

A Case of Nutritional Optic Neuropathy due to Unbalanced Diet

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Abstract

Case Report

A 43-year-old man presented with slowly progressive visual disturbance in the both eyes. One month prior to the visit, he had been drinking alcohol only and consuming little food. On examination, best-corrected decimal visual acuity in the right eye was 0.9 and in the left eye acuity was 0.3. Ophthalmoscopic examination revealed temporal pallor in both optic discs. Optical coherence tomography (OCT) revealed reduced circumpapillary retinal nerve fiber layer thickness in both eyes. Ganglion cell layer was also reduced centrally. Based on these findings, the patient was diagnosed with nutritional deficiency optic neuropathy due to unbalanced diet. OCT is a useful diagnostic examination for evaluation of nutritional optic neuropathy.

Keywords: Nutritional optic neuropathy, unbalanced diet, optical coherence tomography.

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INTRODUCTION

Nutritional optic neuropathy is a condition characterized by progressive, painless, symmetrical loss of vision, in the form central or cecentral scotomas, due to a deficiency in certain essential nutrients [1-3]. Recently, the pathogenesis as a nutritional deficiency neurological disorder is known to be based on impaired energy metabolism in the mitochondrial electron transfer system, leading to decreased ATP production [3].

Herein, we report a case of nutritional optic neuropathy due to unbalanced diet.

CASE REPORT

A 43-year-old man presented with bilateral painless progressive visual disturbance in both eyes. One month prior to the visit, he had been drinking alcohol only and consuming little food. On ophthalmic examination, the best-corrected decimal visual acuity in the right eye was 0.9 and in the left eye was 0.3. Ocular pressures were normal. Slit lamp examination showed no abnormalities in both eyes. Fundus examination revealed temporal pallor in both optic discs (Figure 1).

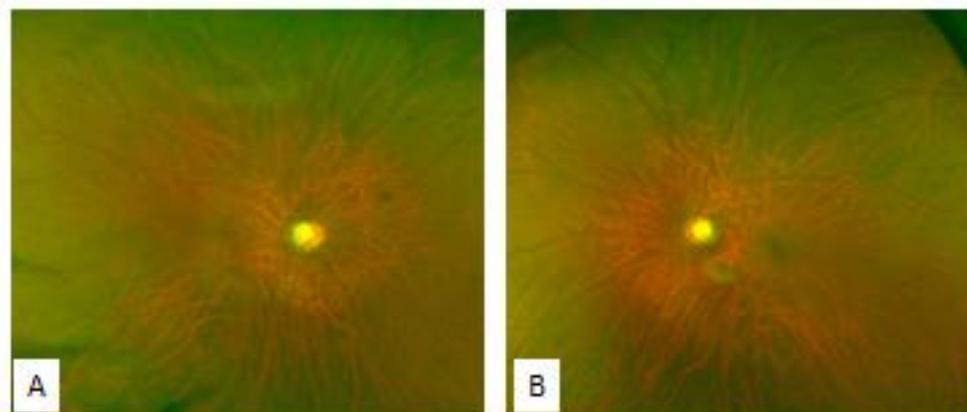


Figure 1: Fundus photographs of right (A) and left (B) eyes, demonstrating temporal pallor in both optic discs

Optical coherence tomography (OCT) revealed reduced circumpapillary retinal nerve fiber layer

(cpRNFL) thickness in both eyes (Figure 2). Ganglion cell layer (GCL) was also reduced centrally (Figure 3).

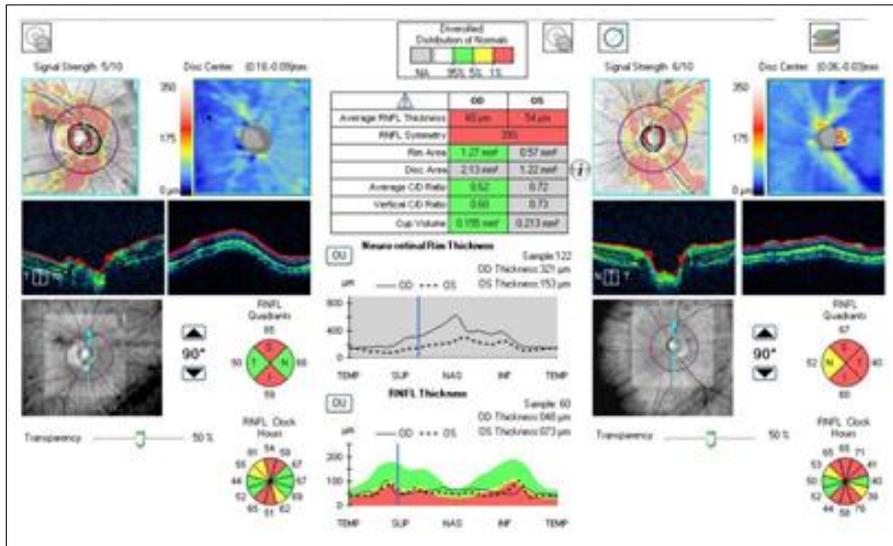


Figure 2: Circumpapillary retinal nerve fiber layer (cpRNFL) thickness, demonstrating reduced cpRNFL thickness in both eyes

