

Right Fusiform Gyrus Infarct with Acute Prosopagnosia

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A 56-year-old, right-handed man with no known past medical history presented with sudden onset of inability to recognize familiar individuals in person, including his wife and his mother. He also couldn't recognize himself in the mirror. There was no weakness, numbness, visual disturbances, or speech difficulty. Face recognition test, using Warrington Recognition Memory Test ⁽¹⁾, showed the presence of complete prosopagnosia. The rest of the neurological and cranial nerves examinations were normal.

Magnetic resonance imaging (MRI) of the brain showed restricted diffusion at the right temporal and occipital lobes (the fusiform gyrus) [Figure 1]. Magnetic resonance angiogram (MRA) of the brain was unremarkable. The 24-hours Holter monitoring showed paroxysmal atrial fibrillation. The transthoracic echocardiogram and carotid doppler ultrasound scan were normal. He was then treated with rivaroxaban 20mg daily for secondary stroke prevention in non-valvular atrial fibrillation. Face recognition skill training was started in the ward, which includes compensatory strategies to achieve person recognition by circumventing the face processing impairment, and remediation to enhance mnemonic function for face recognition. His prosopagnosia resolved completely after one week.

Prosopagnosia, also known as face blindness, is an impairment in recognizing faces. The core defects are the loss of familiarity with previously known faces and the inability to recognize new faces. Patients with prosopagnosia may present with poor recognition of familiar individuals in person or in the photograph, confusion with plotlines in movies or plays with numerous characters, and difficulty distinguishing individuals wearing a uniform or similar clothing. Stroke is the most common cause of acquired prosopagnosia ⁽²⁾. Other less common aetiologies include traumatic brain injury, carbon monoxide poisoning, temporal lobectomy, and encephalitis.

Literature has shown that areas involved in acquired prosopagnosia are the right fusiform gyrus or anterior temporal cortex, or both ⁽³⁾. The fusiform gyrus is part of the lateral temporal lobe and occipital lobe in 'Brodmann area 37' ⁽⁴⁾. The fusiform gyrus is considered a key structure for functionally specialized computations of high-level vision such as face perception, object recognition, and reading. Individuals with fusiform lesions are more likely to have apperceptive prosopagnosia, while those with anterior temporal lesions have an amnesic variant ⁽⁵⁾.

In summary, prosopagnosia can be the sole presentation for the right fusiform gyrus stroke. It is important to recognize prosopagnosia for early stroke diagnosis and avoid misdiagnosing it as a psychiatric or ocular disorder.

Keywords: prosopagnosia, fusiform gyrus, stroke.

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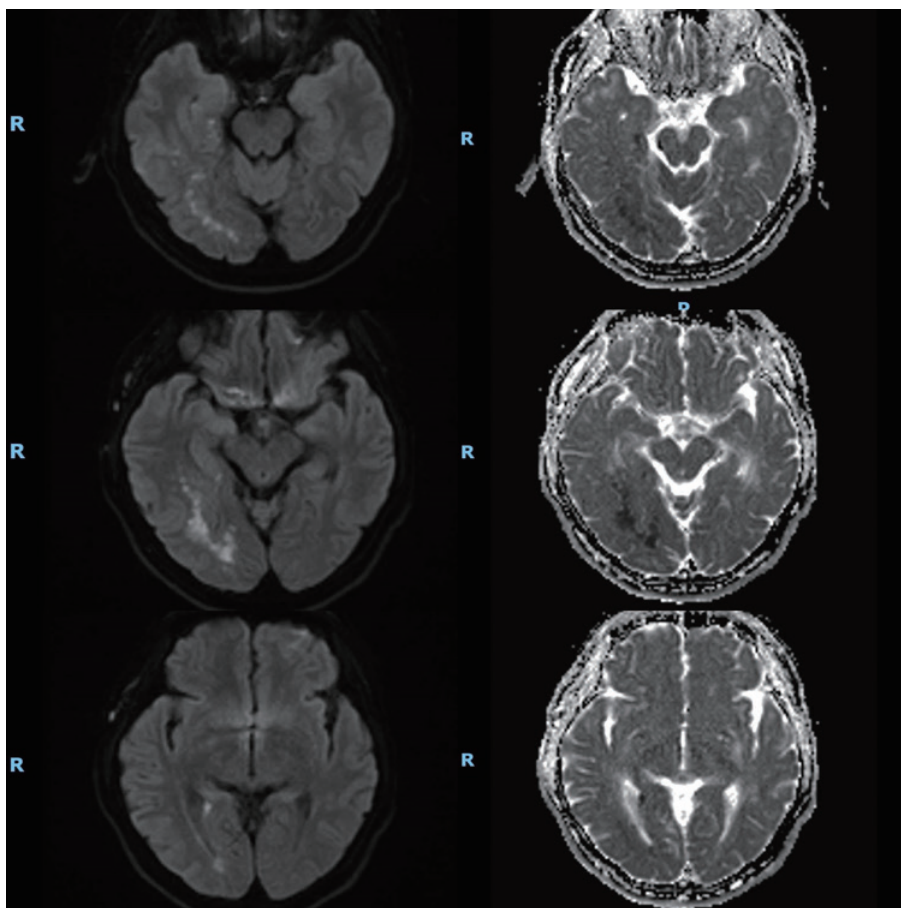


Figure 1. Magnetic resonance imaging (MRI) of the brain showed restricted diffusion in the right temporal and occipital lobes (the fusiform gyrus). (Diffusion-weighted sequence, DWI, on the left; Apparent diffusion coefficient, ADC sequence on the right).

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