



Choroidal and Orbital Metastasis in Carcinoma Lung: A Case Report

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Abstract

Ocular metastasis is a rare manifestation of carcinoma. A 61 year old male patient with squamous cell carcinoma lung presented with history of decreased vision left eye. His detailed ocular examination revealed choroidal metastasis in left eye and MRI brain showed orbital metastasis. The main aim of this article is to report a rare ocular manifestation in a case of carcinoma lung with the need of prompt clinical suspicion and thorough ocular and systemic evaluation in patients of advanced malignancies

Keywords: lung, choroidal metastasis, advanced malignancies.

Introduction

Lung carcinoma is the leading cause of cancer-related death worldwide. Many patients present with metastatic disease without any clinical symptoms. Perls reported the first case of choroidal metastasis in 1872^[1]. The majorities of intraocular metastatic tumors involve the choroid, but such lesions also invade the ciliary body, the iris, the neural retina, the optic nerve, and in some cases the vitreous.^[2] The incidence of ocular metastasis from lung cancer is 2-7%.^[3] For patients with stage IV (metastatic) disease, the 5-yr overall survival rate was < 1%. The prognosis for a lung cancer patient is poor, with only 15% of patients surviving >5 yr from the time of diagnosis.^[4]

Case Report

We report a case of 61years old male who had been diagnosed squamous cell carcinoma lung with complaints of headache, diminution of vision left eye and pain in left eye on ocular movements in all directions for 5 months.

On systemic examination his left axillary lymph nodes (medial group) were enlarged with size of 0.3x0.3 cm. On chest examination trachea was deviated to the left side, Chest expansion was reduced on the left side and on Percussion dull on the left side .On Auscultation Breath sounds were decreased on the left side and bronchial breath sounds present bilaterally in 2nd intercoastal space. On ocular examination visual acuity in right eye was 6/12, and in left eye hand movement close to

face. Exotropia left eye 15 degree was present. (Figure1)



Fig 1- Exotropia left eye 15 degree

Pupillary reaction in right was normal whereas pupil was mid dilated non reacting in left eye. (Figure 2)



Fig 2-Left eye pupil mid dilated non reacting

Intraocular pressure was 13mm of Hg in right eye and 9 mm of Hg in left eye. Ocular movements were normal in right eye and restricted in left eye in all directions except leversion. Fundus of right eye was normal and left eye shows choroidal metastasis. (Figure 3)



Figure 3-right eye fundus normal and left eye showing choroidal metastasis.

Chest X ray (figure 4) shows consolidation of left upper lobe.



Figure 4 Chest X ray showing consolidation of left upper lobe.

Contrast enhanced CT chest (Figure 5) showed evidence of heterogenously enhancing lesion measuring 3.7×4 cm×4.4 cm within left lung involving left hilar region surrounding left distal main stem bronchus causing complete obstruction of left upper lobe bronchus with resultant collapse consolidation of Left upper lobe with hyper infiltration of left lower lobe. There is shift of mediastinum towards left side.



Figure 5-CECT Chest

Bronchoscopy shows fleshy growth left upper lobe and infiltration in left lower lobe opening. Cytology of bronchial brushings showed intermediate sized malignant tumor epithelial cells arranged in small tightly cohesive clusters. The nuclear chromatin was coarse to granular with small, inconspicuous nucleoli, nuclear moulding. Cytoplasm was scanty to moderate.

Cytomorphological features were suggestive of small cell carcinoma (intermediate)

Bronchial biopsy (Figure 6) showed multiple fragments of fibrocollagenous tissue infiltrated by irregular sheets of neoplastic cells. The cells had nuclear cellular Pleomorphism, round to oval nucleus, vesicular chromatin, prominent nucleoli and eosinophilic cytoplasm, Occasional mitotic figures, Occasional hyperchromatic pleomorphic cells, Dyskeratosis in few cells suggestive of moderately differentiated squamous cell carcinoma.

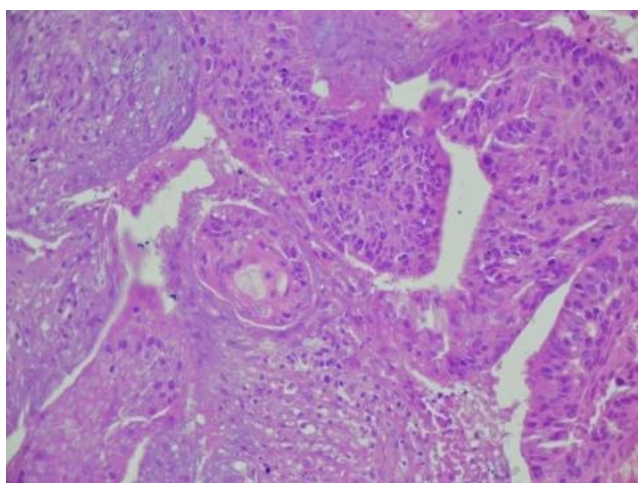


Fig 6- moderately differentiated squamous cell carcinoma.

MRI brain with optic nerve (Figure 7) showed optic nerve sheath complex measure 4.4mm on right side normal. On left side there was presence of heterogenously enhancing soft tissue mass measuring 1.8×1.4×1.02cm seen in intraconal compartment of left orbit which is arising predominantly in relation to proximal part of intraorbital segment of left optic nerve infiltrating into posterior aspect of globe and adjacent left lateral rectus muscle and causing indentation over globe. There was also enhancement along retina posteriorly extending proximally along optic nerve sheath.



