Case Report

Choroidal Metastasis as the First Sign of Squamous Cell Carcinoma of the Lung

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Abstract

Metastatic tumours of uvea are intra-ocular malignancies in adults, and the choroid is by far the most common site for intra-ocular malignancies. The incidence of ocular metastases from lung cancer is reported to be 2-7%. Loss of visual acuity as a primary symptom in lung cancer is very rare. We present a non-interventional case report of a 45 year old male patient having extensive choroidal metastasis with retinal detachment who was diagnosed as having squamous cell carcinoma of the lung. This case report highlights the importance of subjecting a patient with choroidal metastasis without a known primary to systemic investigations as well as imaging.

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Introduction

Metastatic tumours of uvea are intra-ocular malignancies in adults, and choroid is by far the most common site for intra-ocular malignancies. Multiple foci are usually involved and bilateral involvement is frequently seen. The incidence of ocular metastases from lung cancer is reported to be 2-7%.[1,2] The majority of cases involve end-stage patients. Choroidal metastases are metastatic lesions to the choroid layer of the eye. We report a case that presented to our OPD with complaints of blurring of vision and was subsequently diagnosed as having lung cancer.

Case Report

A 45 year old tobacco chewer, tailor by occupation who presented to our eye OPD with complaint of diminution of vision in left eye since 5 days. There was no history of pain, redness, photophobia, diplopia, and headache. No complain in fellow eye was reported. He gave history of retrosternal pain and cough since 1 year followed by breathlessness from 1 month for which he took some medication from local practioner. He also had a history of pulmonary tuberculosis two years back.

On examination, his best corrected visual acuity was 6/6, N6 in his right eye, and perception of light with accurate projection of rays in left eye. His anterior segment evaluation was normal in right eye but left eye revealed mid-dilated pupil with ill-sustained reaction to light. His ocular movements were normal in all gazes. Intra-ocular pressure was normal. Fundus examination of right eye was with in normal limits. Left eye fundus showed a choroidal mass around 4 disc diameters in size starting at temporal margin of disc with overlying serous retinal detachment with macular involvement. Fundus fluorescein angiography (Figure 1) showed a hyper-fluorescent non-vascularized mass temporal to disc with mottled appearance in left eye associated with overlying retinal detachment. Ultrasound B scan (Figure 2, 3) of left eye showed a plaque like hypo echoic area in postero-lateral aspect of globe measuring 1.1*0.6cm consistent with choroidal metastasis. Partial retinal detachment was seen superior to mass measuring 6mm in length and 1.2mm in thickness. MRI brain and orbit (Figure 4,5) showed a well-defined homogenous lesion measuring 5mm* 6mm in left eye appearing hypo intense on T1, hyper intense on T2 and showing homogenous post contrast enhancement in left eye arising from choroid layer suggestive of choroidal metastasis. Respiratory medicine referral was done to rule out lung as the site of primary. CECT chest and abdomen (Figure 6) revealed a malignant soft tissue mass in anterior basal segment of left lower lobe of lung 4.4*5.5*7cm, irregular with moderate heterogenous contrast enhancement with no calcification. Mass was infiltrating adjacent pericardium, diaphragm and extending into abdominal cavity (possible infiltration to liver and spleen). Multiple nodular pleural deposits and loculated large malignant pleural effusion present in left pleural space along lateral chest wall. Old tubercular changes were present in both lung fields. Pleural tap was positive for malignant cells. CT guided biopsy of lung mass revealed squamous cell carcinoma. Haematological investigations showed increased total leukocyte count (15,700/cu.mm with neutrophilia (70%). Peripheral smear showed distorted RBC morphology. RA factor, ANA, TPHA were negative. Patient is currently on chemotherapy receiving weekly intravenous paclitaxel 140 mg (90mg/sq.m). After 4th week of chemotherapy, his vision improved to finger counting at half metre. Patient is being reviewed weekly and further improvement in vision is expected.

