



Ocular Clues to an Occult Malignancy: Choroidal and Brain Metastases from Lung Adenocarcinoma

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Case Report

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Abstract

We report a rare case of a 32-year-old patient who presented with decreased vision in the left eye, initially diagnosed as choroidal melanoma with multiple brain metastases. Enucleation and subsequent histopathology, along with immunohistochemistry, revealed metastatic adenocarcinoma of lung origin.

Keywords: Choroid; Metastasis; Adenocarcinoma; Tumour; Ophthalmology; Enucleation; Histopathology; Immunohistochemistry; Retinopathy; Malignancy

Introduction

Tumors affecting the choroid may be classified as primary and secondary (metastatic). Primary choroidal tumor include melanoma, nevus, hemangioma, osteoma, melanocytoma and primary choroidal lymphoma, while secondary tumours commonly arise from breast, lung, gastrointestinal and genitourinary malignancies. Ocular metastasis is a rare type of distant metastases of lung cancer. Among patients who have lung carcinoma, about 2-7% develops metastasis to the choroid [1]. Although it is uncommon, approximately 35% of patients present to ophthalmologist due to ocular symptom prior to the diagnosis of lung cancer [2]. Prognosis of choroidal metastasis with unknown origin is generally poor, with median overall survival ranging from 3 to 12 months. The diagnosis of ocular lesion requires clinical examination

and different imaging techniques. This case report highlights the importance of considering systemic malignancy in atypical ocular presentations.

Case Presentation

32 years old nonsmoker male patient reported with decreased visual acuity in his left eye. On ophthalmic examination, his VA was 6/6 OD and hand movement OS. Anterior segment is unremarkable bilaterally. Dilated fundus examination of left eye fundus could not be visualized due to media opacity; her right eye was unremarkable. On B-scan ultrasonography of left eye revealed a choroidal mass measuring 11.49 mm at the base and 5.70 mm in height, demonstrating low internal reflectivity (Figure 1). Based on B-scan ultrasonography it was initially diagnosed as a case of

choroidal melanoma. MRI orbit showed an intraocular lesion of the posterolateral wall, hypointense on T1, hyperintense on T2/FLAIR, enhanced after injection of gadolinium, with a retinal detachment (Figure 2). X-ray chest, USG of whole abdomen, serum creatinine and liver function test was normal. As the diagnosis could not be definitively established based on clinical examination and imaging, diagnostic left enucleation was performed and the specimen was sent for histopathological examination. Histopathology revealed a well-defined white intraocular

mass composed of nested polygonal epithelioid cells with clear cytoplasm, delicate septa and prominent nucleoli, suggestive of an epithelioid tumor with differential diagnoses of epithelioid melanoma or metastatic carcinoma (Figure 4). To confirm the diagnosis and determine the primary site, immunohistochemical staining was performed, which showed positivity for CK7, TTF-1 and Napsin- A. confirming a poorly differentiated adenocarcinoma, favoring a metastatic lung primary. The patient was referred to oncology department where radiotherapy followed by chemotherapy was planned.

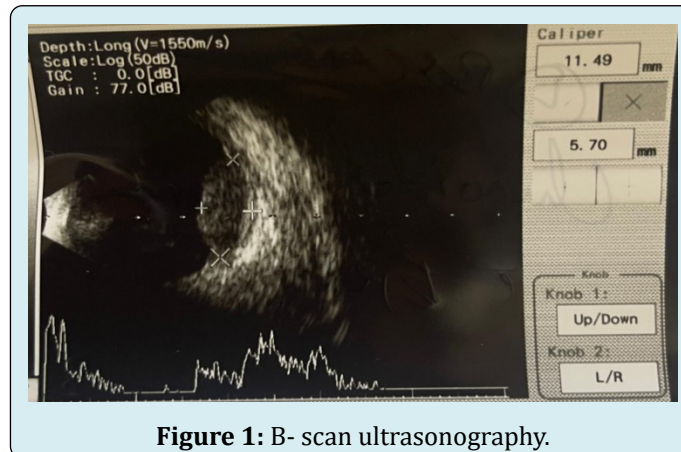


Figure 1: B- scan ultrasonography.

