Case Report

A DEADLY CASE OF CHOROIDAL METASTASIS

Brindha Gulendran*[1], Nazrah R [1], Rona Asnida N [2]

[1] Department of Ophthalmology, Hospital Selayang, 68100 Batu Caves, Selangor, Malaysia.
[2] Department of Ophthalmology, Universiti Kebangsaan Malaysia Medical Centre, Jalan Yaacob Latif, Bandar Tun Razak, 56000, Cheras, Kuala Lumpur, Malaysia.

ARTICLE INFO

Corresponding author:
Dr. Brindha Gulendran

Email address:
brindha12@hotmail.com

Received:
August 2018
Accepted for publication:
December 2018

Keywords:

sudden reduced vision,
exudative retinal detachment,
choroidal mass
advanced lung carcinoma,
metastasis

ABSTRACT

A case of 58-year-old Malay gentleman,a chronic smoker with underlying hypertension and diagnosed with smear positive tuberculosis, was referred for sudden onset of reduced vision in the left eye one month prior to presentation and after commencing anti-tuberculosis medications. Examination revealed right best corrected visual acuity (BCVA) of 6/9 and left BCVA was Counting Fingers(CF)1foot. Anterior segment examinations were normal. Funduscopy revealed left exudative retinal detachment superotemporally extending to the macula.The right fundus was normal. Calcification were present inferiorly. left Bscan showed a choroidal mass.A large heterogenously enhancing mass measuring 6.8 x 7.3 x 7.1 cm in the upper lobe of the right lung with a regular and spiculated margin was seen on CT TAP scan. with multiple small satellite nodules surrounding it. There also was multilevel bone metastases at cervical, thoracic, lumbar and sacral spine with soft tissue component causing multilevel spinal canal stenosis and nerve roots impingement. Final diagnosis was Stage 4 Lung carcinoma with distant metastases to spine, choroid, liver and lymph nodes. Patient was offered bronchoscopy for biopsy however he refused. Patient subsequently developed pneumonia and acute kidney injury secondary to poor oral intake and was treated with intravenous Ceftriaxone 2gm OD . Patient deteriorated and succumbed within a month of diagnosis of due to advanced lung carcinoma.

INTRODUCTION

Choroidal metastases is a rare occurrence and tend to occur in the advanced stages of cancer, where the mean survival is not expected to be more than 6 months [1]. It requires multidisciplinary care and should be among the differential in patients with malignancy who present with ocular symptoms [1]. The choroidal metastases are often asymptomatic and, thus, their diagnosis remains challenging. Their frequency might be underestimated due to the fact that most patients have advanced systemic disease which draws the attention away from ophthalmic examination unless it has caused severe visual impairment.

METHODS

Complete ophthalmological examination, blood investigation and imaging.

CASE REPORT

Mr MA, a 58-year-old Malay gentleman with underlying hypertension and dyslipidemia was referred from Internal Medicine department for sudden onset of blurring of left vision of one month duration. It was painless but progressively worsening. No floaters or flashes were noted. There was no prior history of trauma or red eyes; neither was there any significant past ocular history. His right vision was good. On further questioning, he initially presented to the emergency department 2 months prior with complaint of lower back pain. Patient was discharged with pain killer. His lower back pain worsened with associated numbness, weakness and acute urinary retention.

He sought treatment from a private hospital where a MRI spine was done. MRI revealed, aggressive lesion involving L4-S1 vertebrae with L3-L4 left paravertebral mass with intraspinal and left exit foramina involvement causing regional spinal canal

stenosis and impingement of left exiting nerve root, the lesion most likely represent metastasis or infection (tuberculous spondylitis, pyogenic spondylitis). He was referred to the medical Department of Hospital Selayang and admitted. Chest x-ray done revealed a suspicious mass involving the right middle and upper lobe (Figure 1).

He was provisionally diagnosed as lung carcinoma with spine metastasis, with a differential diagnosis of pulmonary tuberculosis. Pulmonary tuberculosis work up done revealed AFB smear positive, ESR of 101 and c-reactive protein of 9.54. Patient was started on anti-tuberculosis medications.

One week following treatment with Akurit-4, the patient developed sudden onset left blurring of vision. Ocular examination revealed best corrected visual acuity (BCVA) of 6/9 in the right eye and counting finger of one foot in the left eye. There was left non-axial proptosis of 3mm with exophthalmometer. There was left relative afferent pupillary defect.

