individualized therapeutic approach. However, the systemic prognosis of iris metastases is generally poor as in this patient who passed away two months later after diagnosis. The survival period is short after the metastasis is found. It has been reported that survival time in primary tumors with metastases to the eye is about 7.5months. [10]

Conclusion:

In conclusion, iris metastases of lungs adenocarcinoma are very rare. It can also present directly as iris mass and carried very bad prognosis. Occurrences of metastatic lesions in the eye are considered as preterminal events if carcinoma of the lung is the primary tumor. Therefore, any patient who present with iris mass should alert doctors to possibilities of iris metastasis.

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