

Visual results with the use of prismatic lenses in the treatment of congenital nystagmus – a clinical case

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Introduction:

Nystagmus is a periodic and involuntary movement of the eyes, idiopathic or associated with defects of the visual afferent system (retina or optic pathway), and that may or may not be associated to squint. Can be horizontal, vertical or mixed. It is important to establish a differential diagnosis between the various types of nystagmus in order to choose the most appropriate therapeutic approach to each case. The nystagmus is normally blocked when the eyes are positioned in a particular way. This makes the child adopt a posture of ocular torticollis that reduces the nystagmiform movements, improving the vision in this position.

The assessment should include an eye exam and orthoptic assessment (clinical history, visual acuity and refraction with cycloplegic, biomicroscopy and fundus, motor and sensory study, including the study of nystagmatic beats, by searching its meaning, speed, amplitude of the beats and the block positions). This is complemented with electrophysiological (ERG and PEV) and neurological studies.

The available therapeutic approaches are diverse (optical, orthoptic, prismatic, pharmacologic and surgical) and can be used in an isolated manner or combined. Treatment with prisms to block the nystagmus reduces abnormal head position and improves visual acuity. A way to promote the blocking of the nystagmic movements is by using prismatic lenses with opposite bases, to block or minimize the oscillatory movements.

The bases of the prisms should be placed in the opposite direction to the direction of gaze in which the nystagmus decreases. The power should be according to the fusional ability of the patient to avoid diplopia.

Aim:

To present and discuss a clinical case of a child with congenital nystagmus whose vision and posture improved with the use of prisms.

Methods:

Case report in 30-months-old caucasian male infant with horizontal nystagmus at 3-months-old and otherwise normal growth and development, and irrelevant family history. Ophthalmic examination included slit lamp examination, fundus, refractive study, electrophysiological and magnetic resonance tests, measurement of VA over time with the Teller Acuity Cards (TAC) in the distance agreed for his age.

Results:

At 6-months-old Visual Acuity (VA) with Teller Cards (TAC) to 38

cm

RE = 20/300 LE = 20/400 OU (Binocularity) = 20/300

Pendular nystagmus with rapid phase to the right and moderate amplitude. Ductions and versions were unremarkable

Funduscopy (in OU): optic discs without alterations, vascular arcades with normal architecture. Biomicroscopy unchanged.

Electrophysiological study f-ERG and PEV (ISCEV protocols) with amplitude of the waves *a* and *b* for the rods scotopic responses, combined cone rod, photopic and 30Hz cone, normal, with slight asymmetry of the RE response in PEV (figure 1).

At 9-month-old VA with TAC to 38 cm:

RE = 20/250

LE = 20/300

OU = 20/150

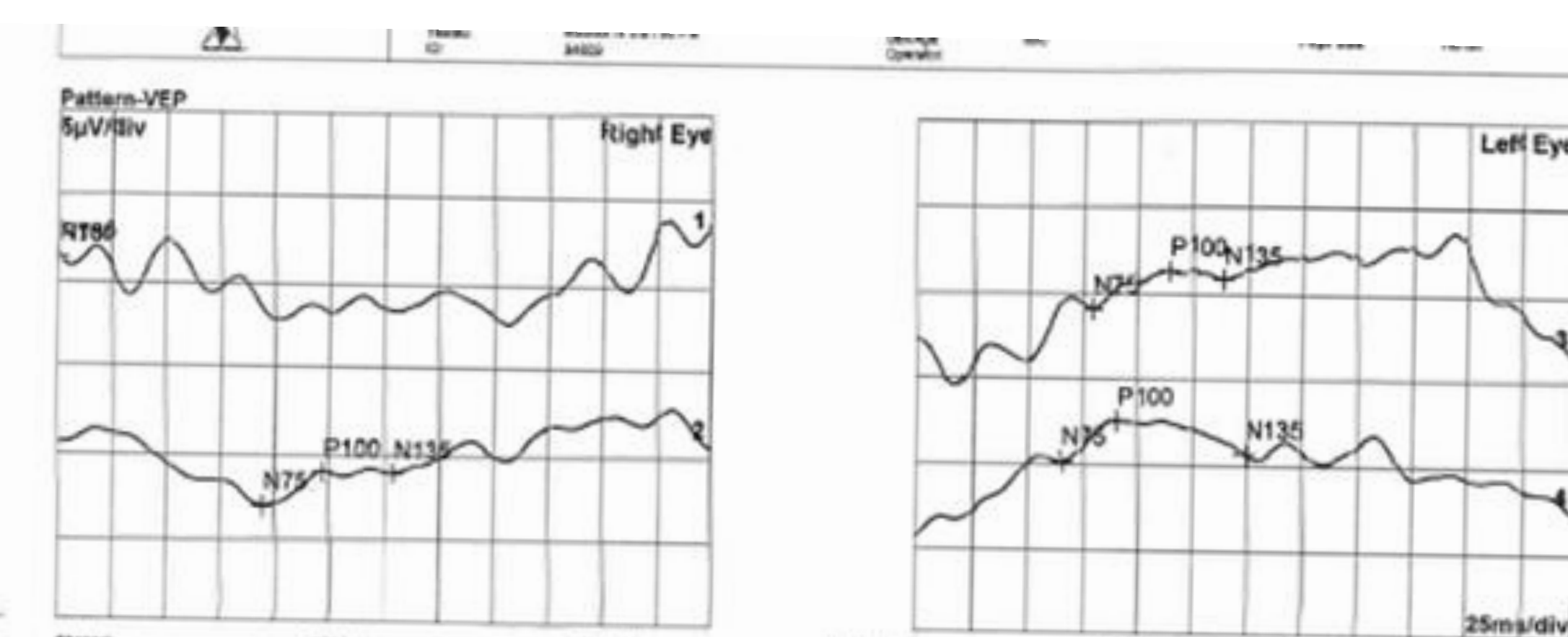


Figure 1

PEV – examination show a assimetry interocular.



