

Bilateral Non-Arteritic Anterior Ischemic Optic Neuropathy Following Intestinal Hemorrhage

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Abstract

Case Report

A 62-year-old man presented with sudden lower visual field defect. He had tarry stools two weeks before the initial visit. On ophthalmic examination, his best-corrected visual acuity was 1.2 in both eyes. Fundoscopy revealed diffuse optic disc swelling, which was more marked superiorly in both eyes. Goldmann perimetry revealed an inferior altitudinal visual field defect. On laboratory investigation, his hemoglobin and hematocrit were 7.7 g/dL and 22.7 %, respectively, and the level of serum iron was 17 µg/dL. A diagnosis of bilateral non-arteritic anterior ischemic optic neuropathy (NAION) was made. We considered that NAION might be due to intestinal hemorrhage. This case highlights the importance for clinicians to be aware of NAION develop after intestinal hemorrhage.

Keywords: Non-arteritic anterior ischemic optic neuropathy, intestinal hemorrhage, shock.

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INTRODUCTION

Non-arteritic anterior ischemic optic neuropathy (NAION) is an important cause of acute visual loss in middle-aged and elderly populations [1-3]. Typically, NAION is associated with risk factors such as systemic hypertension, diabetes mellitus and optic disc morphology (small and crowded optic disc) [1-3]. Acute bleeding with anemia and systemic hypotension can also result in unilateral or bilateral NAION [1-10]. Herein, we present a case of bilateral NAION following intestinal hemorrhage.

CASE REPORT

A 62-year-old man was referred to our clinic with a one-week history of sudden lower visual field defect. He had tarry stools two weeks before the initial visit. On ophthalmic examination, his best-corrected visual acuity (BCVA) was 1.2 in both eyes. The palpebral conjunctivae were anemic. Fundoscopy revealed diffuse optic disc swelling, which was more marked superiorly in both eyes (Figure 1a, b). In addition, peripapillary hemorrhage in the right eye and retinal hemorrhage in the left eye were detected. Fluorescein angiography demonstrated no filling delay in the early phase (Figure 2a, b), however, hyperfluorescence of the optic disc was observed in the late phase (Figure 2c, d).

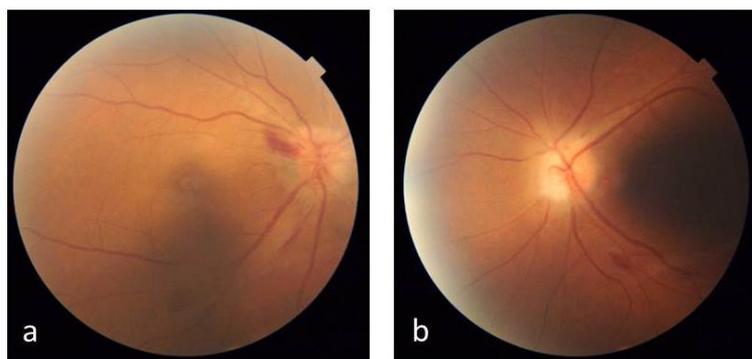


Fig-1: Fundoscopy revealed diffuse optic disc swelling (a; right eye, b; left eye)

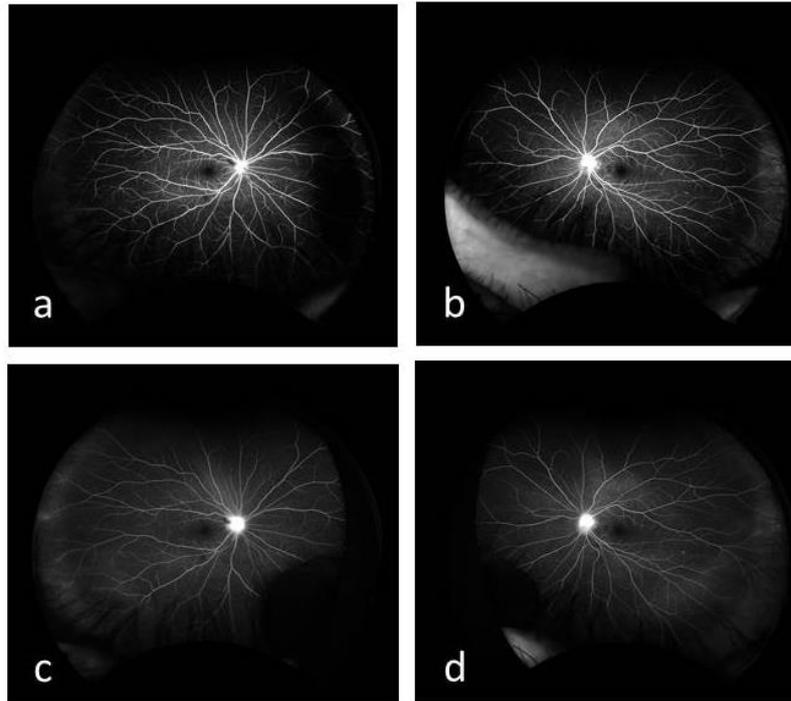


Fig-2: Fluorescein angiography of the right (a, c) and left eyes (b, d). Note hyperfluorescence of the optic disc in the late phase (c, d).