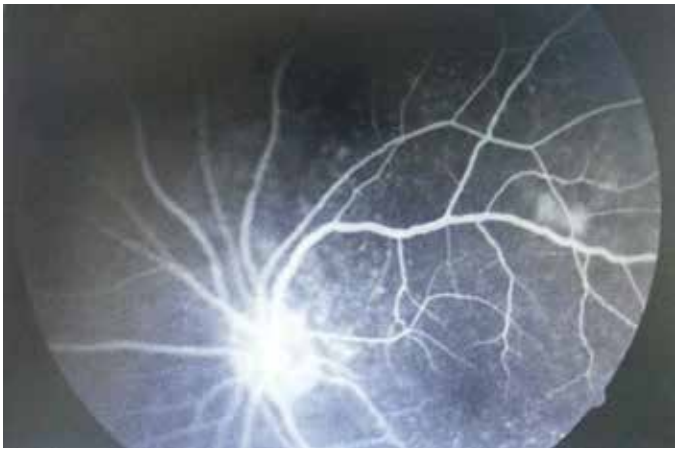

Figure 1: *Fundus fluorescein angiography of the left eye*

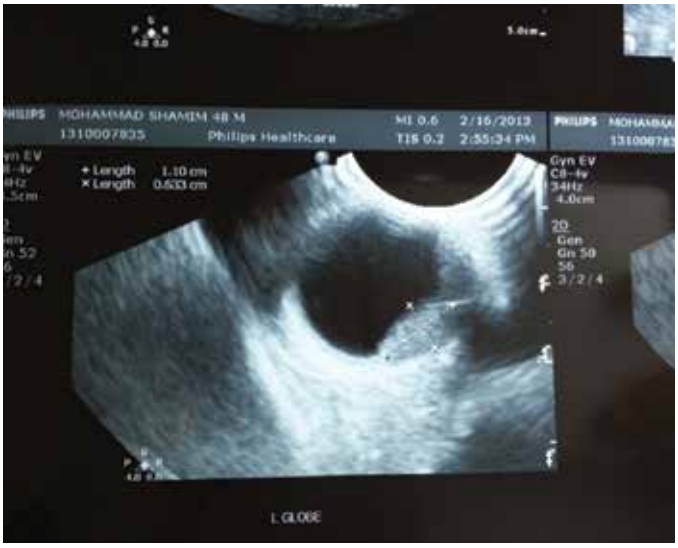

Figure 2: *USB B scan of the left eye*

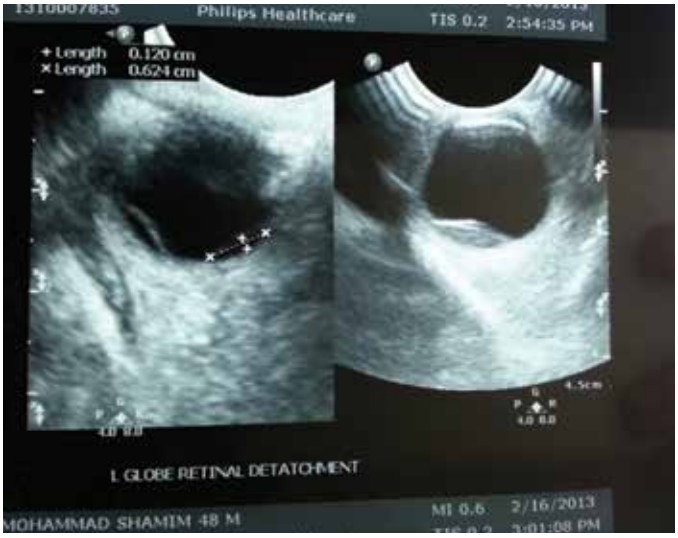

Figure 3: *USB B scan of the left eye*

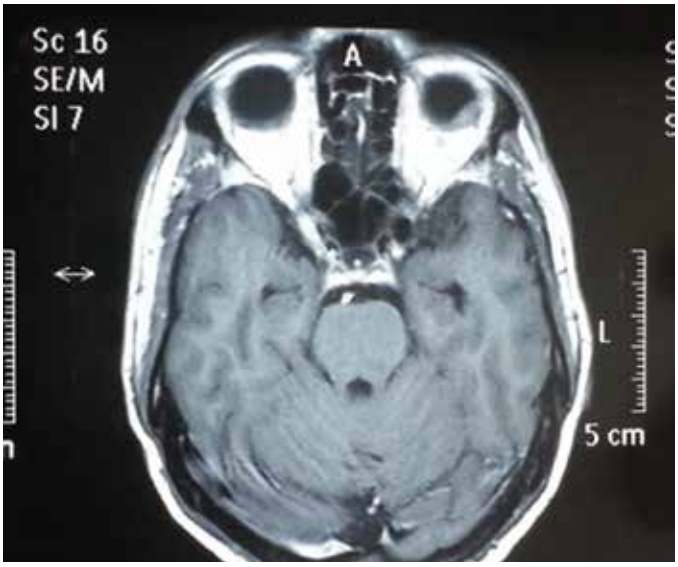

Figure 4: *MRI brain and orbit (T1)*

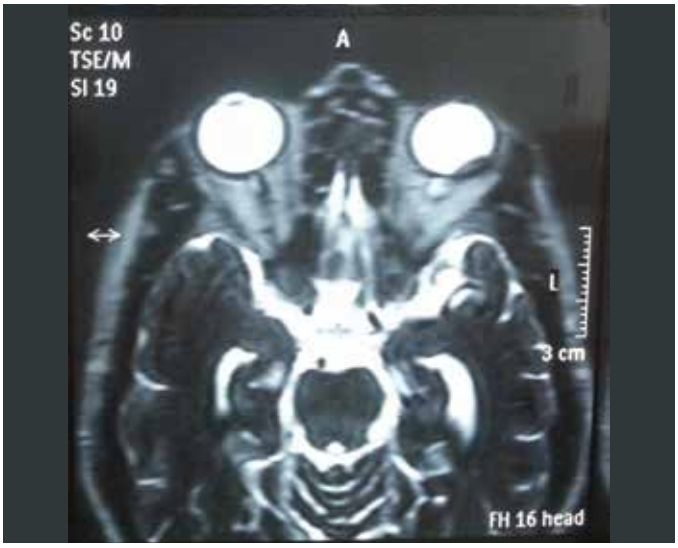

Figure 5: *MRI brain and orbit (T2)*

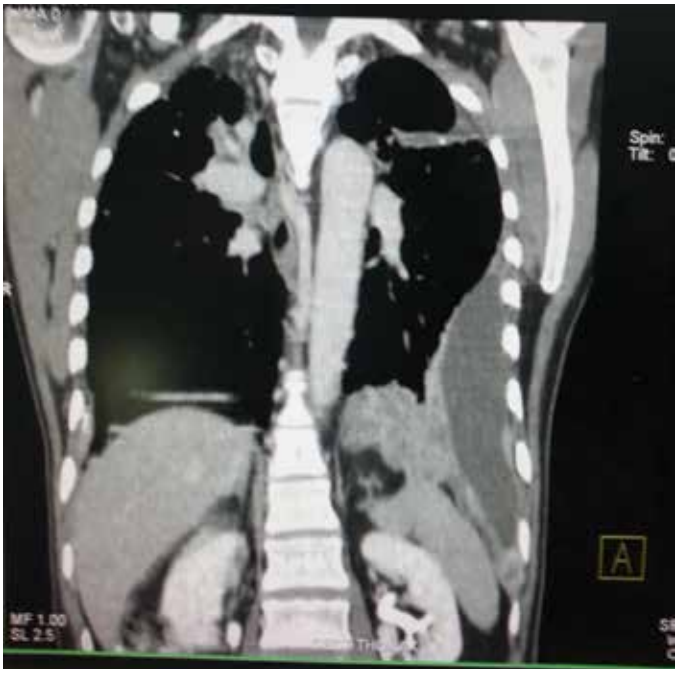

Figure 6: *CECT chest and abdomen*

Discussion

The highly vascular uveal tract is the most common part of the eye involved by metastases. Within the uvea, the choroid (88%) is the most commonly affected site followed by the iris (9%) and ciliary body (2%).[3] Breast cancer seems to be the most frequent type of cancer giving intraocular metastases. The incidence for the breast cancer is reported to be 37-41%, while lung cancer is considered to be responsible for no more than 7% of choroidal metastases.[4,5]

Multiple foci and bilateralism are important features of metastatic choroidal tumours. In 20% to 40% of cases, lesions are bilateral.[6]

Choroidal metastasis is most common from breast carcinoma in women, and lung carcinoma in men.[7] Among women, the primary sites for choroidal metastasis are the breast,

lung, unknown primary, gastrointestinal and pancreas, skin melanoma, and other rare sources. Among men, however, the primary sites are the lung, unknown primary, gastrointestinal and pancreas, prostate, kidney, skin melanoma, and other rare sources.