

Case study

Panophthalmitis masquerading as ocular melanoma-an eye opener

Abstract:

Introduction: We report a clinicopathological correlation of a 45 year old female who manifested as melanoma clinically and radiologically but turned out to have acute panophthalmitis on histopathology examination. We feel that there is significant clinical implication in sharing the knowledge of this clinico-pathological correlation.

Case Presentation: A 45 years old female presented with complaints of sudden painful diminution of vision in left eye for five days. Examination revealed proptosis of left eye with neovascularization of iris, seclusiopupillae and fundus details could not be visualized. Computerised Tomogram (CT) examination, 99m Tc-MIB 1 whole body scan and SPECT CT were done. SPECT CT showed focal area of increased tracer uptake in anterior and superolateral aspect of choroid in left eye. Avid MIB 1 tracer uptake in choroid of left eye suggested a high possibility of malignant melanoma with involvement of retrobulbar portion of left optic nerve. Histopathological examination revealed panophthalmitis with dense neovascularization of the choroid and ciliary body. No tumor cells or necrosis were evident in the sections studied. Sections from optic nerve showed extensive perineurial edema. Immunohistochemistry with Melan A, S-100 and HMB-45 were performed on multiple sections and were negative, thus excluding possibility of melanoma.

Conclusion: Painful blind eye is a major therapeutic dilemma for ophthalmologist and findings such as avid MIB 1 tracer uptake in the choroid of left eye suggested a high possibility of malignant melanoma. We wish to emphasise that inflammatory pathologies of the eye can masquerade as malignancies and to highlight the limitations of the state of art radiological equipment in the absence of the view of the fundus.

Keywords: Panophthalmitis, melanoma, painful blind eye, masquerade syndrome,

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34 Introduction

35 Ocular diseases mimicking melanoma are called pseudomelanomas. Melanomas
36 constitute 0.02% of the outpatients in referral institutes in our country. Various lesions
37 that mimic choroidal melanomas are choroidal neoplasms like choroidal nevus,
38 choroidal hemangioma, osteoma, metastasis, melanocytoma, hemorrhagic processes
39 like involutional macular degeneration, extramacular disciform lesion and ruptured
40 arteriolar macroaneurysm, retinal lesions like retinal pigment epithelial hyperplasia or
41 hypertrophy, posterior scleritis and other conditions like hemorrhagic retinal
42 detachment. Various unusual presentations of choroidal melanoma like posterior
43 scleritis, choroidal effusion with secondary glaucoma, posterior staphyloma, offer a
44 diagnostic dilemma to the treating clinician. We report a case which clinically
45 masqueraded as choroidal melanoma but turned out to be panophthalmitis on
46 histopathology.

47 CASE PRESENTATION

48 A 45 years old female presented with sudden painful diminution of vision in left eye for
49 five days. There was no history of trauma. She was not a known diabetic or
50 hypertensive. Visual acuity of the right eye (RE) was 20/20 and left eye (LE) was
51 perception of light with accurate projection of rays. Examination of RE was within
52 normal limits. LE showed an axial proptosis of 3 mm, shallow anterior chamber and
53 neovascularization of iris at the pupillary border, seclusio pupillae and a fibrinous
54 membrane in the pupillary area. Fundus details could not be made out in the left eye.
55 Intraocular pressure was 14 mm Hg (RE) and 12 mm Hg (LE). Ultrasound B-scan of the
56 LE showed the presence of an echogenic mass projecting into the vitreous cavity with
57 diffuse choroidal thickening and no scleral extension. RE revealed a normal scan.

58 Computerized Tomogram (CT) scan of left orbit revealed an ill-defined enhancing soft-
59 tissue density lesion attached to the posterior retina of the left eye. Sclera appeared

thickened and hyperenhancing along with mild thickening (1 mm asymmetry) of optic nerve for a distance of 4.6 mm in the retrobulbar portion. Rest of the intraorbital and intracanalicular course and caliber of optic nerve was normal. Intra and extraconal spaces showed normal fat attenuation with no focal lesion or stranding. Bony walls of left orbit, left extraocular muscles and left lacrimal gland were normal. Right orbit, intraorbital contents and brain parenchyma were normal.

