



# Multiple Sclerosis Flare Up vs. Acute Stroke: A Case Report

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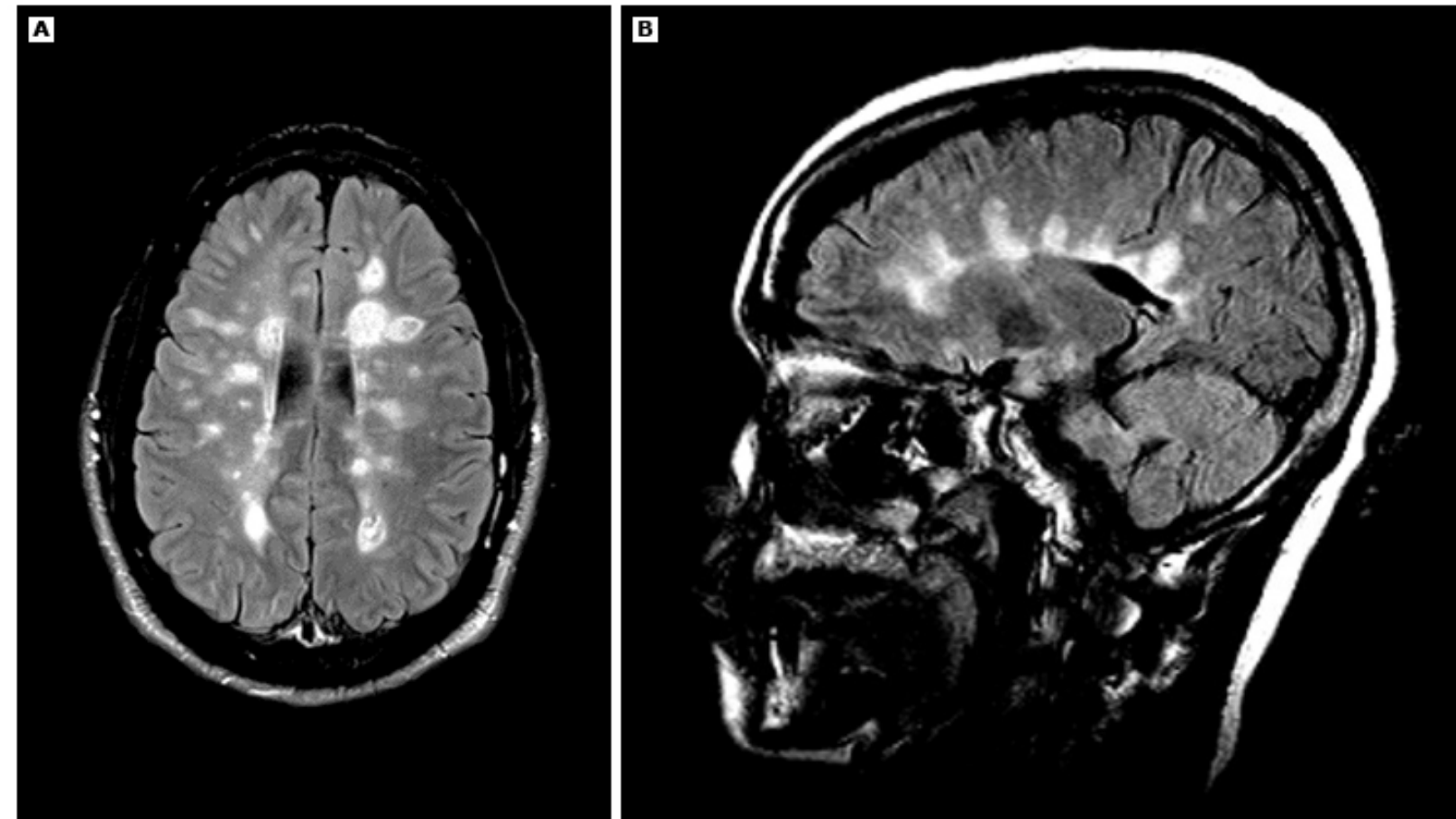
## Case Description

