

A Teleconsultation on a Patient Presenting with Acute Hemichorea Led to a Successful Treatment: A Case Report

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Although hemichorea is a rare manifestation of acute ischemic stroke, in cases of sudden onset of hemichorea, acute stroke should always be considered first. Physicians should also be aware of other neurological deficit, dysarthria, facial weakness, or other signs of cortical abnormalities since these deficits may be masked by the hyperkinetic movement disorders. A teleconsultation program for the management of movement disorders in the areas with inadequate specialists should be implemented to improve patients' access to specialty care.

Keywords: Acute hemichorea; Movement disorders; Teleconsultation; Acute stroke

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Hemichorea is an uncommon presentation of acute ischemic stroke. It accounts for 0.4% to 0.54% of overall stroke presentations^(1,2). A sudden onset hemichorea is hypothesized to occur after ischemia of the subthalamic nuclei, other basal ganglia structures, or recently a parietal cortex⁽¹⁻⁹⁾. The pathophysiology of poststroke hemichorea includes disruption of basal ganglia connections and a reduction of the direct cortex stimulus^(5-9,11-13). Due to its rare manifestation, it is challenging for internists and even some movement disorder specialists to correctly diagnose it as an acute ischemic stroke. Therefore, the authors reported a patient with acute left hemichorea, which finally improved after the diagnosis and treatment as an acute ischemic stroke via the teleconsultation between an internist and a movement disorder

specialist. The present case demonstrates important clues for physicians to detect acute ischemic stroke in acute hemichorea and a successful outcome of thrombolytics via teleconsultation.

Case Report

A 61-year-old female with a history of dyslipidemia presented with sudden onset left hemichorea 30 minutes prior to arrival at the emergency department of Suddhavej Hospital, Thailand. She had no history of alcohol, tobacco, substance abuse, or other drug used except for 20 mg of simvastatin. No family history of neurological disease was noted. On neurological examination, hyperkinetic, non-rhythmic, purposeless, continuous, and flow-like movements from the distal to the proximal part of the left arm and leg compatible with left hemichorea were noted. Spastic dysarthria along with left facial weakness as upper motor neuron type, were also observed. However, the fluency, comprehension, and repetition were normal. The parietal lobe sign including neglect, left-right confusion, and apraxia were negative. Other cranial nerves, cerebellar signs, deep tendon reflexes including plantar reflexes, pinprick sensation, and proprioception were normal on examination. The initial computed tomography (CT) of the brain revealed no early ischemic lesions. A subsequent magnetic resonance imaging (MRI) of the brain confirmed an acute ischemic stroke

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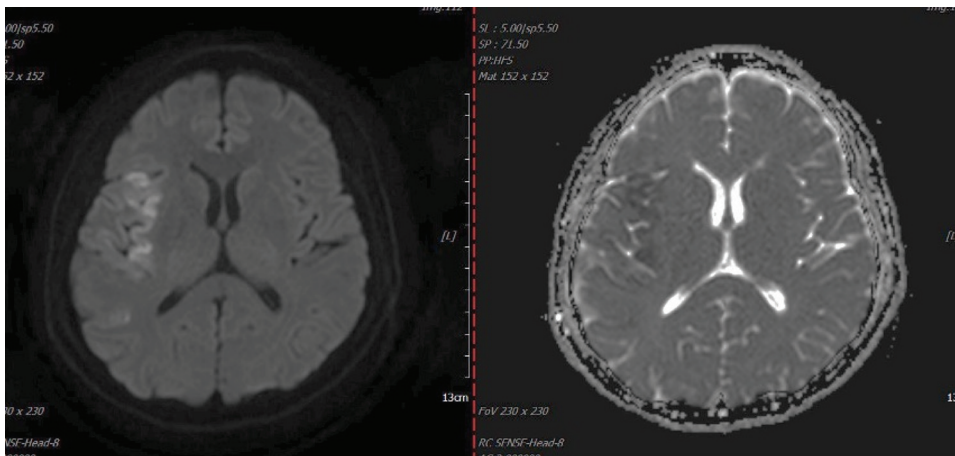


Figure 1. An MRI of the brain confirmed an acute ischemic stroke involving the right parietal and insular cortex, while the basal ganglia, thalamus and subthalamic nuclei were entirely spared.

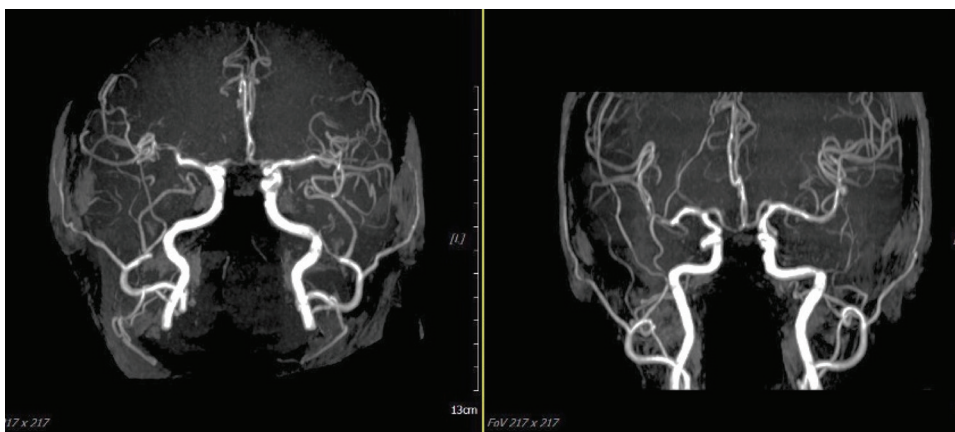


Figure 2. The MR angiogram of the brain showed no significant stenosis of any vessels.

involving the right parietal and insular cortex (Figure 1), while the basal ganglia, thalamus, and subthalamic nuclei were entirely spared. The MR angiogram of the brain showed no significant stenosis of any vessels (Figure 2). The random plasma glucose was 93 mg/dL and HbA1C was 6.4%. Other blood tests, including complete hemogram, renal, liver, and thyroid functions were normal.