99m Tc-MIB 1 whole body scan and SPECT CT showed focal area of increased tracer uptake in anterior and superolateral aspect of choroidal region in LE. Avid MIB 1 tracer uptake in choroid in LE suggested a high possibility of malignant melanoma with involvement of retrobulbar portion of the optic nerve. Systemic examination was normal. Laboratory investigations revealed normal hemogram and normal biochemical parameters for sugar, urea, creatinine, Aspartate amino transferase (AST) and Alanine amino transferase (ALT). ELISA for toxoplasmosis serology was negative. Serum for Antinuclear antibody (ANA), Rheumatoid antibody (RA) factor and C-reactive protein(CRP) were negative.

Patient was explained of the prognosis, LE enucleation was performed and the tissue was sent for histopathology. The eye ball and optic nerve were sampled entirely in view of the clinical suspicion of melanoma. Histopathology revealed dense infiltration of lymphocytes, plasma cells and neutrophils in choroid extending in to the ciliary body. There was dense neovascularisation of the choroid and ciliary body. No tumor cells or necrosis were evident in the sections studied. Sections from optic nerve showed extensive perineural edema. Immunohistochemistry with Melan A, S-100 and HMB-45 were performed on multiple sections and they were negative, thus excluding possibility of melanoma.

DISCUSSION

Ocular diseases mimicking melanomas are known as pseudomelanomas. Stoffelns et al report that most frequent ocular diseases suspected for choroidal melanoma were "suspicious nevi" in 31% and "disciform macular degeneration" in 34%, less frequently hyperplasia of pigment epithelium (5%), melanocytoma (10%), choroidal haemangioma

(6%), choroidal detachment (7%) and retinal macroaneurysms with epi-/subretinal haemorrhages (3%) and rare conditions like orbital tumour, posterior scleritis and a combined hamartoma of retina and pigment epithelium (4 %) [1].

According to a study by Biswas et al uveal melanomas constitute 0.02% of outpatients in a referral eye hospital in India over a 12-year period. Because of the rarity of the uveal melanomas in Asian Indians the possibility of misdiagnosis is also quite high [2]. Blind eyes are well known to harbor melanomas of the choroid and present with secondaries [3].

Choroidal melanoma has been reported to have highly variable presentations. Some of the manifestations include painful scleritis [4,5] choroidal effusion with secondary glaucoma [6] cataract and staphyloma [3].

The present case had clinical and radiological features suggestive of choroidal melanoma but the histopathology revealed panophthalmitis. In our case the fundus examination could not be done due to presence of seclusio pupillae and presence of pupillary membrane. Ultrasound showed diffuse choroidal thickening with no extension to the sclera and hence the diagnosis of choroidal pathology was made. CT scan of brain and orbit revealed an ill-defined enhancing soft-tissue density seen attached to the posterior retina of the globe of left eye. Sclera was thickened and hyperenhancing with mild thickening (1 mm asymmetry) in the retrobulbar portion of left optic nerve for a distance of 4.6 mm. 99m Tc-MIB1 whole body scan and SPECT was done. Planar study revealed focal area of increased tracer uptake in superolateral aspect of left eyeball. SPECT CT showed focal area of increased tracer uptake in choroidal region in left eye suggesting high possibility of malignant pathology. A pre-operative diagnosis of choroidal melanoma was thus made.

Coupland et al state that extraocular spread correlated with increased mortality because it was associated with increased tumor malignancy and, in the case of posterior tumors, more advanced disease [7].

Saari et al found that the comparative use of digital color, red-free and red light imaging had 85.7 % (95 % CI; 42.1-99.6) sensitivity, 99.0 % (95% CI; 94.7-99.9) specificity and

98.2% (95% CI; 93.6-99.8) exact agreement versus reference standard in differentiation of small choroidal melanoma from pseudomelanoma [8]. They found that the most frequent choroidal pseudomelanomas were choroidal melanotic and amelanotic nevi, disciform lesions, congenital hypertrophy of the retinal pigment epithelium, and circumscribed choroidal hemangioma

MR and radioimmunoscintigraphy are sensitive techniques for the diagnosis of choroidal melanomas [9]. 99mTc-MIBI scanning is an effective imaging modality for whole-body screening of metastatic disease in malignant melanoma patients with the potential to influence treatment planning [10].

