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Hemichorea as a presenting feature of stroke: A case report and literature review

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Abstract
Hemichorea is an uncommon hyperkinetic movement disorder characterized by abrupt, irregular, non-rhythmic movements affecting one side of the body. Although most stroke presentations involve motor, sensory and speech deficits, hyperkinetic movement disorders can occasionally be the initial or sole manifestation of stroke. The commonest hyperkinetic movement disorders are hemichorea, hemiballismus or dystonia syndrome. [1] Historically linked to lesions of the subthalamic nucleus or basal ganglia, more recent case reports and studies have shown a broader network of lesion sites; including cortical and even ipsilateral strokes, may be involved [2].
In this report, we present a patient who presented with hemichorea at onset of stroke, and we also analysed the literature review of hyperkinetic movement disorder as the presenting symptom of stroke, network localization and clinical radiological correlation
Our patient presented with acute onset of involuntary jerky movements involving the left side of the body and his imaging showed right parietal infarct. He was treated conservatively and improved over the course.
Early recognition of this atypical presentation is critical for timely diagnosis and management. This literature review aims to synthesize key findings from case reports and studies highlighting hemichorea as a presenting feature of stroke.

Keywords: Hemi chorea, cerebrovascular accident, hyperkinetic movement disorder, cortical infarct, case report

Introduction

Hemichorea is an uncommon hyperkinetic movement disorder characterized by abrupt, irregular, non-rhythmic movements affecting one side of the body. Although most stroke presentations involve motor, sensory and speech deficits, hyperkinetic movement disorders can occasionally be the initial or sole manifestation of stroke. The most common hyperkinetic movement disorders are hemichorea, hemiballismus, or dystonia syndrome. [1] Historically linked to lesions of the subthalamic nucleus or basal ganglia, more recent case reports and studies have shown a broader network of lesion sites; including cortical and even ipsilateral strokes, may be involved [2].
In this report, we present a patient who presented with hemichorea at the onset of stroke, and we also analyzed the literature review of hyperkinetic movement disorder as the presenting symptom of stroke, network localization and clinical radiological correlation.

Case report

52 years old male known hypertensive not on any medication presented to our hospital with complains of headache, dizziness and abnormal movement involving the left upper and lower limb. On examination, the patient was fully conscious, oriented, normal cranial nerve examination and a normal motor examination. He had involuntary, irregular, nonrhythmic movements affecting the left side of the body. There were no other significant neurological complaints. His computed tomography (CT) and Magnetic Resonance Imaging (MRI) brain showed right middle cerebral artery infarction involving the parietal lobe (Fig 1, 2,3).

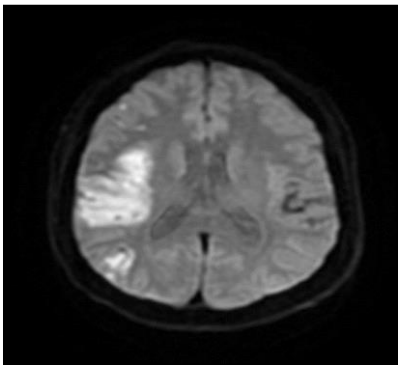

Fig 1: Diffusion weighted images showing right middle cerebral

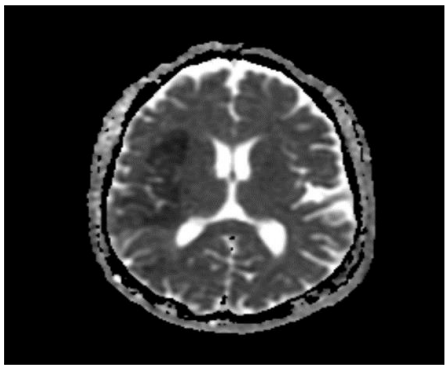

Fig 2: ADC shows acute infarct in right middle cerebral artery infarct

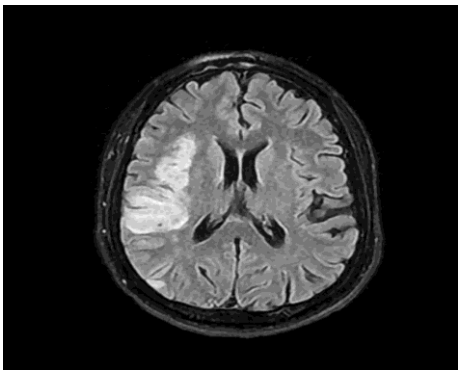

Fig 3: FLAIR images showing acute infarct in right middle cerebral artery territory

Echocardiography showed compensated heart failure with poor left ventricular systolic function and ejection fraction of 20%. Routine labs were at an acceptable range. The carotid Doppler was normal.

The patient was not for thrombolysis and thrombectomy as he presented out of the window period. He was treated with antiplatelets, statins, and dapagliflozin. Since there was no improvement of the choreiform movement, tetrabenazine was added after which the patient showed a slight improvement and was discharged in a stable condition with tetrabenazine. He was later followed up after one month at the Neurology Clinic, and he showed complete improvement with no choreiform movements.

