CASE REPORT

Choroidal Mass as the First Manifestation of Small Cell Lung Carcinoma: A Case Report

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ABSTRACT

Diminished vision due to choroidal metastasis as the first manifestation of lung carcinoma is rare. Here, we report a case of a 22-year-old non-smoker man, with no known medical illness presented with painless loss of vision in the right eye for one month, which became painful after two weeks. The anterior segment examination of the right eye revealed an anteriorly subluxated crystalline lens with angle-closure glaucoma secondary to a retrolental choroidal mass. Prompt assessment and investigation revealed right eye choroidal metastasis secondary to small cell carcinoma. The right eye responded well to chemotherapy evidenced by a reduction of intraocular pressure and size of the choroidal mass. It is crucial to have a high index of suspicion to exclude non-ocular primary tumours as probable causes in any choroidal masses.

Keywords: Choroid, Small cell lung carcinoma, Metastasis

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INTRODUCTION

Choroidal metastasis is the most common intraocular malignancy due to its abundant blood supply and favourable environment for tumour seedings. (1) Tumor location included choroid (88%), iris (9%) and ciliary body (2%). (2) The most common presentations of the choroidal metastasis include reduced vision due to exudative retinal detachment or tumour involving the macula or peripapillary retina. Infrequently, it may cause painful eye secondary to angle-closure glaucoma or neovascular glaucoma. Here, we report a rare case of loss of vision with secondary angle-closure glaucoma due to choroidal metastasis from small cell lung carcinoma.

CASE REPORT

A 22-year-old Chinese man, a non-smoker with no known medical illness presented with painless loss of vision in the right eye for one month, which became painful after two weeks. The best-corrected visual acuity was light projection in the right eye and 6/6 in the left eye. There was right relative afferent pupillary defect. Anterior segment examination of the right eye revealed an anteriorly subluxated crystalline lens with the intraocular pressure of 32mmHg. The anterior chamber was shallow with iridocorneal touch. A pigmented retrolental mass was noted to arise from the inferior part of the globe internally pushing the lens forward (Fig. 1). Left eye examination was unremarkable.

Systemic examination showed unremarkable findings except for minimal cervical tenderness. Cervical X-ray revealed lytic lesion over C3-C5 vertebral bodies. Subsequently, further investigation revealed right lower

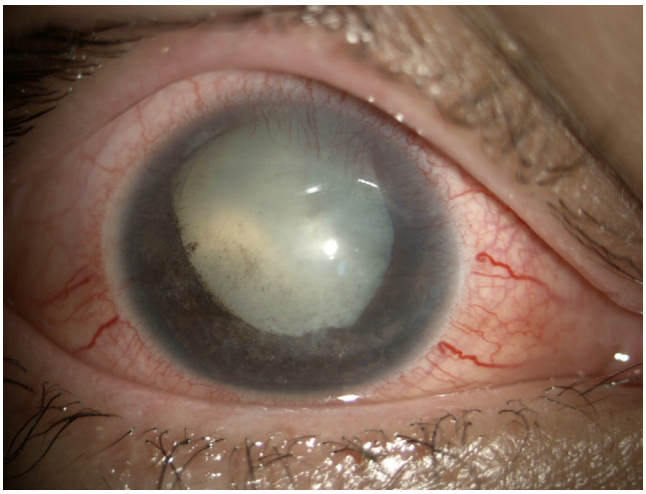

Figure 1: Anterior segment examination of the right eye showed a pigmented retrolental mass arising from the inferior part of the globe internally pushing the lens.

lobe masses in the chest radiography (Fig. 2). This prompted a contrast-enhanced computed tomography (CECT) of the chest and spine which confirmed a right lung lower lobe tumour with ocular and spine metastasis with the evidence of multiple lobulated intraparenchymal lung lesions at the right lower lobe, largest measuring 2.9 x 3.4 x 3.8cm with C4 pathological fracture and infiltration of the T8-T12. B scan (Fig. 3) showed a diffuse choroidal tumour in the right eye.

Spine operation with anterior cervical corpectomy

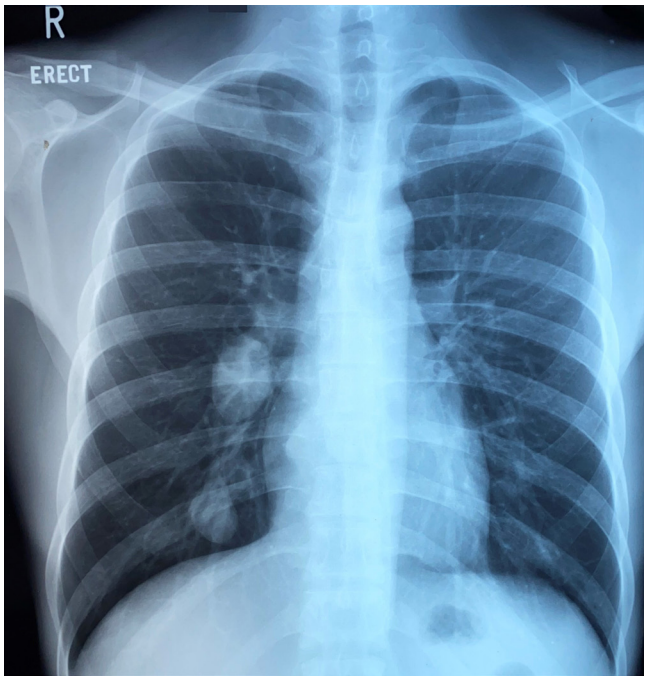

Figure 2: Chest X-ray revealed two well marginated non-cavitating nodules in the right infra-hilar region and right lower lobe.