Fig 7-MRI orbit

Another similar heterogeneously enhancing soft tissue mass is seen located extra cranially in left parietal region involving overlying bone and scalp measuring 5.1×6.3cm with 2cm thickness associated with thickening and enhancement of adjacent meninges causing indentation over underneath grey matter extending up to superior sagittal sinus medially ,however no filling defect seen within it. Rest of brain parenchyma was normal. (Figure 8)

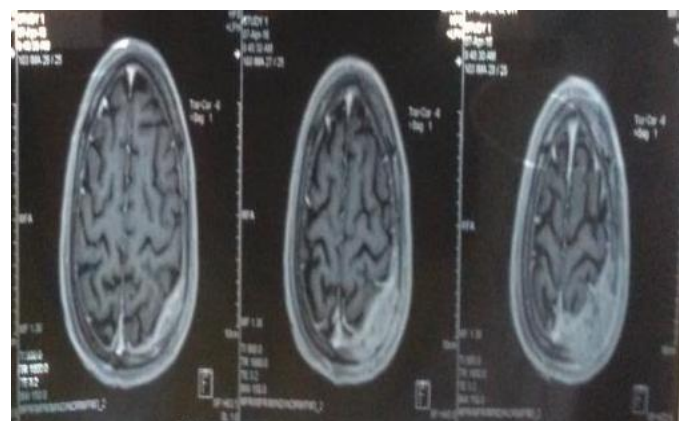


Fig-8 MRI brain

The patient was diagnosed with squamous cell carcinoma lung with orbital and choroidal metastasis left eye. The patient was put on topical NSAIDS and lubricant and was attached to the department of radiotherapy & chemotherapy where he received cisplatin 40 mg iv infusion in d12& inj paclitaxel 260 mg iv infusion. Unfortunately the patient was lost to follow up.

Discussion

Lung accounts for approximately 30% of choroid metastasis. The incidence of metastasis of lung

carcinomas into choroid is 2%-6.7%.^[5]. In the ocular metastasis, uveal tract is the most common site of involvement with choroid metastasis in 88% followed by iris (9%), and ciliary body (2%). Choroidal metastasis is the most common site due to high vascularity. In females, breast is the most common site for intraocular metastasis constituting 37%-41%.^[6]

Patients of metastasis to the ciliary body and angle structures have injected epibulbar vessels, anterior uveitis ocular hypertension, hyphema, rubeosis iridis, cataract, and infiltration into the surrounding structures. The choroidal metastases are pale and have leopard spot appearance. In the present case we had choroidal metastasis with optic nerve and lateral rectus infiltration in the left eye. The diagnosis of ocular metastases is based primarily on clinical findings and diagnostic imaging procedures of ultrasonography, fluorescein angiography, computed tomography/MRI, fine-needle aspiration, or wedge biopsy^[7]. Primary choroidal melanomas, benign lesions such as haemangioma, and inflammatory granulomas are the differential diagnosis.

According to previous studies, the patients of choroid metastasis with lung primary has survival of not more than six months^[8]. The treatment of ocular metastases is palliative as such metastatic spread suggests hematogenous spread of cancer. External beam radiotherapy, plaque radiotherapy, surgical resection, transpupillary thermotherapy, intravitreal chemotherapy are the treatment options available^[9]. Radiotherapy is an effective treatment modality for ocular and choroidal metastasis.

Conclusion

The patients of carcinoma lung need a prompt clinical suspicion of ocular metastasis in case of any visual complaints. A thorough ocular and systemic evaluation is required in these patients, although the treatment is only palliative.

References

1. Perls M. Beitrage zur geschwulst lehre. Virchows Arch. 1872;1:437, 67.
2. Cohen VML. Ocular metastases. *Eye*. 2013;27(2):137-141. doi:10.1038/eye.2012.252.
3. Kreuzel KM, Bornfeld N, Hosten N, Wiegel T, Foerster MH: Solitary choroidal metastasis as the first sign of metastatic lung carcinoid. *Arch Ophthalmol* 1998, 116: 1396-1.
4. Yang P. Epidemiology of Lung Cancer Prognosis: Quantity and Quality of Life. *Methods in molecular biology (Clifton, NJ)*. 2009;471:469-486. doi:10.1007/978-1-59745-416-2_24.
5. Namad T, Wang J, Tilton A, Abdel Karim N. Bilateral choroidal metastasis from non-small cell lung cancer. *Case Rep Oncol Med*. 2014;2014:858265.
6. Das SK, Sahoo TK, Parija S, Majumdar SKD, Parida DK. Choroidal Metastasis as Initial Presentation in Adenocarcinoma of Lung: A Case Report. *Journal of Clinical and Diagnostic Research: JCDR*. 2017;11(3):XD04-XD06. doi:10.7860/JCDR/2017/22533.9446.
7. Koçak Z, Tabakoğlu E, Benian O, Bayir G, Unlü E, Uzal C. Bilateral choroidal metastases as an initial manifestation of small-cell carcinoma of the lung. *Tuberk Toraks*. 2006;54(1):61-64.
8. Fernando AJ, Fernandez CF, Garcia RA. Optical coherence tomography. Characteristics of choroidal metastasis. *Ophthalmol*. 2005;122:1612-19.
9. Singh A, Singh P, Sahni K, Shukla P, Shukla V, Pant NK. Non-small cell lung cancer presenting with choroidal metastasis as first sign and showing good response to chemotherapy alone: a case report. *Journal of Medical Case Reports*. 2010;4:185.