Case Report

Akinetopsia on Driving

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Akinetopsia is a quite rare symptom. Two types of akinetopsia have been reported: one is cinematographic vision, and the other is invisibility of moving objects. These symptoms are thought to occur due to dysfunction of the MT/V5 area at the occipitoparietal region. I herein describe a 54-year-old man who collided with a car parked on the left side of the road while driving. He complained that the parked car looked to be moving forwards and he could not stop his car when he noticed that it was parked. Magnetic resonance imaging disclosed the fresh infarction on the right temporoparietal region involving the MT/V5 area. His symptom during driving was considered cinematographic vision and it was the cause of the traffic accident. Akinetopsia resulted in illusory kinetopsia on driving and the traffic accident.

Key Words: Kinetopsia—Akinetopsia—Optic flow—MT/V5 area—Infarction

Case Report

A 54-year-old man was transferred to the hospital due to a traffic accident. He had noticed a slight weakness of his left hand that morning. When he drove his car to his work, he collided with the car parked on the left side of the road. He complained that the parked car seemed to be moving forward. However, when he noticed that it was parked, he could not stop the car. He was mentally normal. Homonymous hemianopsia or left hemispatial neglect was not observed. There was neither hemiparesis, sensory disturbance, nor cerebellar ataxia. Magnetic resonance imaging revealed fresh cerebral infarction in the right frontal and temporo-occipital lobes (Fig 1). The objective tests such as eye tracking test were not available. Treated with antiplatelet agent, he did not note any visual symptom afterward.

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Received January 10, 2019; revision received February 7, 2019; accepted February 23, 2019.

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1052-3057/$ - see front matter

https://doi.org/10.1016/j.jstrokecerebrovasdis.2019.02.036

Discussion

The cause of his traffic accident was considered visual illusory motion perception due to cerebral embolism. Three interpretations for his symptom were considered. First, the patient's complaint that the car parked on the left side of the road looked to be moving forward indicates kinetopsia when simply accepted. Only two epilepsy patients have been reported to show kinetopsia.[1,2] The causative epileptic focus was located on the right occipitoparietal region involving the MT/V5 area, which is a part of the dorsal stream of the visual perception pathway and plays a key role in visual motion detection.[3] However, this is the case when the patient is not moving. Secondly, in the situation involving this patient (driving a car), the surrounding stationary objects were moving from the front to the back. In his visual field, things were moving radially from the center to the periphery, becoming bigger. This radial movement of the stationary objects is called "optic flow".[4] If a car is running at the same speed as his car, it looks stationary. For this patient driving a car, the parked car might not have moved radially like other objects, and it made him feel that it was moving forward. In that sense, his symptom is akinetopsia. Two types of akinetopsia are known: cinematographic vision and invisibility of moving objects.[5] Akinetopsia results from disturbance of MT/V5. Thirdly, human neuroimaging studies have demonstrated that the ventral intraparietal area is the most likely candidate for the area that

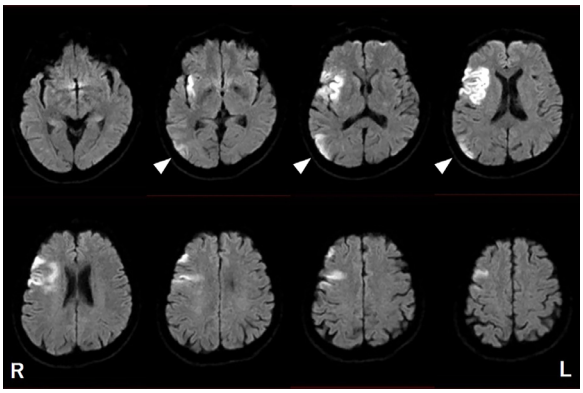

Figure 1. *Diffusion-weighted magnetic resonance images of the patient's brain. Fresh infarction is detected in the right frontal lobe and temporo-occipital lobe. The latter (arrowheads) is considered associated with the patient's complaint.*

integrates visual information related to self-motion and vestibular information.[4] However, his infarctions were located at the right temporo-occipital lobe involving MT/V5. Taken together, the patient's symptom on driving indicates transient cinematographic vision. The reason why other stationary objects in his left visual field did not show cinematographic vision was unclear. However, in the case of epileptic kinetopsia, automatic motion was limited to some objects in the field, not all objects move spontaneously.[1,2]

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