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NEUROMYELITIS OPTICA SPECTRUM DISORDER IN A PATIENT WITH KIKUCHI-FUJIMOTO DISEASE

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A 26-year-old African American woman was admitted for intractable nausea and vomiting during her third trimester of pregnancy. The patient had been diagnosed with Kikuchi-Fujimoto disease (KFD) a year prior, when she presented with high fevers and cervical lymphadenopathy. Lymph node biopsy revealed necrotic foci of predominantly CD8-positive T cells and myeloperoxidase-positive histiocytes consistent with necrotizing lymphadenitis. The patient became pregnant within months of the diagnosis. At 33 weeks' gestation, the patient was given a short course of steroids for myalgias and joint pains that were thought to be due to KFD. This improved her symptoms. Three weeks later, she was admitted for headaches, hypertension, nausea, and intractable vomiting. A diagnosis of preeclampsia was made, labor was induced, and she had an uncomplicated vaginal delivery. The following day, the patient complained of "shaky" and "jumpy" vision, severe headache, weakness, and paresthesias in the lower extremities. Her blood pressure was 170/100 mm Hg. Examination revealed rapid, involuntary eye movements with both horizontal and vertical components consistent with opsoclonus, severe paraparesis, absent reflexes in the lower extremities, and a possible T10 sensory level. Brain MRI revealed hyperintensities in bilateral occipital lobes suggestive of posterior reversible encephalopathy syndrome (PRES) along with a lesion in the medulla (figure, A and B). Spine MRI revealed an extensive cord lesion spanning from C5 to T10 spinal segments consistent with transverse myelitis (figure, C). CSF and serum IgG-neuromyelitis optica antibodies, otherwise known as aquaporin-4 antibodies, were positive; rheumatologic markers, serum and CSF viral markers, cultures, and paraneoplastic autoantibodies were negative. The patient's complaints of abnormal vision and headache resolved with blood pressure control. However, the paraparesis did not improve despite treatment with high-dose IV Solu-Medrol and IVIg. She slowly regained strength over several

weeks after receiving treatment with plasmapheresis and continued high-dose prednisone 60 mg/d.

Discussion. Our patient's case represents a unique and previously unreported association between neuromyelitis optica spectrum disorder (NMOSD) and KFD. In retrospect, her initial presentation of intractable nausea and vomiting, originally ascribed to pregnancy symptoms, was likely secondary to her medullary lesion as described by a group that demonstrated high concentrations of aquaporin-4 in the medulla and area postrema of postmortem tissue.¹ NMOSD flares occur more frequently in the third trimester and post-partum period. The patient's delivery and postpartum state may have contributed to the acute worsening of symptoms. It has been hypothesized that the worsening of NMOSD activity is due to an imbalance between the TH1 and TH2 cytokine profiles. NMOSD, a TH2-mediated autoimmune disease, is worsened by pregnancy, which increases the TH2 cytokine profile.² Of note, our patient's eye movements appeared to coincide with episodes of severe hypertension and PRES-like changes seen on brain MRI. The association between NMOSD and PRES has been previously well described.³ Both the patient's visual symptoms and brain MRI changes resolved with blood pressure control.

Current understanding of NMOSD has allowed for a broadened definition of the condition to include varying clinical presentations. An association between NMOSD and autoimmune disorders such as Sjögren, lupus, and myasthenia gravis has been reported in the literature.⁴

KFD is a rare condition seen most frequently in East Asian countries but has been reported worldwide. Patients affected are usually younger than 30 years, with a slight female predominance. The disease is normally a benign, self-limited condition that is characterized by cervical lymphadenopathy and fever. Diagnosis is typically made on histopathologic examination of an affected lymph node that shows histiocytic necrotizing lymphadenitis. Although the exact disease mechanism is unknown, autoimmune and viral causes have been suggested.⁵ Neurologic complications of KFD are rare but reports of aseptic

(A, B) Axial T2 fluid-attenuated inversion recovery and nonenhanced T2 MRI demonstrating bioccipital and medullary T2 hyperintensities (arrows). (C) Sagittal T2 MRI demonstrating confluent T2 hyperintensity (arrows) extending from C7 to T5 vertebral level.

meningitis, mononeuritis multiplex, brachial neuritis, cerebellar ataxia, and acute demyelinating encephalomyelitis have been described.^{6,7}

Although the relationship between NMOSD and autoimmune disorders remains elusive, they both share a commonality in an abnormal immune state. The case of coexisting KFD and NMOSD adds to the ever-growing list of conditions associated with NMOSD. Physicians should be aware of these associations and must consider demyelinating disease in patients with autoimmune disorders who present with neurologic symptoms. An accurate diagnosis is crucial for clinical management. We are hopeful that the mechanisms of autoimmunity may be clarified with more research into these conditions that may help identify potential genetic, environmental, and biomarkers of disease.

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