Romanian Journal of Ophthalmology, Volume 59, Issue 2, April-June 2015. pp:116-118

CASE REPORT

TRANSITORY CONSECUTIVE ESOTROPIA AFTER AMITRIPTYLINE TREATMENT FOR NOCTURNAL ENURESIS -CASE REPORT

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Accepted: April 15, 2015

Abstract

We report the case of a 9-year-old child operated for intermittent exotropia and V-pattern with a good result 2 months after bilateral Lateral Rectus Muscle Recession. The binocular vision was restored in primary position and down-gaze with excellent stereopsis at near and distance and a deviation of +4 PD in primary position. Three months later, the patient developed a consecutive esotropia of + 18 PD in primary position with diplopia in all gazes triggered by Amitriptyline treatment prescribed one month earlier for nocturnal enuresis. Diplopia was solved in time after anticholinergic medication cessation. During the recovery period, Fresnell prisms have been used in order to eliminate diplopia. Three months after diplopia onset, the binocular vision was restored showing a transitory and reversible effect of the Amitriptyline treatment. Fusion vulnerability can be a possible risk factor in developing diplopia and esotropia in patients treated with anticholinergic drugs.

Keywords: anticholinergic drugs, esotropia, diplopia, nocturnal enuresis, reversibility

Introduction

Various anticholinergic drugs can induce pupillary dilation. In children, topical anticholinergic drugs transitory increase the accommodative convergence to accommodation ratio and exacerbate underlying esotropia [**1**]. Different anticholinergic drugs have been reported as inducing diplopia and/ or esotropia as: haloperidol and benzatropine mesylate, oxybutynin [**2,3**].

Tricyclic antidepressants (TCAs) decrease the amount of time spent in REM sleep, stimulate vasopressin secretion, and relax the detrusor muscle. Given the efficacy and safety of enuresis alarms and desmopressin, tricyclic antidepressants which are anticholinergic substances (e.g., imipramine, amitriptyline and desipramine) are a third-line treatment for monosymptomatic enuresis (e.g., children who have failed alarm therapy and/ or desmopressin) [**4**]. In several countries, they are also used as a first line treatment.

Methods

We report the case of 9-year-old child who was referred to us for intermittent exotropia of the right eye. The XT onset according to the parents was the age of 6 months. He was treated with prism glasses. No other treatments such as occlusion or orthoptic exercises have been used

in order to improve the fusion capacity or vergence amplitude.

Surgery was proposed but initially parents refused it.

The first examination was done in our clinic in June 2012 and revealed:

VA OD=0, 9 with -1, 50 cyl ax 180; VAOS=0, 8 with +1, 50 cyl ax 90; 5 PD base-in were included in each lens of his glasses.

Fusion at distance was intermittently present with better control at near. With the glasses on he had short periods of fusion, diplopia or alternation at the Worth four dots test.

The deviation was measured by prism cover test. The patient had -35 PD exotropia at distance in primary position and -40 PD at near. The deviation was larger in up-gaze (-45 PD) and smaller in down-gaze -35 PD, the patient presenting a discrete V-pattern.

The prism adaptation test with Fresnel trial set showed unstable fusion free of diplopia at -35 PD at distance and near.

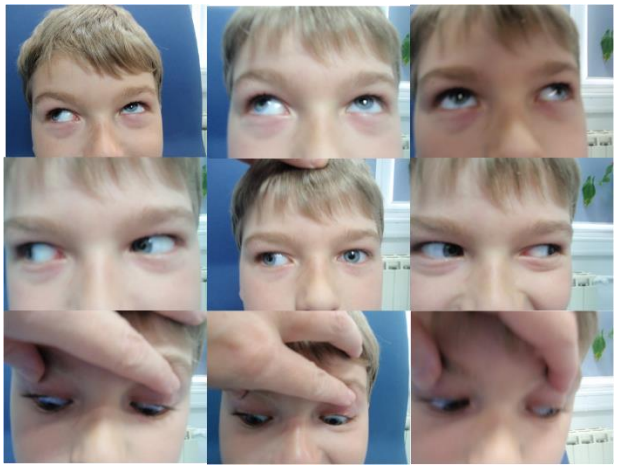

Fig. 1 First evaluation in June 2012

Re-evaluation was done 3 months later after prisms-in removal and new correction prescription according to cycloplegic (cyclopentolate 1%) measurements.

