# Optic Neuritis and Myelitis Following COVID-19 Vaccination: A Case Study

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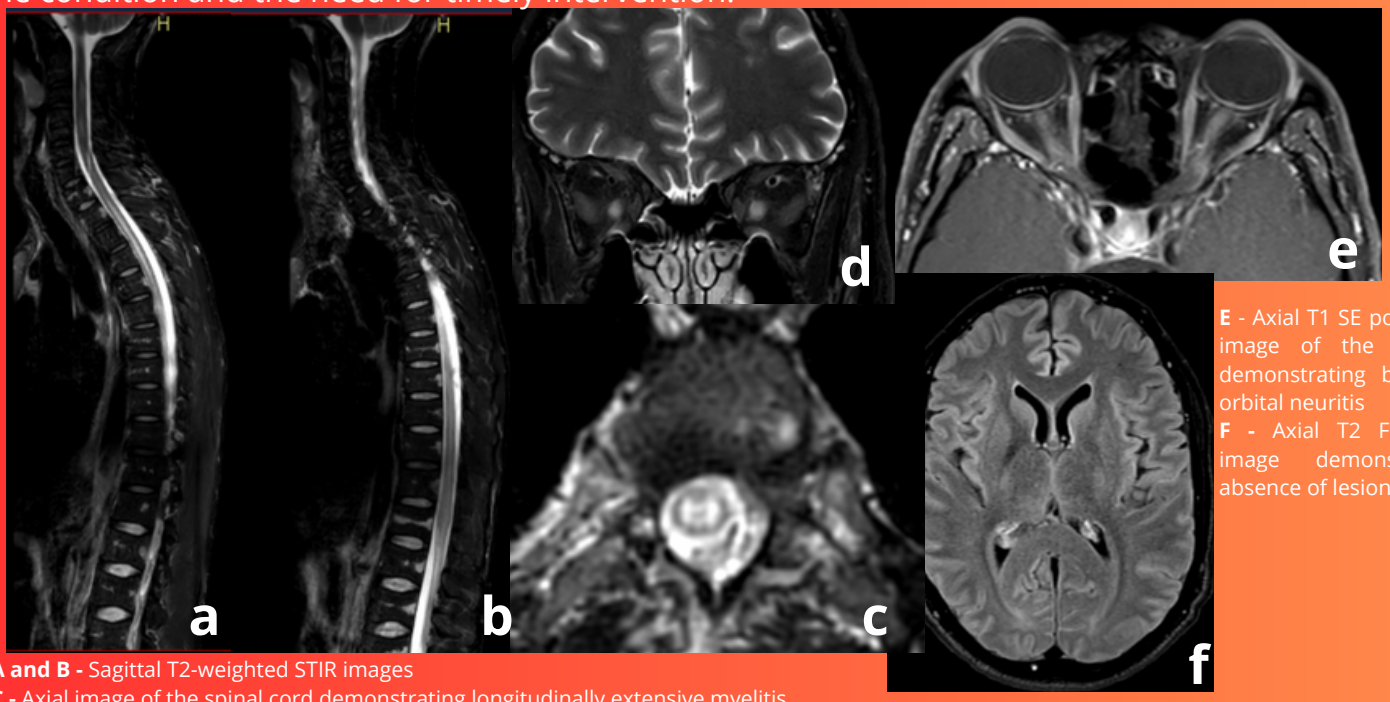
**Introduction and Objectives:** This report aims to describe the case of a previously healthy patient who presented with bilateral optic neuritis and longitudinally extensive myelitis, temporally associated with COVID-19 vaccination using the AstraZeneca vaccine.

**Case Description:** A 42-year-old male patient with no prior comorbidities received the AstraZeneca vaccine (a recombinant adenovirus expressing the SARS-CoV-2 spike protein) three weeks before being admitted to a tertiary hospital. He reported flu-like symptoms and bilateral eye movement pain 48 hours after vaccination. Two days later, he developed left shoulder pain and paresthesia in the left upper limb. Ten days post-vaccination, he experienced the onset of rapidly progressive bilateral visual blurring, becoming completely blind within hours. He sought medical care at a smaller regional hospital, where no diagnosis was established. A week later, he was referred to a tertiary hospital, where he received corticosteroid pulse therapy with progressive symptom improvement, including vision recovery. MRI revealed bilateral hyperintensity signal in T2 WI in the intra-orbital portion of the optic nerves, extensive hyperintensity in T2 WI in the spinal cord (longitudinally extensive myelitis). CSF showed lymphocytic pleocytosis. Anti-AQP4 antibodies were negative, and anti-MOG testing could not be performed at the time of hospitalization.

**Discussion and Conclusion:** The patient presented with bilateral optic neuritis, longitudinally extensive transverse myelitis (LETM), and sensory disturbances, strongly suggestive of an inflammatory demyelinating central nervous system disorder. The clinical and imaging findings point primarily to neuromyelitis optica spectrum disorder (NMOSD), even in the absence of aquaporin-4 (AQP4) antibodies. While myelin oligodendrocyte glycoprotein-associated disease (MOGAD) remains a differential, the LETM and bilateral optic nerve involvement favor NMOSD. The temporal association with the AstraZeneca COVID-19 vaccine suggests a potential post-vaccination immune-mediated trigger. The patient's positive response to corticosteroid pulse therapy underscores the inflammatory nature of the condition and the need for timely intervention.




**A and B -** Sagittal T2-weighted STIR images
**C -** Axial image of the spinal cord demonstrating longitudinally extensive myelitis
**D** - Sagittal T2-weighted STIR images
**E** - Axial T1 SE post-gadolinium image of the optic nerves demonstrating bilateral intra-orbital neuritis
**F -** Axial T2 FLAIR-weighted image demonstrating the absence of lesions in the brain