As Suddhavej Hospital was in shortage of neurologists, the internists were hesitant to give the final diagnosis or prescribe the thrombolytic drugs. Therefore, a teleconsultation was performed between the internists (MP, SP) and a movement disorder specialist (WP) via a secure application. Informed consent was given from both the patient and the internists before a teleconsultation. All clinical information, including the patient's history, relevant physical examination, and video clips were sent to

a movement disorder specialist. After reviewing the materials, the movement disorder specialist promptly suggested the diagnosis as an acute ischemic stroke and the treatment of thrombolytic drug via a real-time video consultation. After twenty hours of intravenous (IV) thrombolysis, the acute left hemichorea completely resolved. Finally, the patient was discharged with ASA 300 mg/day and Atorvastatin 40 mg/day. No abnormal movements were observed without chronic neuroleptic treatment. Only mild spastic dysarthria remained, and the patient was able to do all daily activities at one month of follow-up.

Discussion

Sudden onset hemichorea is a rare presentation of acute ischemic stroke^(1,2). It was previously proposed to occur in the setting of thalamic or basal ganglia infarction^(10,11). Since the basal ganglia connect to the

cortex and the thalamus, disruption of its hyperdirect pathway is postulated to be the cause of thalamic disinhibition, and sudden onset hemichorea⁽⁵⁻⁹⁾. In the case of cortical infarction resembling our case, reducing direct cortex stimulus while disrupting the basal ganglia connection contributes to a synergistic effect of thalamic disinhibition^(5-9,11-13). The present patient also had advanced age, female gender, and Asian ethnicity, which were risk factors for post stroke hemichorea⁽¹⁴⁾.

Patients with sudden onset hemichorea are difficult to diagnose as acute ischemic stroke due to its rare manifestation and uncommon pathogenesis, particularly by physicians who are not movement disorder specialists. However, acute stroke should always be considered first in cases of sudden onset hemichorea. Physicians should also be aware of other neurological deficit, including dysarthria, facial weakness, or other signs of cortical abnormalities since these deficits may be masked by the hyperkinetic movement disorders. Other causes consisting of infections, neuroleptics, or neurodegeneration should be excluded^(15,16). Random plasma glucose in the present patient was normal, which excluded non-ketotic hyperglycemia⁽¹⁷⁾.

In Thailand, although movement disorders are common, there are fewer than twenty movement disorders specialists. Consequently, teleconsultation is used to increase the patient's access to specialty care. The quality and type of materials, which provide the patient's information during teleconsultation, are also important factors affecting the outcomes of teleconsultation^(18,19). Still photos and video clips are useful materials considered in a teleconsultation. However, these materials have significant limitations in the evaluation of muscle tone, weakness, reflex components, spontaneous movements, and cognitive function. A real-time video consultation has an advantage over still photos and video clips in demonstrating dynamic physical examinations and more accurate diagnosis. Therefore, a real-time video consultation, as demonstrated in our case, is a useful example of an effective teleconsultation in an area of suboptimal infrastructure, which results in complete resolution of the disease.

The advantages and disadvantages of thrombolytic therapy should also be discussed with the patient. Every patient should always be informed about the risk of intracerebral hemorrhage according to their NIHSS scores before receiving thrombolytics. This patient had low risk of intracerebral hemorrhage, and her low NIHSS scores, which was 2 from spastic

dysarthria and facial weakness, did not exclude stroke^(20,21). Although post stroke hemichorea resolves in 85% of patients, the symptoms are reported to be partially improved⁽²²⁾. Therefore, the authors decided to treat the patient with alteplase after her informed consent. Neither the present patient nor the patients from the previous studies reported any adverse effects from the thrombolytics⁽²³⁻²⁵⁾.

To the authors knowledge, the present case is the first real-time video teleconsultation regarding the management of acute left hemichorea leading to a successful treatment as an acute ischemic stroke. The patient could do all daily activities after the treatment. The authors speculate from the present case that, although sudden onset hemichorea is a rare manifestation of an acute ischemic stroke, it should be considered as an acute ischemic stroke until proven otherwise and treated as such. Physicians should always be required to perform a comprehensive neurological examination in case of acute hemichorea, particularly, if there was dysarthria, facial weakness, or other signs of cortical abnormalities. Furthermore, the use of telemedicine consultation, especially in movement disorders, should be implemented in an area of suboptimal specialists to increase the patient's access to specialty care.

What is already known on this topic?

Patients with sudden onset hemichorea are difficult to diagnose as acute ischemic stroke due to its rare manifestation and uncommon pathogenesis, particularly by physicians who are not movement disorder specialists.

What this study adds?

Physicians should always perform a comprehensive neurological examination in case of acute hemichorea, particularly, if there was dysarthria, facial weakness, or signs of cortical abnormalities. Other causes should also be excluded, including infections, drugs, neurodegeneration or non-ketotic hyper-glycemia. Furthermore, the use of telemedicine consultation, especially in movement disorders, should be implemented in an area of suboptimal infrastructure to increase the patient's access to specialty care.

Conflicts of interest

The authors declare no conflict of interest.

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