Reversible Visual Field Defect after Isolated Intraventricular Hemorrhage

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A 40-year-old man was referred for cognitive rehabilitation after external ventricular drainage for an isolated intraventricular hemorrhage (IVH) (Fig 1. A). A visual assessment was performed because the patient's mother reported that he had difficulty with prompt perception of objects, although he was not aware of any visual loss. His left eye has been completely blind since the age of 20 years due to Moyamoya disease. Automated visual perimetry for the right eye showed a right superior quadrantanopia suggesting a retrogeniculate lesion (Fig 1. D).

The cause of quadrantanopia was unclear, as the patient had Moyamoya disease with a history of complete blindness in the left eye. Brain magnetic resonance imaging was performed including diffusion-weighted imaging (DWI) and diffusion tensor imaging to differentiate between cortical blindness and optic radiation injury at 1 month after onset of symptoms. We found no evidence of cerebral ischemia on DWI, and diffusion tensor tractography of the optic radiation revealed degeneration of the left Meyer's loop with lateral ventricular enlargement (Fig 1. B, C). The visual field was restored five months later (Fig 1. E).

Meyer's loop passes around the inferior horn of the lateral ventricle before reaching the primary visual cortex; thus, lateral ventricular enlargement caused by IVH may temporarily damage Meyer's loop. 1,2 Our case shows that visual field defect caused by IVH may be reversible and illustrates the clinical usefulness of diffusion tensor tractography for verifying optic radiation abnormalities involving subtle structural damage in the ventricles or retrogeniculate visual pathway.

Figure Legend

Figure 1. Diffusion tensor tractography of the optic radiation. Lateral intraventricular hemorrhage in the initial CT (A) and MRI at 1 month (B). Dilated lateral ventricle (asterisk), degenerated Meyer's loop (arrow) and lateral geniculate body (red dot, left; blue dot; right, C). Visual field at 1 month (D) and 5 months (E).



References

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Figure 1