Anterior segment examinations of both eyes were normal. The right fundus was normal (Figure 2), however, left fundus revealed total exudative retinal detachment which was bullous involving the superior aspect extending from 9 to 1 o'clock with a shallow detachment temporally involving the macula (Figure 2.1). There were 2 spots of calcification seen inferiorly. Ultrasonography (B scan) of the left eye revealed a choroidal mass with retinal detachment (Figure 3).

Patient was diagnosed as left exudative retinal detachment secondary to probably choroidal metastasis. Patient was referred back to medical with the suspect of malignancy and CT TAP was done. The scan showed a large heterogeneously

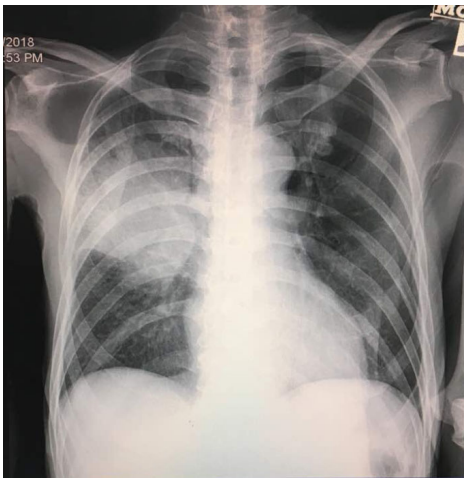

Figure 1: Chest x-ray shows suspicious mass in the right upper and middle lobes.

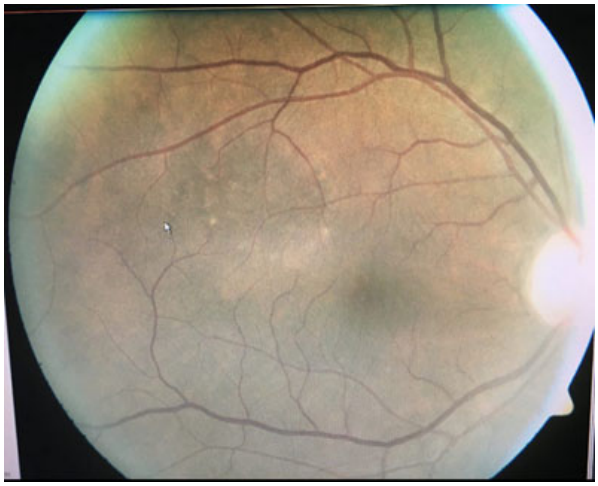

Figure 2: Right fundus photograph.

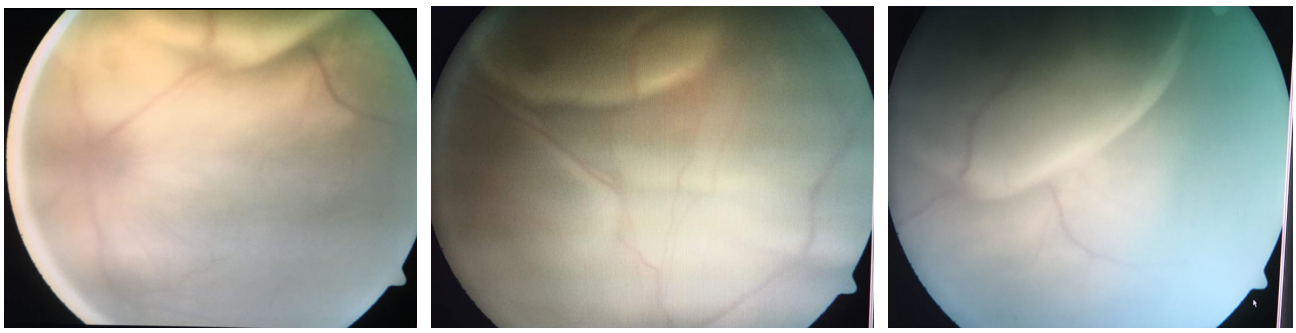

Figure 2.1 : Left fundus photograph shows total exudative retinal detachment which is bullous over the superior quadrant extending from 9-1o'clock with a shallow detachment at the macula and temporally.

