

## CASE REPORT

## MORNING GLORY SYNDROME

Igor Isjanovski<sup>1</sup>, Bisera Velkovska<sup>1</sup><sup>1</sup> University Clinic for Eye Diseases; Ss Cyril and Methodius University in Skopje, Faculty of Medicine, Republic of North Macedonia**Abstract**

Morning Glory Syndrome (MGS) is an uncommon congenital anomaly of the eye nerve (optic nerve) that resembles a flower known as morning glory, impairs vision, and may be associated with both ocular and non-ocular abnormalities. It has a characteristic fundoscopic appearance consisting of a large funnel-shaped cavity on the optical disc. We register an unusual congenital anomaly of the optic disc in a three-year-old female child.

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## ПРИКАЗ НА СЛУЧАЈ

## СИНДРОМ НА “MORNING GLORY”-

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Синдромот на “Morning Glory” (MGS -Morning Glory Syndrom) е невообичаена конгенитална anomalija на оптичкиот нерв кој наликува на цвет познат како „morning glory“, го нарушува видот и може да биде поврзан и со окуларни и неокларни абнормалности. Има карактеристичен фундоскопски изглед кој се состои од голема празнина во форма на инка на оптичкиот диск. Во овој труд презентираме невообичаена вродена anomalija на оптичкиот диск кај три годишно дете од женскиот пол.

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## Introduction

Morning Glory Syndrome (MGS), first described by Kindler<sup>1</sup>, is a congenital defect, a malformation of the optic nerve that resembles a flower known as morning glory. It is characterized by an enlarged funnel-shaped cavity in the optic disc, the part of the eye where the optic nerve fibers leave the retina. The disc is enlarged and has a white center (which gives the appearance of a white pupil). The number of blood vessels that are twisted is increased because they come from the enlarged disc that has a white center, which results in this malformation to look like the petals of a flower<sup>2</sup>. In the medical literature, most reported and documented cases are unilateral (affecting only one eye), sporadic (without other cases in the family), and occur in females<sup>3-6</sup>.

Symptoms include very poor eyesight with poor visual acuity. MGS can occur on its own or in combination with other eye abnormalities, such as strabismus or lazy eye (amblyopia) or other non-ocular problems such as brain disorders<sup>7-9</sup>. Typically, individuals with non-ocular findings also have a broad head, a suppressed nasal bridge, and a defect or cleft in the middle of the upper lip<sup>9</sup>. MGS appears to be caused by the failure of the optic nerve to fully form as the baby develops. Manschot considers MGS to be a mesoderm disorder<sup>10</sup>. According to Lee & Traboulsi MGS is not inherited and the genetic defects associated with it have not been confirmed<sup>11</sup>.

The most severe complication is retinal detachment and can occur in about 26-38% of people with MGS<sup>12</sup>. MGS is sometimes misdiagnosed as optic nerve coloboma<sup>8</sup>.

The prevalence of MGS is unknown, a study conducted in Stockholm, Sweden registered a prevalence of 22.6 / 100,000<sup>5</sup>.

Treatment involves surgery and may result in some vision recovery. Depending on other related abnormalities, some patients require referral to several specialties such as neurosurgery, interventional neuroradiology, otolaryngology, and dentistry. All people diagnosed with "morning glory" disc anomaly should have a CT scan and MRI of the head<sup>3-4</sup>.

## Case report

Child 3 years old, girl, was scheduled at the Department of Pediatric Ophthalmology at the Clinic for Eye Diseases Skopje with Dg.OD Esotropia cum hypertropia by a specialist ophthalmologist from secondary health care.

During taking the anamnesis from the girl's mother, it is found out that the curvature of the right eye inside the nose is from birth. Pregnancy was normal and the baby was born on time.

During the examination, the child is visibly upset and it is not possible to determine the visual acuity of both eyes and to examine the fundus, but the curvature of the right eye is visible.

Due to the age of the child, it was decided to examine the fundus under general anesthesia in the operating room with the help of a fundus camera.

An examination of the fundus under anesthesia diagnoses Morning Glory Syndrome of the right eye.

Bottom of the right eye: Papilla nervi optici (optic disc) enlarged to pale white. There are no blood vessels

through the gliosis tissue. Macula Lutea (point of clear vision) has a clear reflex. The retina is neat (Picture 1).

Left eye's left eye: Papilla nervi optici is at the level of the retina with clear boundaries, blood vessels with normal lumen and fullness. Macula Lutea has a clear reflex

Therapy: try to close the better eye (left eye) for 3 hours consecutively per day.

Advice is given for ENT examination and consultation with a neurophthalmologist.



**Picture 1.** Fundus of the right eye

## Discussion

The etiology of the Morning Glory anomaly is poorly understood. There are some similarities with coloboma on the optical disc.

The visual prognosis in individuals with an anomaly of morning glory is poor. In addition to the abnormal disc itself and the propensity for serous retinal detachment, there is an added variable of complexity of high refractive errors, amblyopia, and strabis-

mus. Although surgery for eye strabismus and treatment of anisometric amblyopia is recommended and may result in some vision restoration, dramatic improvements are rare<sup>5</sup>. Treatment of other related abnormalities requires an interdisciplinary approach, often including neurosurgery, interventional neuroradiology, otolaryngology, and dentistry. All patients who are found to have a disc anomaly on a routine ophthalmologic examination should have a MRI of

the brain, MRI, and timely referrals to an appropriate subspecialist.

## Conclusion

Patients with MGS need to be explained the need to wear goggles for two compelling reasons. Because the individual with MGS usually has beneficial vision in only one eye, preserving normal eye vision is essential. The strong link between MGS and retinal detachment also means that contact sports should be avoided, and if this is not possible, goggles designed to reduce the risk of ocular trauma should be worn. Educating the patient about the symptoms of retinal detachment will also be helpful as emergency medical care can prevent the detachment from worsening and allow for careful monitoring of the condition.

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