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Atypical-Onset Multiple Sclerosis Mimicking Stroke: A Case Report

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Abstract
Objective: *To describe an atypical inaugural presentation of multiple sclerosis mimicking stroke, in order to highlight the diagnostic challenges and the importance of thorough clinical and radiological evaluation to avoid misdiagnosis and ensure early appropriate management.*
Methods: *This is a retrospective descriptive study reporting a case of multiple sclerosis with an atypical onset mimicking stroke. Clinical, biological, and radiological data were collected from the patient's medical records, including neurological examination, brain MRI findings, and cerebrospinal fluid analysis. The findings were analyzed and discussed in light of the existing literature.*
Results: *A 55-year-old woman presented with acute hemiplegia without resolution, initially suggestive of a vascular etiology. Neurological examination revealed a left pyramidal syndrome. Brain MRI demonstrated supra- and infratentorial demyelinating lesions without contrast enhancement, along with intrathecal synthesis, leading to the diagnosis of multiple sclerosis.*
Discussion: *The clinical presentation was atypical and initially suggested an acute ischemic stroke due to its sudden onset. However, further etiological workup led to the diagnosis of multiple sclerosis, as the patient met the McDonald criteria and alternative diagnoses were excluded.*
Conclusion: *This case highlights the importance of brain MRI in establishing the correct diagnosis and guiding the management of neurological patients.*

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I. Introduction

Multiple sclerosis (MS) is a chronic inflammatory, autoimmune, and demyelinating disease of the central nervous system, predominantly affecting young adults and representing one of the leading causes of non-traumatic disability in this population. It is characterized by multifocal involvement of the white matter, combining demyelination, inflammation, and neurodegeneration.

Clinically, MS is marked by significant heterogeneity, with a wide range of neurological manifestations depending on lesion location, including sensory, motor, visual, and cerebellar symptoms. The diagnosis is based on demonstrating dissemination in time and space according to the McDonald criteria, supported by magnetic resonance imaging and biological findings, particularly cerebrospinal fluid analysis.

However, some forms of MS may present atypically, sometimes mimicking other acute neurological conditions, especially ischemic stroke. These unusual presentations may delay diagnosis and the initiation of appropriate treatment.

In this context, we report a case of MS with an atypical onset mimicking acute ischemic stroke, highlighting the diagnostic challenges and the importance of a thorough clinico-radiological evaluation.

II. Methods

This is a retrospective descriptive case report of MS with an atypical onset mimicking stroke. Clinical data, including history and neurological examination, as well as paraclinical findings, particularly brain MRI and cerebrospinal fluid analysis, were collected from the patient's medical records. The diagnosis was established according to the McDonald criteria after exclusion of alternative diagnoses. Clinical and radiological findings were then analyzed and compared with data from the literature.

III. Results

We report the case of a 55-year-old woman who was referred to a vascular follow-up consultation for further management after an episode of sudden left-sided hemiplegia, initially evaluated in the emergency department and diagnosed and treated as an ischemic stroke. An initial brain CT scan performed within 6 hours of symptom onset showed lacunar lesions in the centrum semiovale (figure 1).

On clinical examination at follow-up, a non-deficit left pyramidal syndrome was noted, characterized by a left Babinski sign, brisk reflexes, and spastic hypertonia. Further investigations with brain MRI revealed supra- and infratentorial lesions suggestive of demyelination, with black holes and no contrast enhancement (figure 2). Spinal MRI also demonstrated spinal cord involvement.

Biological assessment showed intrathecal immunoglobulin synthesis (type 2 pattern). Based on these findings, and after excluding differential diagnoses, a diagnosis of MS was established.

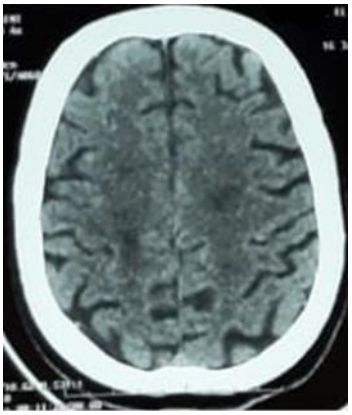

Figure 1: Axial brain CT scan showing lacunar lesions in the centrum semiovale

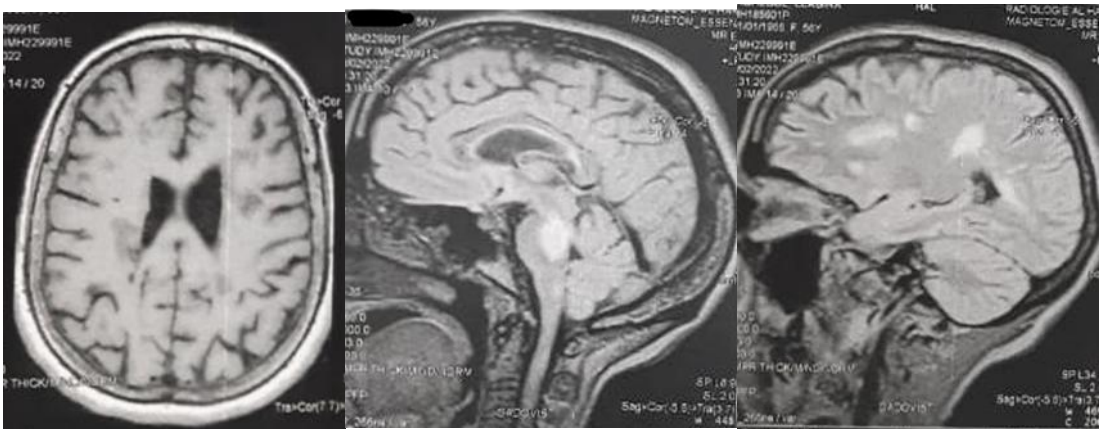

Figure 2: Brain MRI showing supratentorial and infratentorial demyelinating lesions with black holes

IV. Discussion :

The clinical presentation in this case was atypical, with an abrupt onset of motor deficit initially suggesting an ischemic stroke. However, the lack of clinico-radiological correlation and the subsequent course prompted further investigations.

Brain MRI was decisive, revealing supra- and infratentorial demyelinating lesions with “black holes,” as well as spinal cord involvement, consistent with a diffuse demyelinating process. The presence of intrathecal immunoglobulin synthesis provided additional supportive evidence. Taken together, these findings fulfilled the McDonald criteria for the diagnosis of multiple sclerosis.

The differential diagnosis primarily included vascular causes, as well as other inflammatory or demyelinating disorders, which were excluded. This case highlights that multiple sclerosis may rarely present as an acute neurological deficit mimicking stroke, and underscores the importance of a thorough clinico-radiological evaluation to avoid misdiagnosis and ensure appropriate management.

V. Conclusion :

This case highlights the pivotal role of brain MRI in correcting the initial diagnosis and guiding appropriate management in neurological patients. In atypical clinical presentations, MRI allows differentiation between vascular and demyelinating etiologies. Early use of advanced imaging is therefore essential to avoid diagnostic errors and optimize patient outcomes.

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