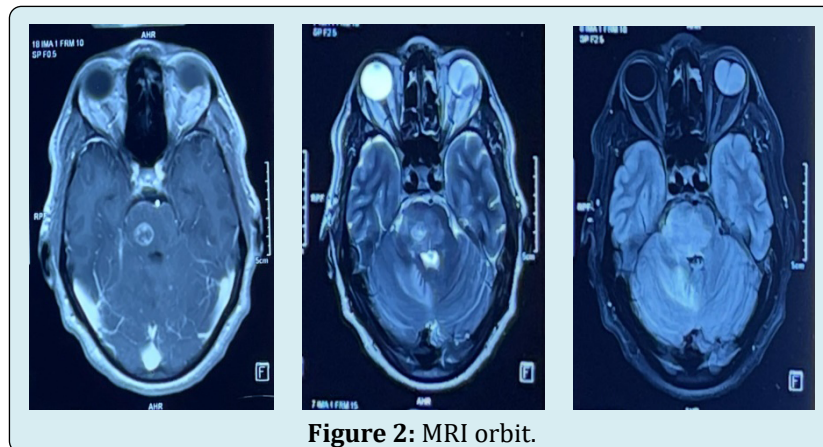


Figure 2: MRI orbit.

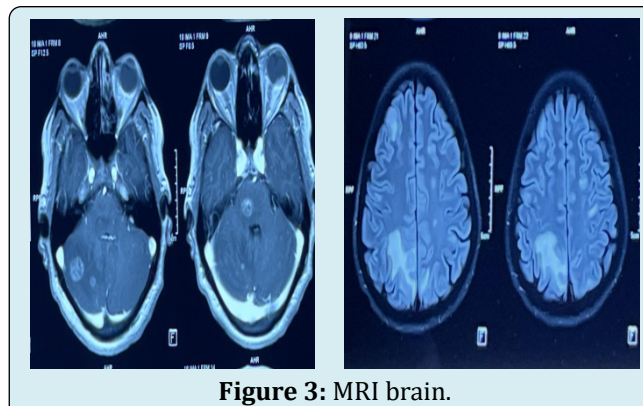


Figure 3: MRI brain.

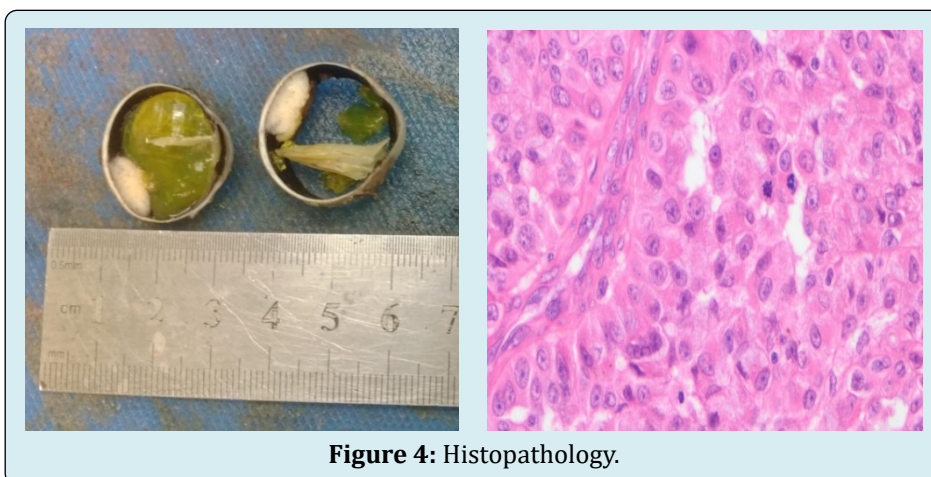


Figure 4: Histopathology.