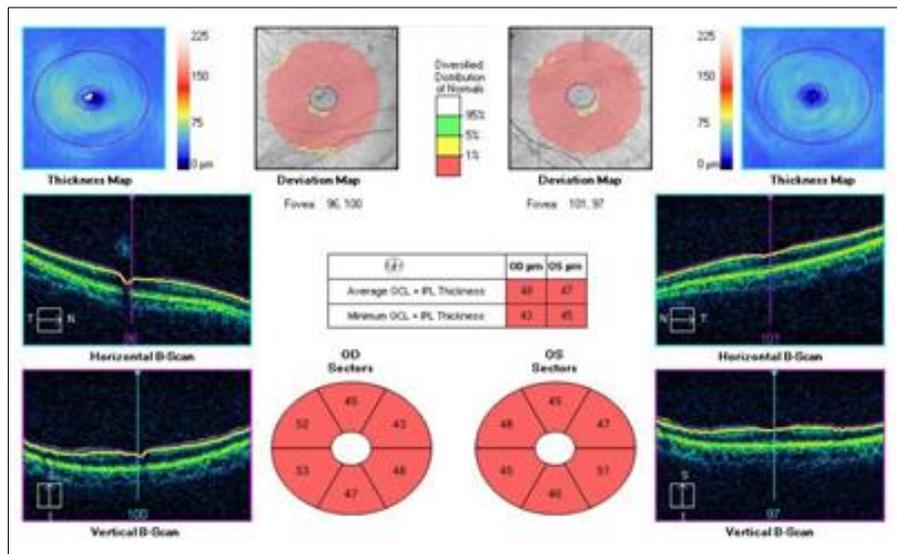


Figure 3: Ganglion cell complex (GCC) thickness, demonstrating reduced GCC thickness in both eyes

Goldmann visual field revealed central relative scotoma in the left eye (Figure 4).

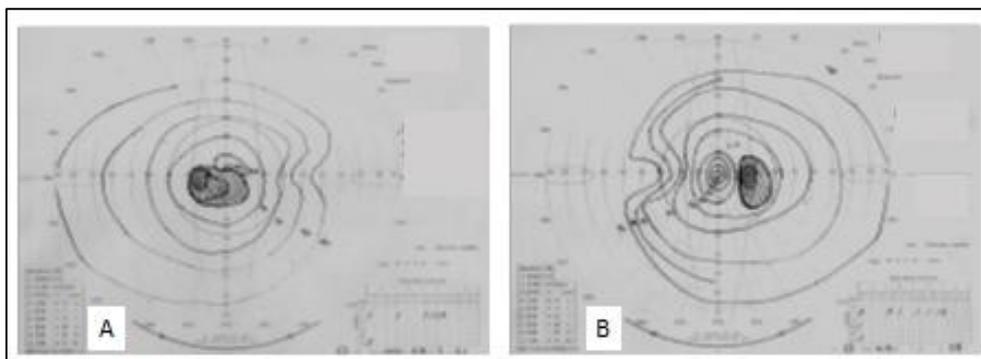


Figure 4: Goldmann perimetry of left (A) and right (B) eyes, demonstrating central relative scotomas in the left eye

Although blood examination and head MRI were not available in this case, the patient was suspected with nutritional optic neuropathy due to unbalanced diet. He was given oral supplement of benfotiamine, pyridoxine hydrochloride, and mecobalamin. However, he was lost on follow up and the primary cause was never ascertained.

DISCUSSION

Nutritional optic neuropathy are attributed to malabsorption syndromes caused by inflammatory bowel diseases and gastric bariatric surgery, strict vegan and vegetarian diets, alcoholism, and avoidant restrictive food intake disorder associated with conditions such as depression and autism spectrum syndrome [1-3].

It is well established that patients with nutritional optic neuropathy may exhibit structural retinal changes detected through OCT. These include reports of outer retinal abnormalities, including thinning of the outer nuclear layer and disruption of the ellipsoid zone [3-5]. Regardless of the underlying etiology, studies have shown that nutritional neuropathies share a selective damage and loss of retinal ganglion cells due to mitochondrial dysfunction in the prelaminar area of the optic nerve on OCT [3-5]. In this present case, OCT revealed reduced cpRNFL and GCC thickness in both eyes.

CONCLUSION

Although this is only a case report and more cases are needed, OCT is a useful diagnostic examination for evaluation of nutritional optic neuropathy.

DISCLOSURE

The authors have no conflicts of interest to disclose.

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