CONCLUSIONS

Our study highlights the limitations of radiological findings in absence of thorough fundus examination. The possibility of spontaneous resolution of the tumor with extensive necrosis and acute inflammation of the eye ball is highly unlikely in view of the fact that the surgery was performed within 4 days of CT, SPECT CT and 99 TC MIB1scans. The enucleated eye ball was sampled entirely in histopathology examination for identifying any focus of residual tumor. In addition to light microscopic examination, immunohistochemical studies were performed to exclude possibility of melanoma.

Panophthalmitis masquerading as choroidal melanoma has never been reported before to the best of our knowledge. This presentation is to highlight the possibility of inflammatory pathology masquerading as malignancies in spite of state of the art radiologic back up.

Competing interest None to declare

References

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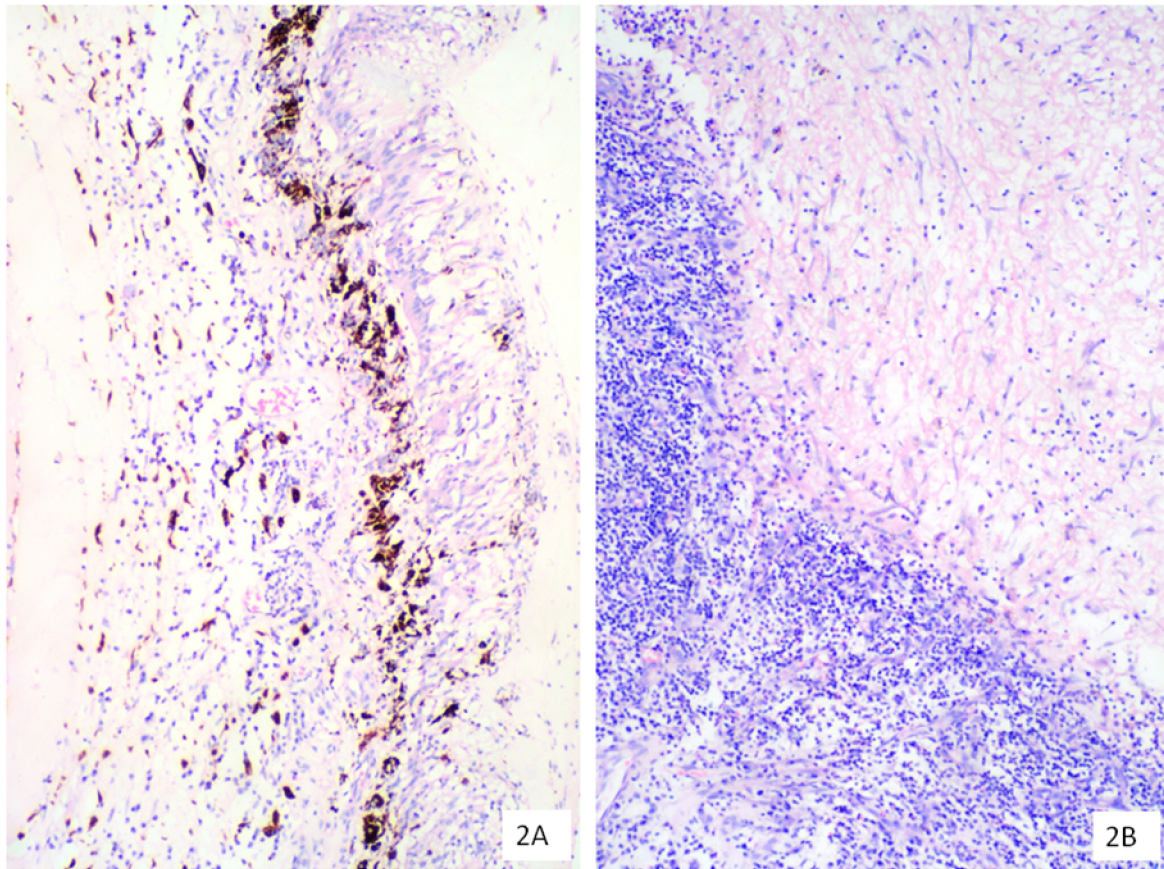
175 Figure 1



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178 CT Scan of brain and orbit revealed an ill-defined enhancing soft-tissue density seen
 179 attached to the posterior retina of the globe of left eye. Sclera was thickened and
 180 hyperenhancing with mild thickening