[7,8,9] Of all patients reported to have choroidal metastasis as the presenting symptom, 58% had lung cancer and 28% had breast cancer.[10] This is probably because the primary tumour is treated in 90% cases by the time ocular lesion is first noted. This is in contrast to ocular metastases from pulmonary malignancies, in which ocular manifestations are the first presentation of the disease in 80% of cases. Stephens and Shields reviewed 70 cases of choroidal metastasis and found that blurred vision was the presenting complaint in 80% of patients, and pain was noted in 14%, photopsia in 13%, red eye and floaters in 7% and field defects in 3%.[9]

Differential diagnosis of choroidal metastasis includes choroidal melanoma, choroidal osteoma, choroidal hemangioma, choroidal neovascularization with disciform scar, posterior scleritis and other rare lesions. Metastatic tumours usually have a creamy yellow appearance. On fluorescein angiography, these lesions are usually hypo-fluorescent in the early phases of study and become progressively hyper-fluorescent in the late phases.[11] B-scan ultrasound shows an echogenic sub-retinal mass with diffuse, ill-defined borders. Serous retinal detachment is common and sound attenuation in the lesion is usually moderate.[12]

Because two-third-of-patients with choroidal metastasis of lung cancer are benefitted by any treatment, early recognition and therapy are important to maximize a patient's quality of life. The currently available options for the management of ocular metastasis are observation, chemotherapy, photocoagulation, cryosurgery, surgical