

## **Choroidal Melanoma Presenting With Neovascular Glaucoma**

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**Abstract:** A 50 year-old gentleman presented with history of seeing white opacity at the central vision of right eye for 1 month duration. His right visual acuity was 5/60 and the right fundus showed presence of a vague mass at the macula. The mass was surrounded by intraretinal hemorrhages and sub retinal exudates. Fundus fluorescein angiography and further work-up was planned but the patient defaulted follow-up. He came back after one year later with complaint of painful red eye of the right eye for two days duration. His right eye vision was getting worst to perception of light. Examination of his right eye revealed features of neovascular glaucoma with hazy cornea, rubeosis iridis and elevated intraocular pressure. B-scan ultrasonography showed a mushroom shaped intraocular mass. Computerized tomography scan of the right orbit revealed an intraocular lesion with no extraocular extension. The right eye was enucleated and the diagnosis of choroidal melanoma was confirmed by histopathological examination.

**Keywords:** Choroidal melanoma, rubeosis iridis, neovascular glaucoma.

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### **INTRODUCTION**

Choroidal melanoma is the commonest primary intraocular malignancy in adults. Growth of choroidal melanomas can occur silently until it produces enough visual loss. Large choroidal melanomas can induce iris rubeosis. We report a case of choroidal melanoma presenting with neovascular glaucoma.

### **CASE REPORT**

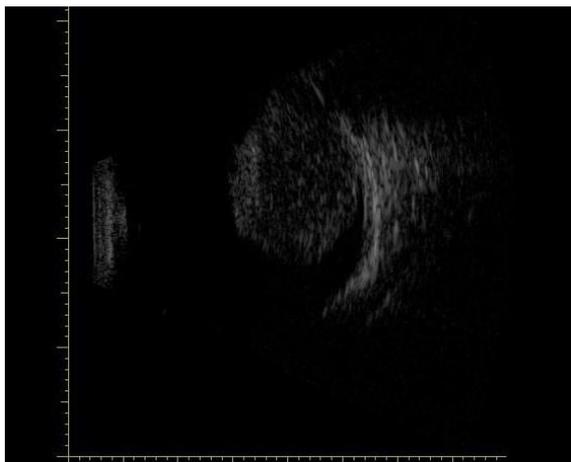
A 50 year-old gentleman with no medical illness presented to us with history of seeing white opacity at the central vision of his right eye for one month duration. It was associated with floaters but no flashes of light. However, he denied any eye pain or redness. There was no significant history of ocular trauma. There was no similar problem in the fellow eye. Premorbidly, he claimed both eyes vision were good and equal. His right eye vision was 5/60 and left eye was 6/6. Anterior segment examination and intraocular pressure of both eyes were normal. Fundus examination of the right eye showed presence of a vague mass at the macula (Figure 1). The mass was surrounded by intraretinal hemorrhages and sub retinal exudates. Left eye fundus was normal. The patient was planned for fundus fluorescein angiography and further workup. Unfortunately, he defaulted the follow-up.



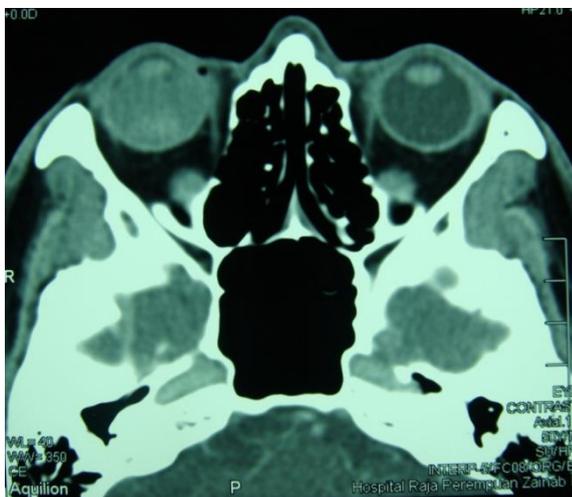
**Fig-1: Fundus photo of the right eye showed a vague mass at the macula. The mass was surrounded by intraretinal hemorrhages and sub retinal exudates.**