Figure 2

At 10-months-old. Child's anomalous head postion – face turned to right and eyes in levoversion

The mother noted a persistent head rotation to the right and eyes turned to the Left (figure 2). No oscillopcia. Orthotropia was present at near and distance fixation.

When the head was turned to the right and the eyes in levoversion the nystagmus decreased in a null zone.

At 18-months-old VA with TAC to 55 cm:

RE = 20/200

LE = 20/100

OU = 20/80

(reference value is OU =20/30 – 20/100 and 20/40 – 20/100 monocular)

Child's anomalous head position had become increasingly worse along the months (figure 3).

At 24-months-old, updated refraction (with atropine):

RE -1.50D sph LE -0.50D sph

Prisms prescription:

RE 8^ΔBO LE 8^ΔBI

Visual stimulation with multimedia devices commenced.

At 30-months-old (with refraction and prisms):

VA (Cambridge Cards):

RE = LE = OU = 6/18

Stereoscopic Acuity: 400" (Titmus Test)

Anomalous head position reduced (figure 4)

Improvement of global and local movement noted.

Discussion/Conclusion:

The patient had a low monocular and binocular visual acuity associated with nystagmus (when compared with the normal range for his age). In order to improve his visual acuity, he developed an anomalous head position that was decreased with prismatic prescription.

After prescribing prismatic correction a decrease in head anomalous position was observed, as well as an improvement in visual acuity and binocularity, and an improvement in ocular motility and fine motor.

Although visual acuity after prismatic adaptation remained low for his age.

Therefore, it is very important to:

- Continue visual stimulation, which can be done with multimedia devices, or to stimulate binocular single vision with appropriate software.
- Perform constant actualization of skyscopy, while waiting for surgical treatment (Kestenbaum operation)

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Images' Sources:

- Authors' photos

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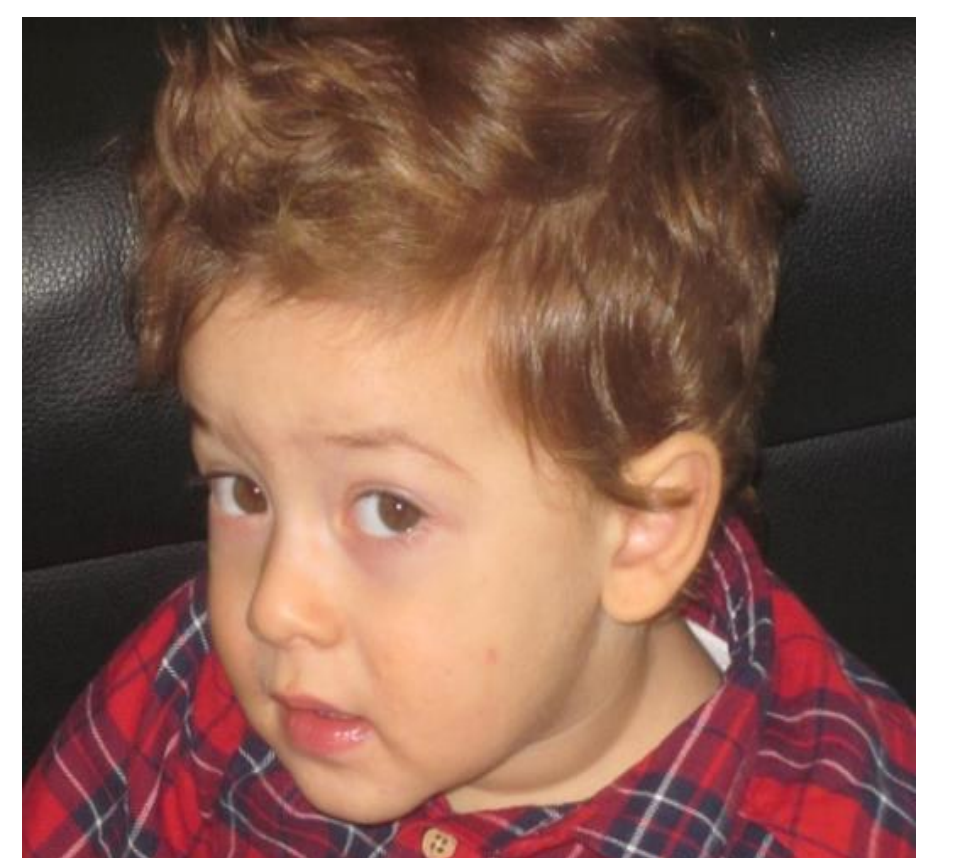


Figure 3

18-months-old. Child's anomalous head position (more noted that at 10 months-years-old).



Figure 4

After prismatic lenses prescription the child show a normal head position