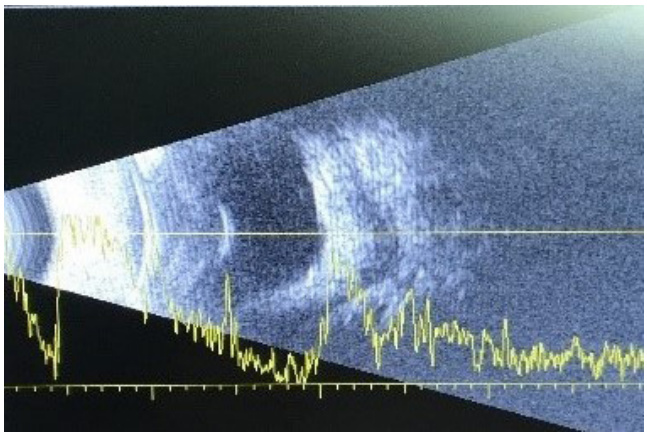

Figure 3: B-scan ultrasound of the right eye demonstrates a diffuse choroidal tumour.

and fusion with mesh cage insertion was done. The cervical bone tissue sent for histological examination showed features suggestive of metastatic small cell carcinoma (Fig. 4). The positron emission tomography-computed tomography (PET-CT) showed a large fluoro-deoxyglucose (FDG) –avid right hilar mass measuring 4.1cm x 3.1cm x 3.1 cm in size.

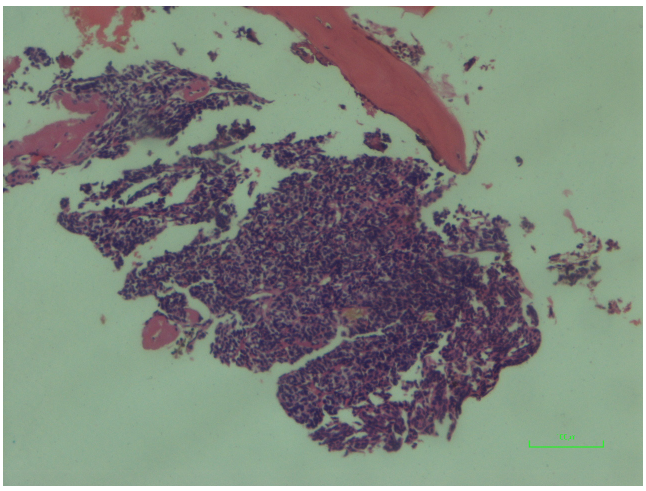

Figure 4: Histopathological examination of cervical bone tissue showed the neoplastic cells arranged in sheets and nests displaying small nuclei with nuclear moulding suggestive of metastatic small cell lung carcinoma. H&E, x40 magnification

The diagnosis of small cell lung carcinoma with choroidal metastasis in the right eye was made. He was then co-managed by oncologist, chest physician and orthopaedic team. He received six cycles of systemic palliative chemotherapy which consisted of cisplatin 70 mg/m2 injection and etoposide 80 mg/m2 injection. The right eye responded well to the chemotherapy treatment at the initial stage, evidenced by a reduction of intraocular pressure and size of the choroidal mass.

However, two months after the completion of the chemotherapy, the tumour progressed. The repeated PET-CT scan showed tumour spread to the left lower lobe and pelvis with a new enhancing orbital lesion over the same eye that extends inferior to the globe measuring 2.0cm x 1.3cm in size. This was most likely an extraocular spread of the initial mass. Thus, the patient was commenced on second-line chemotherapy agent irinotecan combined with immunotherapy agent atezolizumab and halcyon radiotherapy over the lung and pelvis. The latest PET-CT scan demonstrated the tumour was stable in size and metabolic activity with no metastasis to brain or liver.

DISCUSSION

The most common primary sites for choroidal metastasis among men are lung, skin melanoma, pancreas, kidney, and prostate. (3) However, blurred vision with secondary angle-closure glaucoma due to a choroidal mass as demonstrated in our case is rarely the first presentation of lung cancer with choroidal metastasis. It has been reported in only 1% of choroidal metastases. (4) Mechanism of intraocular pressure elevation in our case was due to angle closure secondary to anterior displacement of the iris-lens diaphragm from the choroidal mass. The differential diagnosis includes primary choroidal melanoma, benign lesions such as choroidal haemangioma or osteoma and inflammatory granulomas.

Patients with small-cell lung carcinoma can be classified into two groups based on the extension of the disease. The limited disease is generally described as cancer confined to one hemithorax with or without the involvement of nearby lymph nodes. (5) Whereas in extensive disease, cancer extends to other regions of the chest or other parts of the body which is beyond a tolerable radiotherapy portal (5). Ocular metastases as seen in our case place the patient in the extensive disease group whereby the treatment is typically palliative.

Tumours are initially chemosensitive but become drug-resistant during treatment as seen in our case. It tends to disseminate earlier and is clinically more aggressive compared to non-small cell carcinomas. Despite aggressive treatment, the prognosis is usually poor with 54% mortality at mean 12-month follow-up. The diagnosis of choroidal metastases declare final stage disease and dissemination seem to be almost certain as illustrated in our case.

The diagnosis of the lung cancer in this case was difficult as the patient has no lung cancer symptoms. Thus, a high index of suspicion is required to exclude non-ocular primary tumours as probable causes in any choroidal masses. In particular, it is mandatory for the ophthalmologists to be aware of this rare condition and a comprehensive systemic evaluation should be obtained. Besides, a multidisciplinary approach is very essential in the diagnosis and treatment of small cell lung carcinoma to ensure the survival of the patient.

CONCLUSION

It is crucial to keep in mind secondary metastasis in a case of choroidal mass in a healthy young man until proven otherwise. Systemic chemotherapy can be administered to improve the quality of life and prolong survival.

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