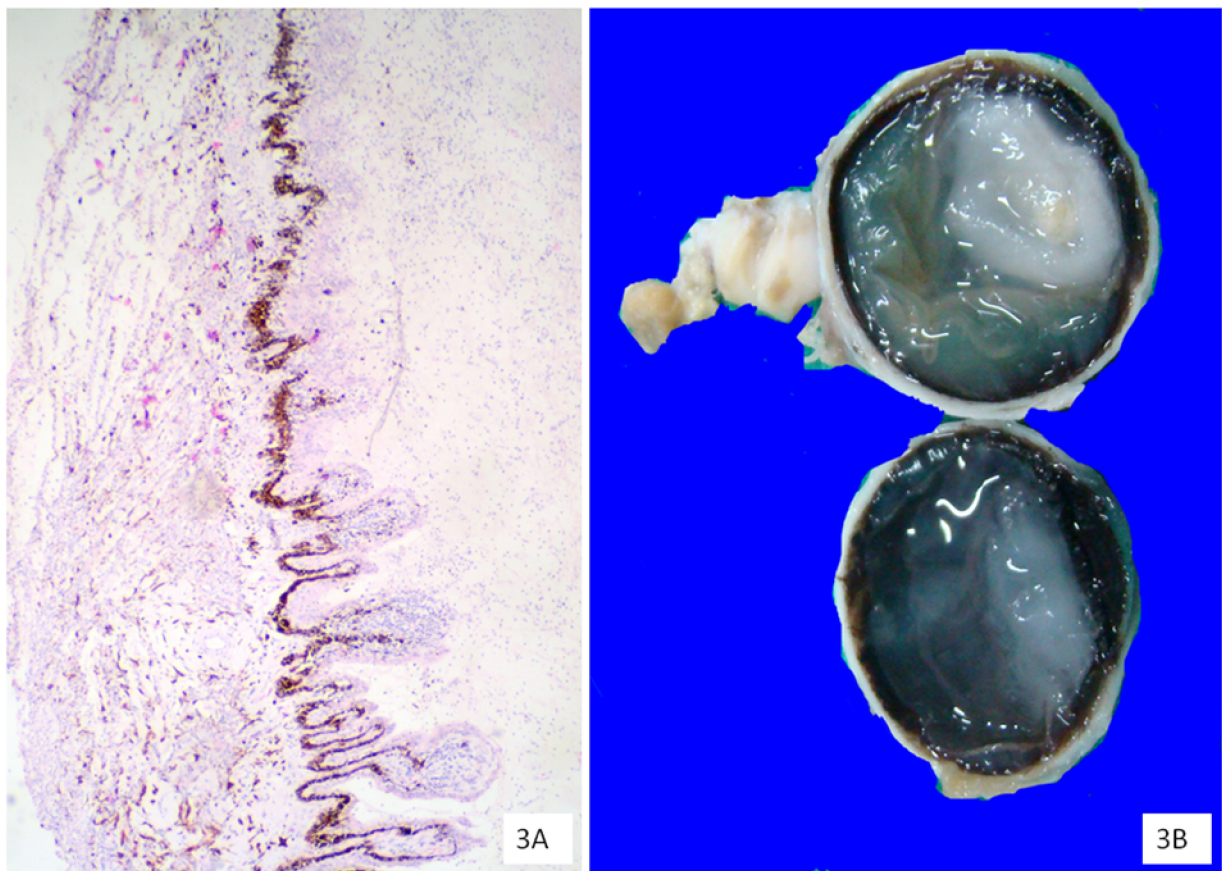


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183 Figure 2A – Sections from retina show infiltration of lymphocytes and plasma cells in
 184 choroid with edema, x 20, Hematoxylin and Eosin stain

185 2B – Dense infiltration of lymphocytes, plasma cells in choroid with extensive
 186 neovascularisation, x 20, Hematoxylin and Eosin stain



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189 Figure 3A- Sections show dense infiltration of lymphocytes, plasma cells and
 190 neutrophils with proliferation of blood vessels in ciliary body and iris, x 20, Hematoxylin
 191 and Eosin stain.

192 3B – Gross photograph of the enucleated eye ball with thickened sclera and optic
 193 nerve.