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Case Report

Cryptogenic multiterritorial stroke with anti-U1 ribonucleoprotein positivity and steroid responsiveness: a diagnostic challenge

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ABSTRACT

Acute ischemic stroke is most commonly caused by atherosclerotic, cardioembolic, or small vessel disease; however, in patients presenting with multiterritorial infarcts and inconclusive routine evaluation, alternative etiologies such as autoimmune mechanisms should be considered. We report the case of a 52-year-old male who presented with acute-onset vertigo followed by progressive imbalance and left-sided incoordination. Neuroimaging revealed multiple acute infarcts involving both anterior and posterior circulation. Cardiac and vascular evaluation did not identify a definitive source of embolism. Autoimmune workup demonstrated positive antinuclear antibodies with anti-U1 ribonucleoprotein (RNP)/Sm positivity raising suspicion of an underlying autoimmune-mediated process despite the absence of overt systemic features. The patient showed limited improvement with standard antiplatelet therapy but demonstrated marked clinical recovery following corticosteroid therapy, suggesting a possible inflammatory or immune-mediated mechanism. This case highlights the importance of considering autoimmune causes in patients with cryptogenic multiterritorial stroke and suggests a potential role for immunosuppressive therapy in selected cases.

Keywords: Ischemic stroke, Multiterritorial infarcts, Autoimmune markers, Anti-U1 RNP, Cerebellar ataxia, Corticosteroids

INTRODUCTION

Acute ischemic stroke is most commonly attributed to atherosclerosis, cardioembolism, or small vessel disease.[1] However, a subset of patients presents with atypical features such as multiterritorial infarcts where routine evaluation fails to identify a clear etiology. Autoimmune-mediated vasculopathy represents a rare but clinically significant cause.[2,3]

Autoimmune vasculopathy can occur in association with systemic autoimmune diseases such as systemic lupus erythematosus, mixed connective tissue disease, and primary central nervous system vasculitis. These conditions may lead to vascular inflammation, endothelial dysfunction, and a prothrombotic state, ultimately resulting in cerebral ischemia.[2,4] However, in some patients, stroke may be the initial or sole manifestation of an underlying autoimmune process, posing a diagnostic challenge.[5]

The presence of multiterritorial infarcts on neuroimaging, along with negative cardiac and large vessel evaluation, should raise suspicion for uncommon etiologies, including autoimmune, inflammatory, and hypercoagulable states.[3,6]

Serological markers such as antinuclear antibodies and anti-U1 ribonucleoprotein (RNP) antibodies may provide important diagnostic clues, even in the absence of overt systemic features.[2]

We report a case of multiterritorial ischemic stroke with positive autoimmune serology and significant response to corticosteroids, highlighting a possible autoimmune etiology and its therapeutic implications.

CASE REPORT

A 52-year-old male presented with acute onset vertigo followed by persistent imbalance and left-sided incoordination for 7 days. The initial episode was associated with nausea and vomiting and resolved spontaneously. This was followed by persistent imbalance with a tendency to fall towards the left side. On evaluation, the patient was found to have elevated blood pressure (160/90 mmHg) and hyperglycemia.

He also reported incoordination of the left upper limb, characterized by dysmetria and intention tremors.

There was no history of motor weakness, sensory deficits, speech disturbance, seizures, or visual symptoms.

There was no history of hypertension or diabetes. The patient was a chronic alcohol consumer for 15 years, with last intake 8 days prior to symptom onset.

On examination, the patient was conscious and oriented. Vital signs were stable, with a blood pressure of 160/90 mmHg. Icterus was present.

Neurological examination revealed a few abnormalities. Motor examination revealed normal power with exaggerated deep tendon reflexes on the left side. Cerebellar examination revealed left-sided dysmetria, dysdiadochokinesia, intention tremors, and presence of pendular knee jerk. Gait was broad-based with a tendency to sway towards the left side.

Cardiovascular, respiratory, and abdominal examinations were within normal limits, with no significant abnormalities detected.

Routine laboratory investigations were within normal limits. Glycemic parameters were elevated, with HbA1c of 7.5% and random blood glucose of 197 mg/dl. Lipid profile revealed reduced HDL cholesterol (26 mg/dl).

Cardiac biomarkers, including CK-MB and creatine phosphokinase, were not suggestive of acute myocardial injury. Urinalysis demonstrated glycosuria with trace proteinuria.

Magnetic resonance imaging (MRI) brain revealed multiple acute infarcts involving the left parietal cortex, right corona radiata, left thalamocapsular region, splenium of the corpus callosum, left side of the pons, and the cerebellar peduncle (Figure 1).

Additionally, there were features suggestive of chronic small vessel ischemic changes and old lacunar infarcts in bilateral gangliocapsular regions, along with evidence of cerebral and cerebellar atrophy.

Contrast-enhanced MRI did not reveal any abnormal enhancement, thereby making infective or granulomatous etiologies less likely, particularly in the absence of systemic symptoms such as fever.