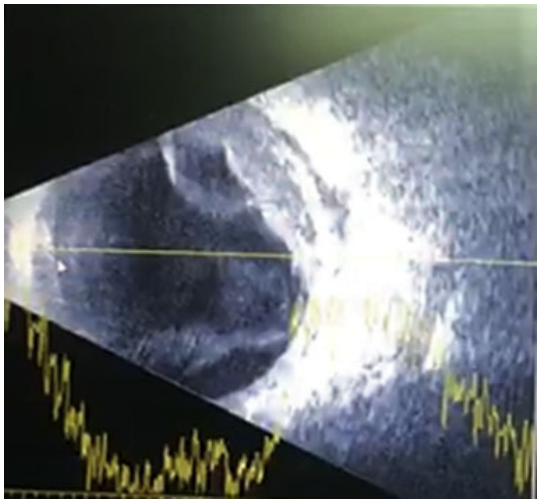

Figure 3: B scan of left eye shows choroidal mass with retinal detachment .

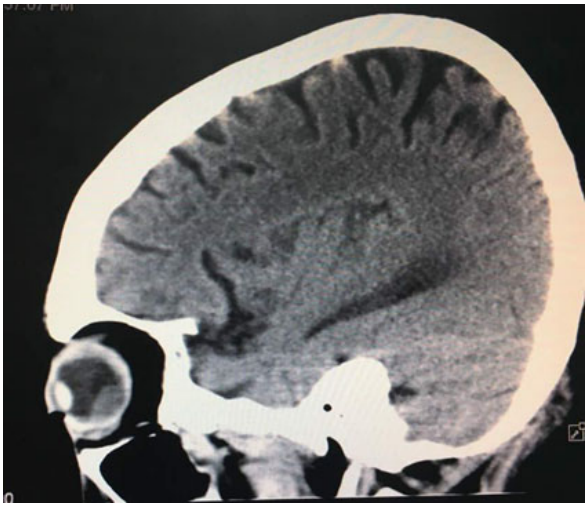

Figure 4: sagittal cross section of CT brain shows choroidal mass in the left eye.

enhancing mass measuring 6.8x7.3x7.1 cm in the upper lobe of the right lung with a regular and spiculated margin with multiple small satellite nodules surrounding it. There was multilevel bone metastases at C5-C6, T9-T10, L3-L5, S1-S2 with soft tissue component causing multilevel spinal canal stenosis and nerve roots impingement. Impression was in keeping with upper lobe right lung mass with nodal, liver and bone metastases. Patient was offered bronchoscopy for biopsy however he refused. Blood investigation revealed hypercalcemia, calcium level of 3.5 and full blood picture showed mild anemia with reticulocyte count of 0.95%.

Patient subsequently developed pneumonia and acute kidney injury secondary to poor oral intake. He was treated with intravenous Rocephine however he deteriorated and succumbed to his illness.

DISCUSSION

The most common intraocular malignant neoplasm in adults is the metastatic carcinoma to the eye [2]. The 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]. The reason for this unusual site to be of target for secondary metastases is generally unknown, but it is postulated that its high vascularity may be the reason[3,4]. Metastatic emboli travel through the internal carotid artery, the ophthalmic artery and the posterior ciliary arteries to make their way to the choroid where they can seek a receptive environment for growth. The most frequent origins of choroidal metastasis in decreasing order in women are the breast, the lung, the unknown site, the gastrointestinal tract and the skin melanoma. In males the list is headed by the lung, followed by the unknown location, gastrointestinal tract, the prostate, kidney and skin melanoma [5,6]. The differential diagnosis of choroidal metastasis include choroidal melanoma, choroidal osteoma, choroidal heman-gioma, choroidal neovascularization with disciform scarring, tuberculoma and posterior scleritis [7].

Studies have shown that 63%-72% of patients with a diagnosis of uveal metastasis from lung cancer do not have a known diagnosis of lung cancer at presentation [4].

Visual symptoms may be the first manifestation of systemic metastases. The ocular symptoms that the patient typically presents are blurred vision in 80% of patients, pain in 14%, photopsia in 13%, red eye and floaters in 7% and visual field defects in 3% [7]. In a study by Shields et al, ocular pain was a more common presenting symptom of uveal metastasis from lung cancer compared with all other primary cancers grouped together (14% vs. 7%). It was postulated that this could be due to greater invasiveness, particularly into the sclera and more rapid growth indicated by greater mean thickness of uveal metastasis from lung cancer compared with breast cancer [8,9,10]. Non–small cell carcinoma predominated over small cell carcinoma (84% vs. 16%) [4,8,9].

