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Morning Glory Disc Anomaly: A Case Report

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Case Report

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Abstract: The aim of this study is to document clinical manifestations of Morning Glory Disc Anomaly (MGDA) and associated ocular and systemic findings. A 37 year old female came with diminished vision in right eye for 12 years. Anterior segment was examined under slit lamp. Refraction was done followed by ophthalmoscopic examination which confirmed the diagnosis. Fundus fluorescein Angiography (FFA) could not be done as patient developed hypersensitivity reaction. Visual Evoked Potentials (VEP) and Optical Coherence Tomography (OCT) were done for evaluation of more parameters. Systemic investigations were done to find any evidence of other organs involvement. The case was diagnosed with Morning Glory Disc Anomaly with Persistant Hyperplastic Primary Vitreous (PHPV) with Amblyopia in Right eye. This report reveals coexistence of Morning Glory Disc Anomaly with PHPV suggesting a potential common genetic link.
Keywords: Morning glory disc anomaly, Morning Glory Disc Anomaly**,** Persistant Hyperplastic Primary Vitreous (PHPV), Amblyopia, Visual Evoked Potentials (VEP), Optical Coherence Tomography(OCT).

INTRODUCTION

Morning glory disc anomaly (MGDA) is a congenital optic nerve anomaly characterized by a funnel-shaped excavation of the posterior globe that incorporates the optic disc. Though first described in the German literature by Reis in 1908, the term was first coined in 1970 by Kindler, who noted the resemblance of the malformed optic nerve to the morning glory flower.

MGDA is usually unilateral, typically involving females. Patients are usually myopic. Amblyopia is common associated finding. It may also be found in association with posterior lenticonus [1] and PHPV [2, 3]. Patients have high risk of developing retinal detachment. Systemic abnormalities include midline craniofacial and skull base defects, basal encephalocele, vascular abnormalities involving carotid and cranial vessels, and cerebral malformations

CASE REPORT

A 37 year old female was referred with diminution of vision in the right eye since she was young. She cannot specify the exact duration but it was only 12 years back when she noticed this because of significant reduction in her vision. Her birth history and family history were unremarkable.

Routine eye examination showed a visual acuity of hand movement close to face (HMCF) in the right eye, which improved minimally to 6/60 with best correction (-1.50 DS). Visual acuity in left eye was 6/6. Her visual acuity for near was N36 and N6 in right and left eye with +1.00 D addition.

Biometric evaluation was done using IOL Master which revealed difference in axial lengths. Axial length in right eye was 24.48 mm while in left eye it was found to be 22.67 mm while keratometric readings were normal

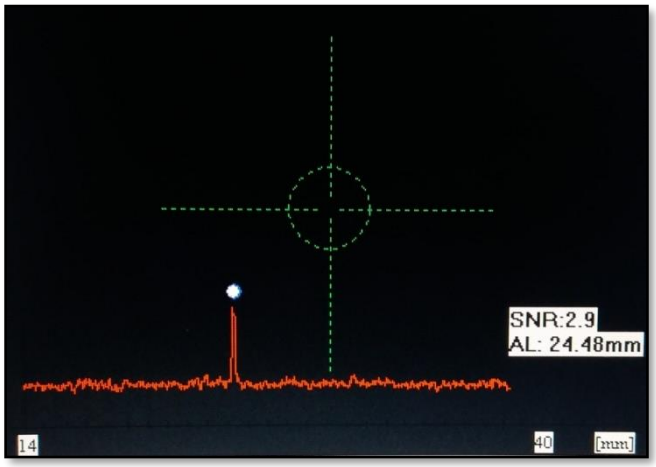

Fig-1: Biometry by IOL Master showing axial length in right eye.

Pupils were round and regular and the reflexes were normal to light and accommodation in both eyes with no relative afferent pupillary defect. No stereopsis was evident with the Lang Stereo test. Strabismus and nystagmus were absent. Slit lamp examination of anterior segment revealed no abnormality.

Fundoscopic examination revealed an enlarged and excavated optic disc surrounded by an annulus of chorio-retinal pigmentary changes and a central tuft of whitish tissue overlying the optic disc. A radial orientation of unusually straight and narrow retinal blood vessels emerging from the periphery of the abnormal disc was seen. Arterio-venous ratio was approximately 1:1.5. Foveal reflex was absent in right eye. Peripheral retina was intact without any suggestion of retinal detachment. Ophthalmoscopic appearance of left eye was normal (Figure 2).

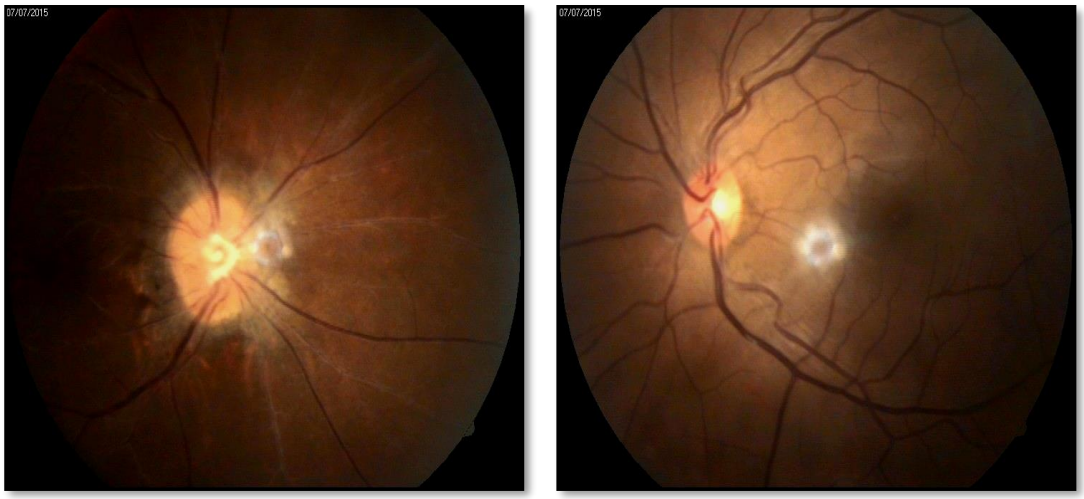

Fig-2A: Showing fundoscopic appearance of the patient's right eye showing Morning Glory Disc Anomaly (MGDA) Figure 2B: Normal Fundoscopic findigs in left eye