The distribution of infarcts involving multiple vascular territories suggested a non-conventional etiology.

Cardiac evaluation, including ECG and echocardiography, did not reveal a source of embolism (Figure 2-4).

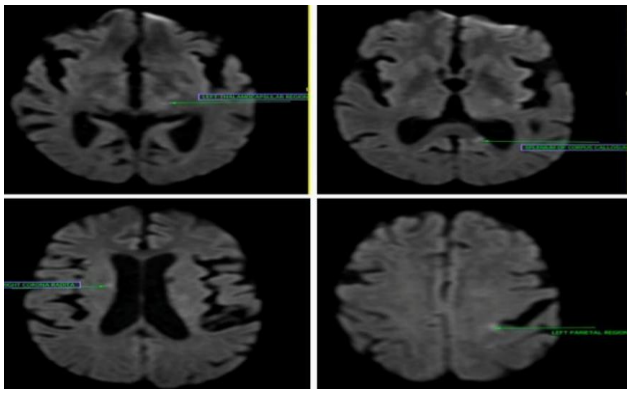

Figure 1: Axial diffusion-weighted MRI showing acute infarcts involving the left thalamocapsular region, right corona radiata, splenium of corpus callosum, and left parietal cortex.

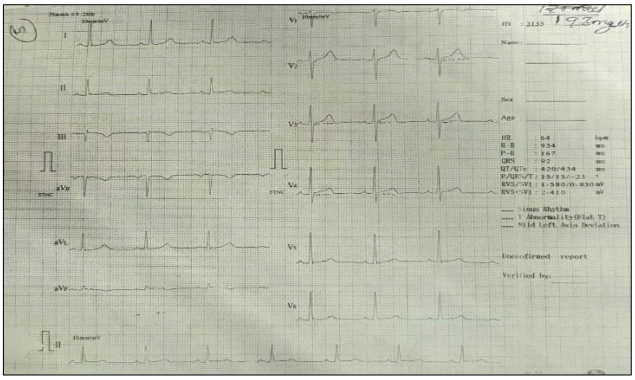

Figure 2: ECG showing sinus rhythm with no arrhythmia.

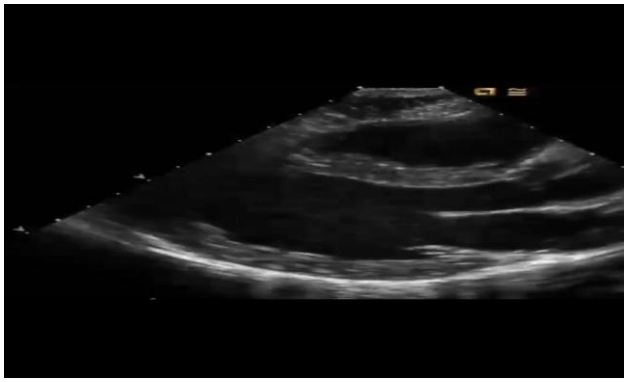

Figure 3: 2D echocardiography demonstrating preserved left ventricular function with no evidence of cardiac source of embolism.

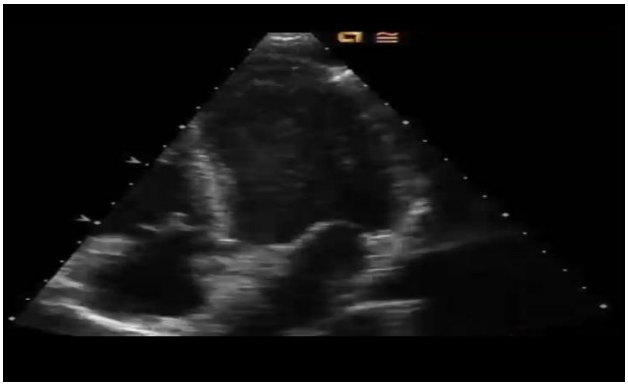

Figure 4: Apical four-chamber view on 2D echocardiography showing normal cardiac chamber dimensions with no intracardiac thrombus.

Computed tomography angiography (CTA) did not show evidence of large vessel occlusion or stenosis.

Given the absence of cardiac and large vessel etiologies, an underlying autoimmune process was considered.

Inflammatory markers, including ESR and CRP, were mildly elevated. Antinuclear antibody (ANA) testing by immunofluorescence was positive. Further evaluation with ANA immunoblot revealed anti-U1 RNP/Sm positivity, and rheumatoid factor was also positive.

Additional investigations to exclude other vasculitic and prothrombotic conditions, including ANCA (PR3 and MPO) and antiphospholipid antibodies (IgG and IgM), were negative.

Despite these serological findings, the patient did not exhibit clinical features suggestive of a defined connective tissue disorder, such as joint involvement, skin manifestations, or mucocutaneous lesions. The patient was initially managed with antiplatelet therapy, statins, and risk factor control. The patient showed limited improvement with initial therapy.