Clinically, metastatic tumors presented as a creamy yellow appearance (93%) with plateau configuration (67%), with overlying orange-brown pigment (lipofuscin pigment) (7%) and showed multifocality and bilateralism [4,7]. Visual symptoms are caused not only by the mass effect of the tumour, but also by increased subretinal fluid, retinal edema and retinal detachment. Persistent retinal detachment ultimately results in irreversible visual loss that greatly affects the patient's quality of life.

This patient presented at a very late stage. The survival time from diagnosis of uveal metastasis is

between 7-21 months. A number of treatment options are available, including radiotherapy, e.g., external beam, plaque brachytherapy, Gamma Knife, and proton beam, laser therapy, cryotherapy, resection, intravitreal injections and observing for effectiveness of systemic therapy. The choice of treatment varies depending on patient's specific clinical condition. Systemic therapy has been shown to be effective for controlling metastatic tumors of the choroid and is considered to be the preferred treatment option. This treatment is thought to be effective due to the absence of a blood ocular barrier and easy diffusion of systemic medication to the choroid via the fenestrated endothelium of the choriocapillaris.

Regression of the choroidal metastasis with use of systemic chemotherapy alone has been noted. The decision to treat locally has to take into account important considerations such as patient preference, overall health, location and extent of the lesions, and visual symptoms. In patients with choroidal metastasis, the goal of treatment is to improve visual acuity as well as the patient's overall quality of life during the remaining life span [4].

CONCLUSION

Choroidal metastases is the most common intraocular malignancy in the adult population, yet they are not frequently encountered in practice as majority of patients with choroidal metastasis have advanced systemic disease drawing the attention away from the ophthalmic clinical manifestation. A high index of suspicion is essential and a timely referral and review is needed.

REFERENCES

1. Singh N, Kulkarni P, Aggarwal AN, Mittal BR, Gupta N, Behera D, et al. Choroidal Metastasis as a Presenting Manifestation of Lung Cancer: A Report of 3 Cases and Systematic Review of the Literature. Medicine. 2012;91(4):179-94.
2. Sofia Lampaki, Ioannis Kioumis, Georgia P. et al. Lung Cancer and Eye Metastases. Med Hypothesis Discov Innov Ophthalmol. 2014 Summer; 3 (2): 40–44.
3. Christos Asteriou, Dimitrios Konstantinou et al. Blurred vision due to choroidal metastasis as the first manifestation of lung cancer: A case report . World J Surg Oncol. 2010; 8: 2.
4. Sanket U. Shah MD, Arman Mashayekhi MD et al. Uveal Metastasis from Lung Cancer: Clinical Features, Treatment, and Outcome in 194 Patients. American Academy of Ophthalmology. January 2014,Volume 121, Issue 1, Pages 352–357.
5. Abhishek Singh , Parul Singh, Kamal Sahni et al. Non-small cell lung cancer presenting with choroidal metastasis as first sign and showing good response to chemotherapy alone: a case report. J Med Case Reports 2010; 4:185.
6. Samer S. Jamal K. et al. Choroidal metastasis as the sole initial presentation of metastatic lung cancer. Hematology/Oncology and Stem Cell Therapy. Volume 5, Issue 1, January–March 2012, Pages 60-65.
7. Michael Lam, Jason Lee et al. Choroidal metastasis as the presenting feature of a non small cell lung carcinoma with no apparent primary lesion identified by X-ray: A case report. Oncol Lett. 2014 Oct; 8(4): 1886–1888.
8. Iwao Shimomura, Yuji Tada et al. Choroidal Metastasis of Non-Small Cell Lung Cancer That Responded to Gefitinib. Case Reports in Ophthalmological Medicine. Volume 2013, Article ID 21312.
9. Meziani, L., Cassoux N. , Ve Rouic et al. Uveal Metastasis revealing Lung Cancer. J Fr Ophthalmol. 2012; 35: 420-425.
10. Kreusel, K.M., Bechrakis, N.E., Wiegel, T. et al. Incidence and clinical characteristics of symptomatic choroidal metastasis from lung cancer. Acta Ophthalmol. 2008; 86: 515-51.