Acquired Cerebral Achromatopsia Secondary to Occipital Stroke

Noura Alhosani, MD[1*], Fatima Alkhyeli, MD[1], and Falak Sayed, MD[2]

1. Abu Dhabi, Al Maryah Island, Cleveland Clinic Abu Dhabi, Emergency Department

2. Abu Dhabi, Al Maryah Island, Cleveland Clinic Abu Dhabi, Emergency Department

Correspondence to: Noura Khalid Alhosani, MD

*United Arab Emirates, Abu Dhabi, Al Maryah Island

Email: nouraxo1@gmail.com

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Background:
Acquired cerebral achromatopsia, a form of color vision impairment, is infrequently reported and often results from injuries to the occipital cortex.

Case Presentation:
We detail a case of a middle-aged women with vascular risk factors who visited the emergency department with blurred vision and disturbances in color perception, characterized as an inability to differentiate colors. A notable finding in her neurological examination was homonymous hemianopia. Hyperacute magnetic resonance imaging revealed a subacute infarction in the right occipital lobe. As she was outside the treatment window for alteplase and invasive interventions, she received aspirin and clopidogrel as treatment.

Discussion:
Patients with posterior circulation strokes often present with non-specific symptoms, which can lead to delayed diagnoses and treatment. Acquired cerebral achromatopsia, the inability to perceive color after acute brain injury, is a rare phenomenon associated with PCA stroke that has not been well studied yet. It usually involves the ventral occipitotemporal cortex in V4 complex, which anatomically is theorized to be the brain's color center. A comparison was made between two instances of acquired cerebral achromatopsia. In the first case, a 60-year-old woman displayed hemi-achromatopsia in the right visual field. In the second case, a 74-year-old woman suffered two strokes. The first stroke on the left hemisphere resulted only in a right homonymous hemianopia with normal color perception; however, upon the occurrence of the second stroke on the right hemisphere, she developed full field achromatopsia. The contrasting presentations of these cases after lesions in the ventral posterior regions of their left hemisphere suggests a hypothesis that individual differences might exist in the hemispheric laterality of color centers in the brain. Our patient experienced a right subacute occipital stroke; however, she exhibited bilateral achromatopsia. The exact cause of this full field achromatopsia from this specific lesion remains uncertain, but her presentation might support the hypothesis.

Conclusion:
Posterior circulation stroke infarctions often present with nonspecific symptoms making timely diagnosis and management challenging. Achromatopsia is an infrequent and subtle manifestation of posterior circulation infarctions that warrant further investigations and management.

Keywords:
case report; cerebral achromatopsia; stroke; achromatopsia; visual disturbances; color blindness; PCA infarction.