New refraction correction according to measurements under cycloplegia: OD -1, 50/ 90; OS -1, 5/ 90. No changes regarding fusion status. New measurements made by prism cover test in September 2012: Maximum deviation at distance and near: -35 PD in primary position, -40 PD in up-gaze, -30 PD in down-gaze. Good adduction and acceptable convergence amplitude on both eyes were present.

The surgery was proposed to the parents and was scheduled for the summer vacation of 2013.

The clinical re-examination was repeated at 6 months (March 2013) and respectively 8 months later (May 2013, preop. examination) showing no changes.

The surgical treatment was provided in June 2013: OD Right Lateral Rectus Muscle Recession 8 mm and OS Left Lateral Muscle Recession 7,5 mm.

We obtained a good result. At two months postop., in August 2013, the patient had a +4 PD esophoria in primary position with stable fusion present at near and at distance, and 40'' Stereopsis at near and stereopsis present at distance. A discrete V pattern was still present, the patient having a small XT in up-gaze.

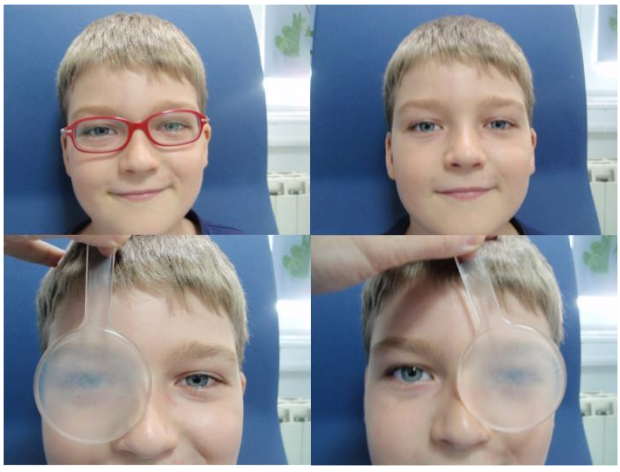

Fig. 2 Two months postop. (August 2013)

In November 2013, we received a request for an urgent appointment: the patient was accusing subjective diplopia.

The child was examined and the clinical examination found permanent diplopia accompanying an esotropia of +18 PD at distance and near, larger in down-gaze, +22 PD, and smaller in up-gaze: +12 PD. The patient had torticolis by using a down-chin position in order to avoid diplopia. The fusion was possible with 20PD base-out to the PAT. The patient also presented dilated pupils, difficulties in reading caused by reduced accommodation amplitude and also problems in concentration at school.

Anamnestic data completed the examination and brought new and important issues. The diplopia onset was in September 2013 as intermittent diplopia and became permanent in the last months. During the last two months the patient had two episodes of high fever connected with respiratory tract infections and in September started a treatment with Amitriptyline (anticholinergic drug) for nocturnal enuresis.

We presumed that the possible diagnosis was consecutive esotropia as a side effect of the Amitriptyline.

For the moment Fresnel foils +20 PD base-out on glasses were recommended and a detailed letter was send to the Neurologist in order to inform him about the possible side effects of the treatment.

The anticholinergic medication was stopped by the Neurologist in December 2013. The esotropic angle decreased in time after medication cessation. New Fresnel prism foil was adapted at every month in order to compensate for diplopia and the decreasing angle of ET.

In May 2014, the clinical examination showed small ET at distance and near 8 PD (+2 PD in up-gaze, +10 PD in down-gaze) with discrete diplopia at distance without prisms and fusion with 6 PD BO included in glasses.

Discussions

The reversibility of the anticholinergic medication side effect was not complete unfortunately at 6 months after treatment cessation, the remaining ET, larger than the previous one, suggesting possible long-term effects in certain patients.

Conclusions

Patients with anticholinergic medication should be carefully followed especially when they have strabismus history. Some patients are probably more susceptible than others in developing esotropia and diplopia, this explaining why only some patients develop diplopia.

The susceptibility is probably connected with individual factors but fusion vulnerability can be a possible risk factor confirming literature data [**5,6**].

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