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Spontaneous Resolution of Ocular Tilt Reaction

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Abstract **Case Report**

A 30-year-old man presented to the ophthalmologic clinic with sudden onset of vertical and torsional diplopia. Concomitant skew deviation with right hypertropia was observed. Funduscopy revealed that the fovea was located above the lower edge of the optic disc in the right eye; incyclotorsion was present. Conversely, the fovea was located below the lower edge of the optic disc in the left eye; excyclotorsion was present. He was diagnosed to have ocular tilt reaction (OTR). Neurological examination was unremarkable. Cranial magnetic resonance imaging demonstrated no abnormalities and no evidence of acute ischemia, demyelination, or vestibular nerve abnormality. The patient was followed without any treatment. One month later, his diplopia had disappeared. Incyclotorsion in the right eye and excyclotorsion in the left eye were also improved. Torsional deviation is difficult to detect with a standard eye exam. A fundus photograph is useful for diagnosis in such cases if it can be obtained.

Keywords: Ocular tilt reaction, ocular torsion, skew deviation.

INTRODUCTION

Skew deviation is a vertical misalignment of the eyes caused by damage to prenuclear vestibular input to ocular motor nuclei. The resultant vertical ocular deviation is relatively comitant in nature, and is usually seen in the context of brainstem or cerebellar injury from stroke, multiple sclerosis, or trauma. Skew deviation is usually accompanied by binocular torsion, torticollis, and a tilt in the subjective visual vertical. This constellation of findings has been termed the ocular tilt reaction (OTR) [1].

Here, we report a case of spontaneous resolution of OTR in a 30-year-old man.

CASE REPORT

A 30-year-old man presented to the ophthalmologic clinic with sudden onset of vertical and torsional diplopia. Concomitant skew deviation with right hypertropia was observed. Funduscopy revealed that the fovea was located above the lower edge of the optic disc in the right eye; incyclotorsion was present (Figure 1A). Conversely, the fovea was located below the lower edge of the optic disc in the left eye; excyclotorsion was present (Figure 1B). He was diagnosed to have ocular tilt reaction (OTR). Neurological examination was unremarkable. Cranial magnetic resonance imaging demonstrated no abnormalities and no evidence of acute ischemia, demyelination, or vestibular nerve abnormality. The patient was followed without any treatment. One month later, his diplopia had disappeared. Incyclotorsion in the right eye and excyclotorsion in the left eye were also improved (Figure 1C and D).

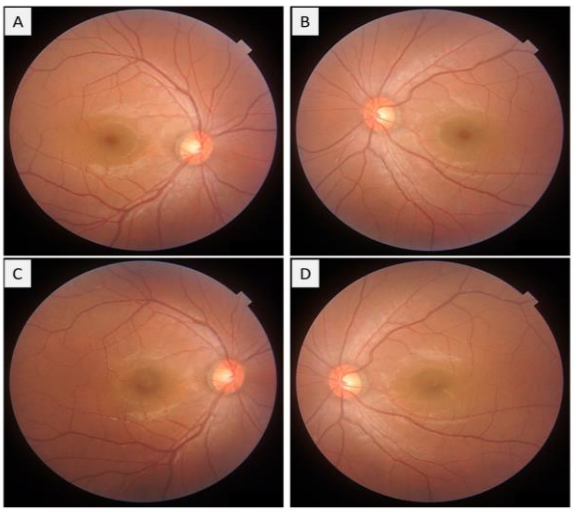

Fig 1: Fundus photographs of the right (A, C) and left eyes (B, D). (A, B) at the initial visit. (C, D) one month after the initial visit

DISCUSSION

In this study, we present a case of spontaneous resolution of OTR in a 30-year-old man.

OTR consists of ocular torsion, skew deviation, and tilt of subjective visual vertical with/without head tilt [1-4]. OTR indicates a unilateral deficit of otolithic input or a unilateral lesion of the graviceptive brainstem pathway from the vestibular nucleus to the rostral midbrain, which crosses the midline at the pontine level [1-4]. Although vertical and torsional diplopia was the only symptom in this patient, we speculate that OTR can result from a subclinical peripheral vestibulopathy affecting the otolith-ocular pathways.

The fovea is located inferior from the horizontal line to a maximum 0.6-disc diameters below the optic disc in non-strabismic individuals [5]. Excyclotorsion presents if the fovea is located below the lower edge of the optic disc; incyclotropia presents if the fovea is located above the lower edge of the optic disc. In this patient, incyclotorsion in the right eye and excyclotorsion in the left eye were improved spontaneously.

CONCLUSION

Torsional deviation is difficult to detect with a standard eye exam. A fundus photograph is useful for diagnosis in such cases if it can be obtained.

Disclosure: The author declares no conflict of interest.

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