Review of the Literature

Methodology

This review compiles data from 10 articles including case reports, retrospective analyses, and reviews of hyperkinetic movement disorders associated with stroke. Each article was evaluated for case details, lesion localization, clinical presentation, imaging correlation, treatment strategies, and outcomes. Emphasis was placed on cortical and atypical presentations, to reflect newer understandings of stroke-related movement disorders.

1. Epidemiology and Pathophysiology

Post-stroke movement disorders are rare, occurring in approximately 1–4% of cases, with hyperkinetic presentations comprising a small fraction [3]. Ghika-Schmid *et al*. reported 29 patients with hyperkinetic movement disorders among 2,500 first-ever strokes (in the Lausanne Stroke Registry), with hemichorea and hemiballismus being the most common [1].

2. Lesion Locations and Stroke Types

Traditionally attributed to lesions in the contralateral subthalamic nucleus, more recent studies propose that network-level dysfunction—including disinhibition or diaschisis between cortical and subcortical regions—may underlie hemichorea [2]. This is supported by lesion network mapping studies showing that diverse lesion sites can converge on common motor control networks [2]. Multiple case reports have highlighted cortical involvement like, parietal lobe [4], temporal lobe [5], parietal lobe and insular cortex [6], pure cortical strokes [7, 8]. Most of the cases presented due to contralateral lesion but the report from Wei and Zhang (2021) [9] detailed a rare ipsilateral presentation of hemichorea [9].

These reports suggest that cortical strokes, particularly in the frontal, parietal, and temporal regions, can mimic classic subthalamic or thalamic symptoms.

3. Clinical Presentation

Patients typically present with abrupt-onset, unilateral, involuntary movements described as flinging or jerky. These may resemble hemiballismus or more fluid choreiform movements. While some cases exhibit accompanying neurological deficits, many presents with hemichorea as the sole symptom, which can delay recognition and management. Notably, Hernandez Fustes *et al*. (2020) [10] and Ghika-Schmid *et al*. (1997) [1] described cases where chorea was the first clinical manifestation of stroke [2, 10].

4. Imaging Correlation

Neuroimaging plays a key role in confirming diagnosis and localizing lesions. CT and MRI commonly reveal infarcts in cortical or subcortical regions. Chung *et al*. (2004) [8] documented lesion distribution across the cortex, caudate, putamen, thalamus, and globus pallidus [7]. Advanced imaging, including PET and functional MRI, has demonstrated metabolic and network changes even in anatomically unaffected regions—further supporting the concept of distributed network disruption [2].

5. Treatment and Outcomes

Most cases of post-stroke hemichorea respond well to medical therapy and stroke management [3]. Symptomatic treatments may include dopamine antagonists (e.g., haloperidol) or vesicular monoamine transporter inhibitors (e.g., tetrabenazine). Outcomes are generally favorable, with resolution over days to weeks in many cases [3]. Rare instances may persist longer or require dose adjustment of medications. Prompt recognition and neuroimaging are crucial to avoid misdiagnosis and initiate appropriate intervention.

Summary Table of Reported Cases

Author (Year)	Lesion Location	Presentation	Imaging Findings	Outcome
Patel *et al*. (2019) [4]	Parietal Lobe	Hemiballismus	CT/MRI: parietal infarct	Improved with care [2]
Strauss *et al*. (2019) [7]	Frontal Cortex	Hemichorea-hemiballismus	MRI: cortical infarct	Resolved [4]
Dong *et al*. (2023)	Temporal Lobe	Hemichorea	MRI: temporal infarct	Resolved with treatment [7]
Wei & Zhang (2021) [9]	Ipsilateral Cortex	Hemichorea	MRI: cortical infarct	Improved post-treatment [8]
Hernandez Fustes *et al*. (2020) [10]	Thalamus	Chorea	Imaging: thalamic infarct	Resolved [11]
Chung *et al*. (2004) [8]	Various	Hemichorea	MRI: cortex, BG, thalamus	Varied [9]
Ghika-Schmid *et al*. (1997) [1]	Multiple	Hemichorea, tremor	Mixed sites	Transient or delayed [1]

Conclusion

Hemichorea is an underrecognized but clinically significant manifestation of stroke. Although traditionally associated with basal ganglia lesions, contemporary case reports and studies illustrate a broader spectrum of lesion locations, including cortical and even ipsilateral infarcts. Awareness of this atypical presentation, particularly when hemichorea occurs in isolation, can aid timely stroke diagnosis and improve patient outcomes. A network-based view of motor control may further enhance our understanding and guide future research into post-stroke movement disorders.

Statements

Study limitations

None in particular

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None

Author contributions

1. Dr. Anandi Damodaran- Designed the case study, conceptual development and editing
2. Dr. Hiba Mohammed Irfan Data acquisition and analysis
3. Dr. Hend Hesam Elmaghraby - Data acquisition and analysis
4. Dr. Usman othi- Data acquisition and analysis
5. Dr Devdutt Nayak Kotekar- Conceptual development

All authors are responsible for the contents and integrity of this manuscript.

Ethical statement

As this is a case report -ethical committee approval is not required.

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Conflict of interest

The authors have no conflict of interest to declare.

Data availability statement

Data is not available online due to legal and ethical issues.

Patient's consent

Patient written informed consent has been taken to use his images and relevant information for publication.

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