Case Report

The Stroke that Struck Back: An Unusual Alien Hand Presentation

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Alien hand syndrome is a rare condition that can result from neurodegenerative disorders, tumors, or strokes. We encountered an acute presentation of alien hand syndrome from a right parietal ischemic stroke. The condition was not recognized by the emergency department, delaying diagnosis and appropriate treatment. Early recognition of unusual manifestations of stroke, such as an acute alien hand syndrome, can lead to timely diagnosis and therapy. **Key Words:** Alien hand syndrome—parietal lobe—brain infarction—anterior circulation—somatosensory cortex.

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A 78-year-old woman with atrial fibrillation (not anti-coagulated) was startled when her left hand suddenly started groping about her face and striking her cheek. After 2 hours, she presented for medical attention. The emergency physician was suspicious for a psychiatric movement disorder. Because the patient was not identified as having "negative" symptoms such as weakness, and her initial CT head and CT angiogram were not consistent with a major intracranial artery occlusion (Figure 1), the emergency department stroke protocol was not activated.

Examination by the neurology resident revealed a loss of light touch, pinprick, proprioception, and nailbed pressure sensation in the left upper extremity. The left hand explored the patient's face and surrounding objects involuntarily, requiring placement of restraints. Her National Institutes of Health Stroke Scale score was 4 (neglect,

middle cerebral artery territory. One month later, her alien hand resolved; she demonstrated finger pseudoathetosis with moderate impairment of proprioception and graphesthesia.

Alien hand syndrome is a rare, distressing condition defined as involuntary, uncontrolled, but partly purposeful movements of an arm or hand with a perception of foreignness of the affected limb.^{1,2} The alien hand seems to act on its own volition and may grope, touch, or even strike the face or hinder purposeful actions of the other

ataxia, and sensory loss of the left arm). She was given the diagnosis of acute alien hand syndrome. Magnetic

resonance imaging confirmed a right parietal lobe infarct

(Fig 1). Magnetic resonance angiography demonstrated

a distal M2 segment occlusion of corresponding right

foreignness of the affected limb.^{1,2} The alien hand seems to act on its own volition and may grope, touch, or even strike the face or hinder purposeful actions of the other arm. This patient's stroke occurred during a meal, and the alien hand prevented her dominant hand from bringing food to her mouth.

The causes of alien hand syndrome include stroke,^{1,3}

midline tumors,¹ and neurodegenerative disorders (e.g. corticobasal degeneration, progressive supranuclear palsy).⁴ Lesions frequently involve the corpus callosum or medial frontal lobe.⁵ In rare instances, isolated parietal lobe and thalamic infarcts have caused alien hand syndrome.^{1,3,6} The primary difference between our patient and those with callosal or frontal causes is our patient's severe sensory deficit,⁵ which has also been seen in thalamic alien hand syndrome.⁷ The behavior of the alien

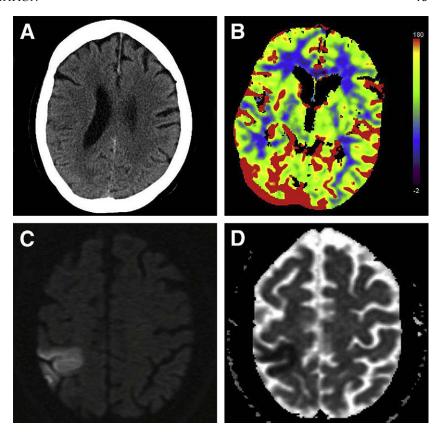
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Figure 1. (A) Noncontrast head computed tomography (CT) showing patient's head slightly turned with no acute changes. (B) CT perfusion blood volume showing subtle region of restricted blood volume of right temporal lobe. CT perfusion blood volume and time to peak acquisition images are focused around M1 segments. Therefore, region of patient's stroke was more cephalad to these perfusion images and seen on magnetic resonance imaging (C and D). Temporal lobe findings may have reflected temporal M2-3 branches going to parietal stroke. (C) Diffusion-weighted image (DWI) showing moderate-sized region of restricted diffusion in right parietal lobe in immediate postcentral location. (D) Apparent diffusion coefficient showing restriction in corresponding region on DWI, consistent with ischemia.



hand itself was indistinguishable from cases described in the literature from lesions at other sites. 1,5

This patient's unusual clinical presentation and preserved strength delayed the diagnosis of stroke. As a result, we were unable to administer thrombolytic therapy. It is important to recognize atypical presentations of acute cerebral ischemia such as alien hand syndrome, because misdiagnosis can delay or prevent appropriate treatment.

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