In view of the multiterritorial infarcts and positive autoimmune markers, a probable autoimmune-mediated vasculopathy was considered. Corticosteroid therapy was initiated, following which the patient showed significant clinical improvement. At the time of discharge, the patient had minimal residual ataxia while walking and was able to perform activities of daily living independently.

The patient has been kept on regular outpatient follow-up, with continued improvement noted on subsequent visits.

DISCUSSION

Multiterritorial infarcts in acute ischemic stroke often indicate embolism or systemic causes. In cases where routine cardiac and vascular evaluation is inconclusive, alternative etiologies should be considered.[7,8]

Autoimmune-mediated vascular involvement is a recognized but uncommon cause of ischemic stroke, resulting from inflammatory and prothrombotic mechanisms. Stroke may occasionally be the initial manifestation in the absence of overt systemic features. In such cases, endothelial injury, immune complex deposition, and inflammatory vascular changes contribute to luminal narrowing and thrombosis, leading to cerebral ischemia.[8,9] In this case, the presence of positive antinuclear antibodies along with anti-U1 RNP/Sm positivity in the absence of a defined connective tissue disorder posed a diagnostic challenge and thereby raised the suspicion for an underlying autoimmune-mediated process.

The presence of infarcts involving both anterior and posterior circulation further suggested a non-conventional etiology, as this pattern is less typical of small vessel or atherosclerotic disease. Similar imaging patterns have been described in autoimmune conditions, where diffuse vascular involvement results in scattered ischemic lesions.[9,10] Additionally, mildly elevated inflammatory markers further support an inflammatory or immune-mediated mechanism.

The lack of significant improvement with antiplatelet therapy followed by clinical recovery after corticosteroid administration suggests a possible inflammatory component. Corticosteroids remain the cornerstone of treatment in autoimmune vasculitis and related disorders, where early initiation may prevent progression and improve outcomes.[10,11]

Differential diagnoses in such cases include primary central nervous system vasculitis, antiphospholipid antibody syndrome, infective causes, and malignancy-associated hypercoagulable states, which were considered less likely based on clinical and laboratory evaluation.[11,12]

However, a definitive diagnosis of autoimmune vasculopathy could not be established due to the absence of histopathological confirmation or definitive angiographic findings. Additionally, the presence of vascular risk factors such as hypertension and hyperglycemia may have contributed to the clinical presentation.

This case underscores the importance of considering autoimmune mechanisms in patients with cryptogenic multiterritorial stroke, particularly when routine evaluation is inconclusive. Early recognition may have therapeutic implications; as selected patients may benefit from immunosuppressive therapy.

CONCLUSION

Autoimmune mechanisms should be considered in patients presenting with cryptogenic multiterritorial ischemic stroke, particularly when routine evaluation is inconclusive. Appropriate serological evaluation may aid

in identifying underlying causes, and selected patients show clinical improvement with immunosuppressive therapy.

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REFERENCES

1. Adams HP Jr, Bendixen BH, Kappelle LJ, Biller J, Love BB, Gordon DL, et al. Classification of subtype of acute ischemic stroke. Stroke. 1993;24(1):35-41.
2. Sanna G, D'Cruz D. Cerebral manifestations in systemic autoimmune diseases. Rheumatology (Oxford). 2003;42(10):1234-45.
3. Benseler SM, Silverman ED. Systemic vasculitis in children and adults. Lancet. 2006;367(9511):170-81.
4. Birnbaum J, Hellmann DB. Primary angiitis of the central nervous system. Arch Neurol. 2009;66(6):704-9.
5. Joseph FG, Scolding NJ. Neurolupus. Pract Neurol. 2010;10(1):4-15.
6. Cervera R, Asherson RA. Clinical and epidemiological aspects in the antiphospholipid syndrome. Immunobiology. 2003;207(1):5-11.
7. Caplan LR. Brain embolism revisited. Neurology. 1993;43(7):1281-7.
8. Grau AJ, Weimar C, Buggle F, Heinrich A, Goertler M, Neumaier S, et al. Risk factors, outcome, and treatment in subtypes of ischemic stroke. Stroke. 2001;32(11):2559-66.
9. Küker W, Gaertner S, Nagele T, Dopfer C, Nägele T, et al. Vessel wall contrast enhancement: a diagnostic sign of cerebral vasculitis. Cerebrovasc Dis. 2008;26(1):23-9.
10. Salvarani C, Brown RD Jr, Calamia KT, Christianson TJ, Huston J 3rd, Meschia JF, et al. Primary central nervous system vasculitis: analysis of 101 patients. Ann Neurol. 2007;62(5):442-51.
11. Scolding NJ, Joseph F, Kirby PA, Mazanti I, Gray F, Mikol J, et al. Primary CNS vasculitis: diagnosis and management. Pract Neurol. 2015;15(6):416-27.
12. Levine SR, Brey RL. The role of antiphospholipid antibodies in stroke. Curr Opin Neurol. 1995;8(1):33-8.

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