Goldmann perimetry revealed an inferior altitudinal visual field defect in both eyes (Figure 3a, b).

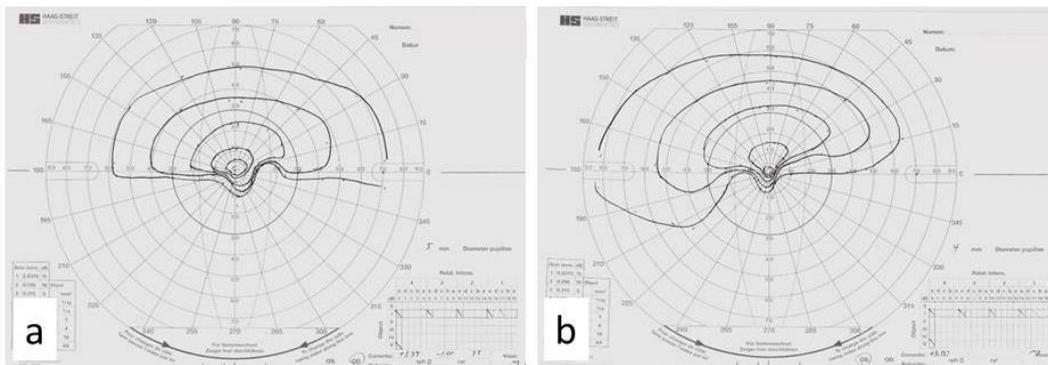


Fig-3: Goldmann perimetry revealed an inferior altitudinal visual field defect (a; right eye, b; left eye)

On laboratory investigation, his hemoglobin and hematocrit were 7.7 g/dL (normal 13.7–16.8 g/dL) and 22.7 % (40.7–50.1 %), respectively, and the level of serum iron was 17 µg/dL (< 40–188). We considered that NAION might be due to intestinal hemorrhage, and the patient agreed to infusion of packed red blood cells. Following infusion therapy, the hemoglobin level improved to 10.1 g/dL. The patient underwent esophagogastroduodenoscopy, colonoscopy, and small-

bowel capsule endoscopy. Although no active bleeding source was identified, diverticulosis was detected in the ascending colon. One month later, diffuse optic disc swelling was improved. In addition, small cup and crowded optic disc were clearly detected in both eyes (Figure 4a, b). Three months later, his BCVA was maintained at 1.2, however, visual field defect was unchanged and the optic disc looked diffusely pale.

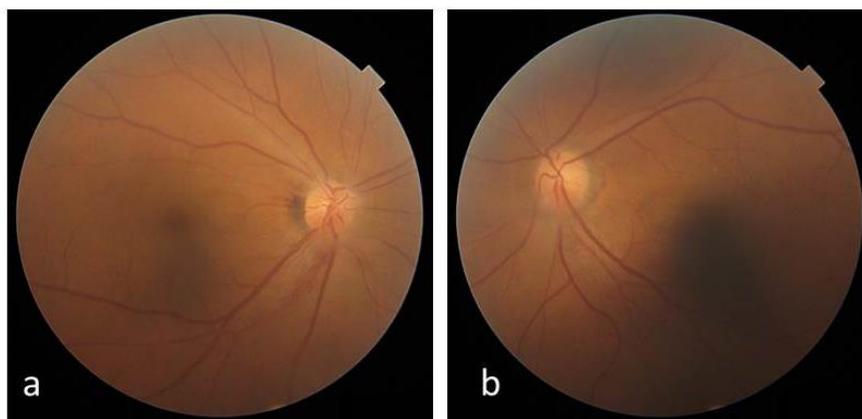


Fig-4: Fundoscopy of the right (a) and left eyes (b) one month after the initial visit Note improvement of optic disc swelling

DISCUSSION

The highlight of this case was bilateral NAION with a lower visual field defect as the initial manifestation following intestinal hemorrhage.

NAION is caused by infarction of the laminar or retrolaminar portion of the optic nerve head supplied by the short posterior ciliary arteries. The underlying etiology and pathophysiology is poorly elucidated. Factors that have been implicated include nocturnal hypotension, impaired autoregulation of the microvascular supply, vasculopathic occlusion, and venous insufficiency. These factors are thought to result in axonal edema causing a compartment syndrome in a structurally crowded optic disc leading to axonal degeneration and loss of retinal ganglion cells via apoptosis [1-3]. Typically, NAION is associated with risk factors such as systemic hypertension, diabetes mellitus and optic disc morphology (small and crowded optic disc) [1-3]. Acute bleeding with anemia and systemic hypotension can result in unilateral or bilateral NAION [1-10]. These conditions are called “shock-induced AION (SIAION)”. Although this case did not represent shock, but we presumed to have developed NAION due to circulatory disturbance similar to SIAION. In addition, we speculate that the risk of developing AION might be increase in patients with anatomical abnormalities of the optic nerve itself.

CONCLUSION

Although our findings were based on a single case, clinicians should be aware of NAION develop after intestinal hemorrhage.

Disclosure: The author declares no conflict of interest.

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