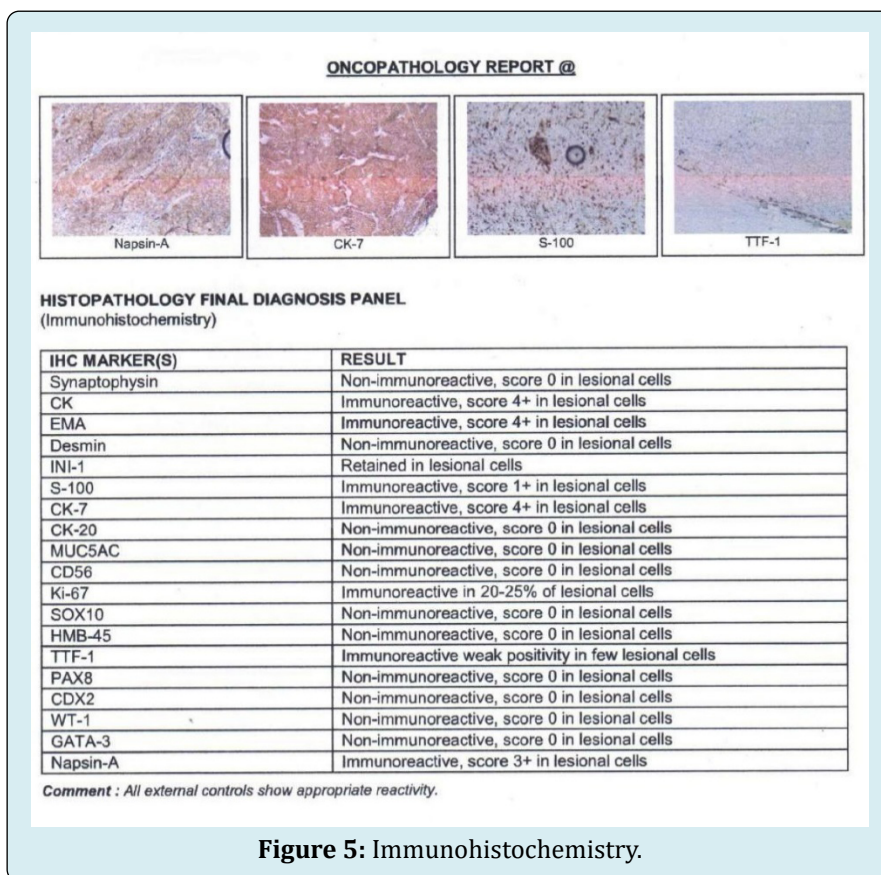


Figure 5: Immunohistochemistry.

Discussion

Uvea is the most common site for ocular metastasis. Within the uvea, 88% of metastases are to the choroid, followed by metastases to the iris (9%) and ciliary body (2%). The most common primary cancer sites for uveal metastases in males are lung (40%) [1] and approximately 35% of ocular metastases are detected prior to diagnosis of lung cancer [2]. Other sites are GIT ((9%), kidney (8%) and others [1]. The primary site is unknown at the time of presentation in 29%

of males [1]. In females the most common primary site is breast (68%), lung (12%) and other (4%). The primary site was unknown at the time of presentation in 12% of females [1].

90% of the patients of choroidal metastases present with visual symptoms [3]. Most common symptoms among the patients are blurred vision (70%), flashes and floaters (12%) and pain (7%). But metastases may be detected incidentally in patients who are otherwise asymptomatic.

On examination choroidal metastasis are typically present at posterior pole as yellow colour mass with indistinct margin. Secondary exudative retinal detachment is common.

Diagnosis requires both ocular and systemic investigation. B-scan ultrasonography plays a key role in diagnosis characterized by dome shaped lesion with moderately high internal reflectivity. In our case the lesion showed low internal reflectivity which is in favour of choroidal melanoma.

MRI is more sensitive and specific which shows a choroidal mass which is isointense in T1weighted image and hyperintense in T2 weighted film.

Although ocular biopsy by FNAC is currently preferred for tissue diagnosis, enucleation may provide definitive histopathological diagnosis, when the diagnosis cannot otherwise be established and the eye is already severely compromised. In case where histopathology alone cannot establish a definitive diagnosis of choroidal metastases, immunohistochemistry can aid in confirming the diagnosis and determining the likely primary site [4].

Treatment of metastatic choroidal tumour depends on different factors such as systemic status, number of choroidal tumours, location and laterality. Radiotherapy is considered as the standard treatment [5]. In case of multifocal and bilateral cases treatment options are systemic chemotherapy, immunotherapy, hormone therapy and whole eye radiotherapy. TTT and PDT are considered for small solitary lesions. Enucleation may be considered in selected cases with a blind painful eye, particularly when globe-preserving treatment is not feasible.

Conclusion

Choroidal metastasis should be considered in the differential diagnosis of any atypical choroidal mass, particularly because the primary malignancy may be occult at presentation. After breast carcinoma, lung carcinoma is among the most common primary sources of choroidal metastasis. A high index of suspicion and appropriate systemic evaluation, including imaging, are therefore essential to

identify an underlying primary malignancy. In selected cases where the diagnosis cannot be established by less invasive methods and the eye is already severely compromised, diagnostic enucleation may be considered. Histopathological examination supplemented by immunohistochemistry can further confirm the diagnosis and help determine the likely primary site.

Conflicts of Interest

The authors declare they have no competing interests.

Ethics Approval and Consent to Participate

Approved by local IRB of the Institution.

Consent for publication

Patient and parent's written permission was taken for publication.

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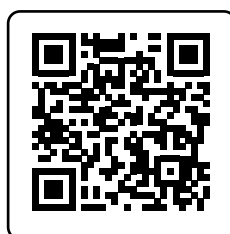
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