



OPERATIVE TREATMENT OF CONVERGENT STRABISM - A CASE REPORT

OPERATIVNI TRETMAN KONVERGENTNOG STRABIZMA-PRIKAZ SLUČAJA

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Case Report

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ABSTRACT

The objective of this case report is to show the results of surgical treatment of convergent strabismus on the example of a 7-year-old patient. The treatment was conducted at The Clinic for Eye Diseases in Tuzla, Bosnia & Herzegovina. Convergent strabismus is a sensorimotor anomaly characterized by deviation of the eyes from the parallel position, manifestly, inwards/towards the nose, often in addition with visual impairment. After applying a range of conservative treatments, surgical treatment was performed on the patient. Retropositio MRM 6 mm and Resectio MRL 7 mm were performed through surgery. Post-operative check showed that, alongside aesthetic, functional healing was achieved through operation.

Key words: convergent strabismus, orthoptoeptic treatment, strabismus surgery.

SAŽETAK

Cilj ovog rada bio je prikazati rezultate operativnog tretmana konvergentnog strabizama kod sedmogodišnje pacijentice. Operativni zahvat izvršen je na Klinici za očne bolesti Tuzla. Konvergentni strabizam je senzomotorna anomalija za koju je karakteristično odstupanje od paralelnog položaja očiju manifestno prema nosu uz moguće prisutnu slabovidnost. Nakon provedenih svih oblika konzervativnog tretmana pristupilo se operativnom zahvatu. Operativnim putem urađena je retropositio MRMa 6 mm i resectio MRLa 7 mm. Na postoperativnoj kontroli osim estetskog, postignuto je i funkcionalno izlječenje.

Ključne riječi: konvergentni strabizam, ortoptički tretman, operativni zahvat strabizma.

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INTRODUCTION

Strabismus, squint, cross-eyedness or tropia presents a sensorimotor anomaly characterized by eye misalignment where the eyes deviate from the parallel position. Therefore, strabismus is not only a motor function disorder, but also a sensory disorder, in other words, it is a binocular vision dysfunction (Von Noorden CK, 1996). Esotropias or convergent strabismus are the most common forms and they occur in around 80% of cases, manifesting themselves until the age of 7 (Ohtsuki H., 2000). They can occur early – at an age of sensory forming and they occur from the age of 1 to 3, or they can occur late as normosensory esotropia, occurring from the age of 3 to 7 (Filipović, 2003). In this case, the patient has normosensory convergent strabismus. Convergent strabismus can occur in two forms: strabismus convergens monocularis, manifesting in one eye constantly being in strabismic position, usually alongside visual impairment of that eye, and strabismus convergens alternans where we have an occurrence of alternating convergence in both eyes while, most commonly, vision in both of the eyes is intact (Archer SM., 1989). Every fifth patient suffering with strabismus has some form of A or V phenomenon (Noorden GK., 2002). Esotropia (convergent strabismus) occurs commonly in these phenomenon forms meaning that the angle of strabismus is larger while looking down. Alongside constant, manifesting deviation, convergent strabismus is characterized with visual impairment in large number of cases, consequently creating a difficult circumstance for establishing a binocular vision, considering that it occurs in the earliest stage of development (Ristović D., 2009).

CASE DESCRIPTION

A girl aged 7 with a right eye inward deviation went through a 3-year conservative treatment cycle in the Cabinet for the treatment of amblyopia and strabismus, at The Clinic for Eye Diseases in Tuzla. Preoperative orthoptical test indicated there was a $+20^\circ$ deviation angle, with normal bulbomotor function and mild hyperfunction of the right inferior oblique muscle. In primary gaze position the horizontal deviation was +40 PD. Ductions and versions were normal, no abnormalities detected in fundus examination, with static gaze fixation in both eyes. Visual acuity measurement was 0,7-0,8 on the Snellen chart. Binocular vision measurement on the Synoptophore showed absence of the binocular vision (Picture No.1).



Picture No.1 – Pre-surgery representation of patient's condition

Retropositio MRM 6 mm and Resectio MRL 7 mm were performed through surgery (Picture No.2).



Picture No.2 – Representation of patient's condition one day after the surgery

Post-operative evaluation showed that the residual angle after surgery was $+3^\circ$, and at the post-op check 21 days after the surgery it was $+2^\circ$. Convergent strabismus was absent. Cover test application indicated the presence of esophoria. Approximately two months after the surgery, the eyes were aligned in a parallel position. Cover test showed no abnormalities, the objective and subjective angle of deviation ranged from 0° to $+5^\circ$, with normal head position and normal ocular motility (Picture No.3).



Picture No.3 – Representation of patient's condition 21 days after the surgery

Alongside every segment of convergent strabismus surgery, it is necessary to devote attention to the effect of muscular segment of surgical procedure on the eyelid gap, especially in case of unilateral strabismus surgery. In convergent strabismus surgery, next to achieving parallel eye alignment, it is also important to aim for the width of eyelid gap to be equal in both eyes, where possible (Čelić, Dorn 2004). Picture No.4 demonstrates parallel and equal eyelid gap width before and after the surgical procedure (Picture No.4).



Picture No.4 – Representation of pre and post-surgery eyelid gap width

DISCUSSION

In the process of precise examination of the objective angle of deviation, it is not uncommon to diagnose a vertical deviation alongside a horizontal strabismus, which is exactly the case in our 7-year-old patient. This occurs, according to Malbran (1953), in 50% of the cases, and according to Bérard and associates (1984) in even higher percentage of cases. Early convergent strabismus present in the patient occurred when she was approximately two years old. Rapid development of deviation angle of $+20^\circ$ ensued. The girl was a full-term baby of normal growth and development progression, with negative family medical history. A neuropsychiatric examination is normal, as well as EEG and VEP tests. In anamnesis report, the mother of the girl stated that she noticed the girl's eye alignment deviating, with the constant inward turning of the eye. In accordance with medical studies, the surgical treatment is conducted once the objective angle of deviation turns permanent (Helveston, 1976). The surgical procedure ensued two years after symptoms initially appeared and 4 months after the deviation became constant. Retropositio MRM 6 mm and Resectio MRL 7 mm were performed. After the surgery, the pre-operative deviation angle of $+20^\circ$ adjusted to $+5^\circ$ post-surgery. Post-op follow-up visits occurred 7, 14 and 21 days after the surgery, local therapy was prescribed while monitoring the post-op progress. In the next couple of years after the surgery, through regular check-up appointments, it was concluded that the patient's condition remained unchanged so the girl was considered to be aesthetically and functionally healed and physically fit. The orthoptical test on the Synoptophore indicated the presence of acquired binocular vision.

CONCLUSION

The surgical procedure of convergent strabismus in this patient led to orthophoria or the parallel alignment of the eyes with partially present, incomplete binocular vision. The defectologist's multidisciplinary and complementary teamwork alongside continuous and meticulous monitoring of pre-op progress and treatment of the patient, and then the ophthalmologist's conducting of the surgical treatment resulted in satisfactory aesthetic and

functional outcome of the procedure. This means that the aesthetic and functional component of the healing process is achieved, alongside sensorimotor orthophoria.

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