He came back after one year later with complaint of right eye severe pain and redness for two days duration. It was associated with headache but no nausea or vomiting. His right eye vision was getting worst to perception of light with presence of relative afferent pupillary defect. The cornea was hazy with stromal edema, shallow anterior chamber and presence

of rubeosis iridis with intraocular pressure measuring 58 mmHg. There was no fundus view due to hazy cornea. B-scan ultrasonography of the right eye showed a mushroom shape intraocular mass (Figure 2). Computerized tomography (CT) scan of the right orbit revealed ill-defined hyperdense soft tissue lesion measuring 9 mm x 11 mm x 8 mm in the vitreous chamber (Figure 3). Vitreous appears hyperdense suggestive of vitreous hemorrhage. There was no extraocular extension. Further investigations to rule out distant primary malignancy were carried out but none were significant.



**Fig-2: B-scan ultrasonography of the right eye showed mushroom shape intraocular mass.**



**Fig-3: CT scan of the right orbit showed intraocular lesion and vitreous haemorrhage with no extraocular extension.**

Provisional diagnosis of neovascular glaucoma secondary to choroidal melanoma was made. Patient underwent enucleation for the painful blind eye. Histopathological examination of the enucleated eye reported as choroidal melanoma (mixed cell type). The tumour measured 12 mm x 15 mm x 13 mm. Microscopically there was no invasion into the sclera and the resection margin of the optic nerve was free of

tumour. To date, there is no detectable distant metastatic disease.

## DISCUSSION

Malignant choroidal melanoma is the commonest primary intraocular malignancy in adults. Patients usually presented with different ocular complaints such as visual loss, flashes of lights, “ball of light” travelling across visual field or floaters. Asymptomatic tumour will be discovered during routine eye examination.

Glaucoma associated with intraocular tumours is rare [1]. The prevalence of tumour-induced secondary increased intraocular pressure has been reported to range from 3% to 20% [2, 3]. One should be aware that patients with refractory unilateral angle-closure glaucoma may harbor an occult uveal melanoma [1]. In a survey done by Shields *et al.*; [3] in 2111 eyes with uveal melanoma, the most common mechanism of increased intraocular pressure was iris neovascularization in the case of choroidal melanomas, tumour invasion of the angle in the case of iris melanomas, and pigment dispersion and tumour invasion of the angle in the case of ciliary body melanomas. Neovascularization is a result from ischemic necrosis of the tumour and hypoxic retinopathy [2]. Anterior segment neovascularization can also be mediated by vascular endothelial growth factor (VEGF) and other vasogenic factors such as basic fibroblast growth factor (bFGF). Boyd *et al* found that VEGF was present centrally within the tumour or adjacent to the areas of necrosis, suggesting that may be representing a response to local hypoxia [4]. Other than that, Boyd *et al* also reported that VEGF-A concentrations are elevated in the ocular fluids of eyes harboring treated and untreated uveal melanoma compared with eyes undergoing uncomplicated cataract operation [5].

Previously, enucleation was the only treatment option for uveal melanoma. However, in recent decades, clinicians are employing more conservative treatment in order to preserve the eye or to retain the vision as enucleation is psychologically stressful event for patients. Currently other treatment modalities include radiotherapy, transscleral resection, and elevation of tissue temperature and transpupillary thermotherapy [6]. Enucleation is usually performed in response to the development of rubeosis iridis and subsequent neovascular glaucoma [5]. With the recent data showing identification of pro-angiogenic growth factors in the presence of uveal melanoma may provide an opportunity for therapeutic intervention. Novel anti-VEGF therapies might prove to be useful in the future [5].

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## CONCLUSION

Patients who presented with unusual sub retinal lesions should be investigated thoroughly in order to rule out this devastating condition to prevent visual loss and ocular morbidity. With recent studies detecting VEGF in eyes with uveal melanoma, novel anti-VEGF therapies is under investigation and might be beneficial in the management of some patients with rubeosis iridis secondary to uveal melanoma.

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