resection, or radiotherapy. The chosen therapy depends on the clinical condition of the patient and the type of primary tumour. Ocular metastasis of non-small-cell lung carcinoma has been reported to respond well to systemic chemotherapy and intravitreal bevacizumab therapy.[13,14] Recently, Epidermal growth factor receptor tyrosine kinase inhibitor (EGFR-TKi) has also been shown to be an effective treatment option for ocular metastasis of non-small cell lung cancer (NSCLC) harboring an EGFR mutation.[15]

The mean survival in patients with disseminated lung cancer and choroidal metastasis ranges from 1.9 months to 6 months.[16]

Conclusion

To conclude, intraocular metastasis is a potentially blinding and frequently overlooked problem and careful ophthalmological evaluation is necessary to establish a diagnosis. The overall frequency of ocular metastasis in patients dying of cancer is approximately 16%, and of lung cancer rises about 40%.[17] Treatment options available are external beam radiotherapy, plaque radiotherapy, and new methods like surgical resection, transpupillary thermotherapy and intravitreal chemotherapy.

Thus, metastatic tumour of the eye presenting as the first sign of disseminated cancer is rare.[18] Furthermore the occurrence of retinal detachments due to ocular metastasis is rare,[18] which is reported in our case. Also, the successful gain of useful vision by the use of chemotherapy alone for choroidal metastases is not frequently reported.[14]

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