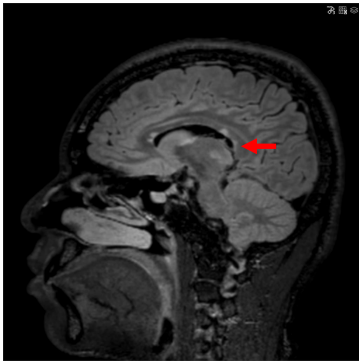
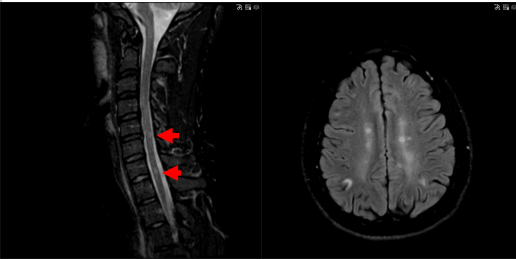


A Neuropsychiatric Approach to Bipolar Disorder due to Multiple Sclerosis with a lesion of the Splenium



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Background	Neuroimaging	Discussion
<ul style="list-style-type: none"> Multiple Sclerosis (MS) often affects the corpus callosum including the splenium, which can be associated with various neurological and psychiatric disorders.³ There are case reports of reversible splenial lesions associated with neuropsychiatric symptoms, but to our knowledge, this is the first reported case describing manic/psychotic symptoms related to a MS induced splenial lesion. We present a unique case of an individual who was diagnosed with bipolar disorder with manic and psychotic features due to MS with a splenial lesion. 	 <p>Sagittal image of lesions in the body and splenium of the corpus callosum</p>  <p>Lesions of the cervical spine at C3- C4, C5, and C7</p> <p>Multifocal white matter hyperintensities</p>	<ul style="list-style-type: none"> The lifetime prevalence of bipolar disorder in MS is 8.4% compared to 4.4% in the general population. MS lesions in critical brain areas may contribute substantially to an increased prevalence of bipolar disorder, but there are also possible genetic contributions from the HLA region in those with MS and a family history of bipolar disorder.² Splenial lesions can be seen in a wide array of clinical conditions including seizures, substance withdrawal, and neoplasms. Other case reports in the literature have highlighted reversible lesions of the splenium in bipolar patients in the context of conditions such as neuroleptic malignant syndrome (NMS). This lesion resolved within days of resolution of NMS.¹ Data has shown variable response to psychotropic treatment, highlighting the need for supportive care and addressing the underlying cause.⁴ This case may serve as a plausible treatment framework moving forward.
<h3>Case Summary</h3> <ul style="list-style-type: none"> 25-year-old African-American male with no pertinent medical history presented to the emergency department with symptoms of mania and psychosis. Urine toxicology was positive for cannabis and CT head demonstrated a hypodensity in the left frontal periventricular white matter. Neurologic examination was unremarkable. MRI showed multiple lesions in the periventricular and juxtacortical white matter, along with the right splenium, in addition to demyelinating lesions at cervical and thoracic levels. Negative autoimmune work up included lumbar puncture (LP) with autoimmune encephalopathy panel, as well as antibodies to myelin oligodendrocyte glycoprotein (MOG) and Neuromyelitis Optica (NMO). The patient satisfied McDonalds criteria for diagnosis of MS in addition to LP with 8 oligoclonal bands, and was treated with course of IVIG. His psychiatric symptoms were addressed with olanzapine 15mg and valproic acid 1500mg total daily dose. 	<h3>References</h3> <ul style="list-style-type: none"> Achalia R, Andrade C. Reversible abnormality of the splenium in a bipolar patient with neuroleptic malignant syndrome. <i>Bipolar Disord.</i> 2014 Nov;16 Joseph B, Nandakumar AL, Ahmed AT, Gopal N, Murad MH, Frye MA, Tobin WO, Singh B. Prevalence of bipolar disorder in multiple sclerosis: a systematic review and meta-analysis. <i>Evid Based Ment Health.</i> 2021 May;24 Park SE, Choi DS, Shin HS, Baek HJ, Choi HC, Kim JE, Choi HY, Park MJ. Splenial Lesions of the Corpus Callosum: Disease Spectrum and MRI Findings. <i>Korean J Radiol.</i> 2017 Jul-Aug;18 Xu Z, Zhou Z, Jang W, Tian J, Hou G. Reversible splenial lesion syndrome with mental disorders as only manifestation. <i>BMCNeurol.</i> 2021 Sep 15 	<h3>Challenges & Implications</h3> <ul style="list-style-type: none"> Highlights the splenium as a target for etiological and diagnostic investigation for psychosis and mania Vigilance regarding splenial findings in a neurological disorder may allow for early detection and appropriate management of neuropsychiatric symptoms MS lesions are separated by space and time, future research into associations of specific lesions' concordance with psychiatric symptoms may allow for stratification of risk of developing mania This case also demonstrates the importance of thorough medical work-up upon initial presentation of psychiatric illness, as the patient denied any neurological symptoms