65-year-old female with history of HTN and secondary-progressive multiple sclerosis (MS), presented with acute onset of left-sided hemiparesis, facial droop, slurred and scanning speech. Patient reports MS flare every few years manifest as all extremities weakness. NIHSS score on arrival of 3 for left facial weakness and left upper extremity drift. CT head showed no evidence of acute intracranial pathology. Patient subsequently received tPA within a three-hour window. MRI head showed chronic white matter changes involving the periventricular and the pons, reflective of demyelinating disease, unchanged since last encounter. CTA head and neck negative with no evidence of major vascular stenosis, occlusion, or aneurysm. Patient was transferred to acute rehabilitation services and had complete resolution of symptoms within two weeks of acute inpatient rehabilitation admission. Patient was presumed to have an acute neurovascular event, reversed with tPA.

## Discussion

Multiple sclerosis is a chronic inflammatory demyelinating disease and a common cause of neurological disability in young adults. Autoimmune diseases such as MS can disrupt the physiological function of the endothelium, potentiating the process of atherosclerosis and increasing the risk of cerebrovascular disease, especially ischemic stroke.

Some studies report increased incidence of cerebrovascular comorbidity and stroke in MS population after clinical onset. Studies have shown that the duration of MS, not the age of onset can potentiate an increase in risk of stroke.



**Figure 1.** Axial (A) and sagittal (B) MRI FLAIR images of the brain demonstrate multiple, ovoid periventricular lesions (Dawson fingers) in a patient with multiple sclerosis.

Features suggestive of multiple sclerosis
Relapses and remissions
Onset between ages 15 and 50 years
Optic neuritis
Lhermitte sign
Internuclear ophthalmoplegia
Fatigue
Heat sensitivity (Uhthoff phenomenon)
Features atypical for multiple sclerosis
Steady progression
Onset before age 10 or after age 50 years
Cortical deficits such as aphasia, apraxia, alexia, or neglect
Rigidity or sustained dystonia
Convulsions
Early dementia
Deficit developing within minutes

**Table 1.** Suggestive and atypical features of multiple sclerosis

## Conclusion

By investigating the correlation between MS and stroke, we observe the causality between the inflammatory process and the increased risk of stroke. This invokes further questions on implementation of preventative and therapeutic measures for future strokes. Similarities in MS flare-up and stroke symptoms must result in a high degree of clinical suspicion for stroke in this population. Further studies need to be done to investigate the differentiation between the acute MS flare-up and stroke.

## References

- 1) Choy E, Ganeshalingam K, Semb AG, et al. Cardiovascular risk in rheumatoid arthritis: Recent advances in the understanding of the pivotal role of inflammation, risk predictors and the impact of treatment. *Rheumatology (Oxford)*. 2014;53(12):2143–54.
- 2) Puz P, Lasek-Bal A. Repeated measurements of serum concentrations of tnfalpha, interleukin-6 and interleukin-10 in the evaluation of internal carotid artery stenosis progression. *Atherosclerosis*. 2017;263:97–103.
- 3) Thormann A, Magyari M, Koch-Henriksen N, et al. Vascular comorbidities in multiple sclerosis: a nationwide study from Denmark. *J Neurol*. 2016;263: 2484–93.
- 4) (n.d.). Retrieved January 26, 2021, from [https://www.uptodate.com/contents/evaluation-and-diagnosis-of-multiple-sclerosis-in-adults?search=multiple+sclerosis&source=search\\_result&selectedTitle=1~150&usage\\_type=default&display\\_rank=1](https://www.uptodate.com/contents/evaluation-and-diagnosis-of-multiple-sclerosis-in-adults?search=multiple+sclerosis&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1)

\*Images do not reflect the condition of the patient and are for illustration purposes only.