Using Humphrey's field analyser 24-2 fields were with in normal limits in left eye and there was loss of fields in right eye. However there were numerous fixation losses and false positive errors indicating that the patient had difficulty fulfilling the test requirements. (Figure 3) Fundus fluorescein Angiography (FFA) could not be done as patient developed hypersensitivity reaction. OCT of Right Optic Nerve showing RPE lining an excavation surrounding the optic nerve.

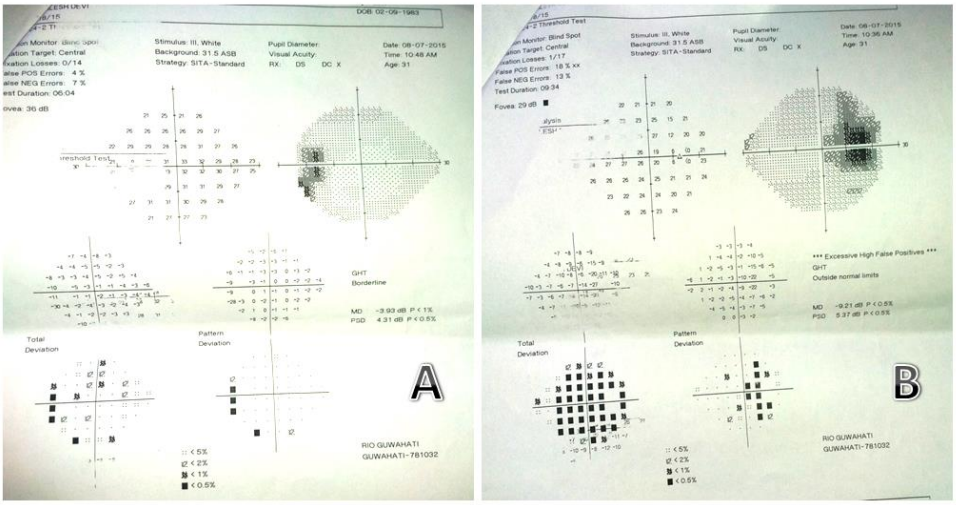

Fig-3A and 3B: Perimetry of the patient A: Left eye and B: Right eye

Visual Evoked Potentials (VEP) was measured. The amplitude for the Pattern VEP for the normal left eye was larger than that for right eye at all spatial frequencies. The latencies of the PVEPs for the right eye was marginally increased compared with those of left eye, which was in the normal range (Figure 4).

There was no evidence of multi-organ involvement. Routine blood and urine examinations were normal. Her renal, glycaemic and liver profile were normal. ECG, Chest X-Ray and CT brain and MR Angiography Head and Neck were also found in normal limits (Figure 3).

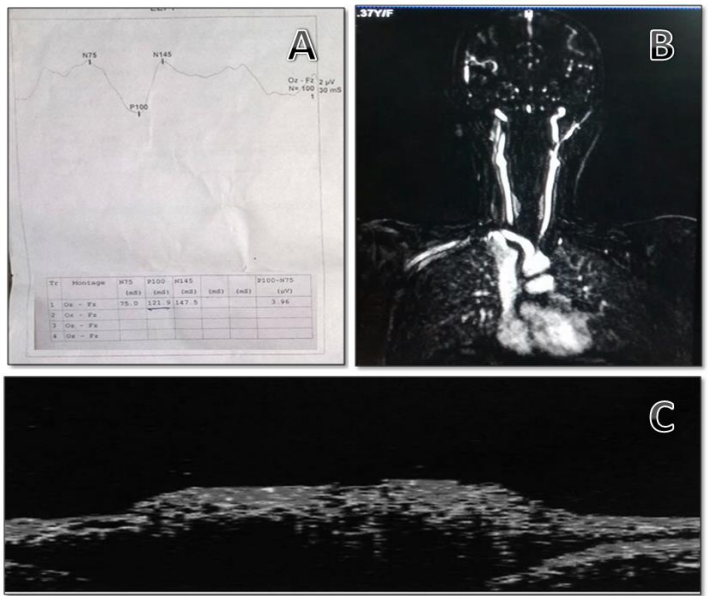

Fig-4A: VEP showing decreased amplitude and increased latency in right eye, Fig-4B Normal MR Angiography Head and Neck, Fig-3C: OCT of Right Optic Nerve showing RPE lining an excavation surrounding the optic nerve

The case was diagnosed as: Morning Glory Disc Anomaly with Posterior Persistent Fetal Vasculature with Amblyopia (Right eye).

DISCUSSION

Strominger MD [4] reported MGDA case in a 5 year old female. Zhao P *et al.* [5] described clinical manifestations and treatment outcomes in a retrospective case series of morning glory syndrome (MGS) associated with persistent hyperplastic primary vitreous (PHPV) in 22 patients.

CONCLUSION

Establishing the correct diagnosis of MGDA guides appropriate ophthalmic management and should also prompt a search for associated intracranial abnormalities. Although the diagnosis of MGDA is typically made clinically, imaging may provide added

value in several ways. MGDS is non-progressive and does not require treatment, but accurate diagnosis and monitoring are essential in view to its ocular and systemic associations.

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