

Case summary

Title: The Case of a 38-year-old man with Transient Right Arm Weakness and Dysarthria

Running title: Case #40

Author names: Shani Peter, MD , Matthew Anderson, BS , Frank Garrett Conyers, MD , Sadhana Murali, MD

Corresponding author email: pshani@med.umich.edu

Affiliation(s): University of Michigan Neurology Department

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Summary of case:

A 38-year-old Caucasian male with a history of tobacco use and alcohol use disorder presented to the emergency department with sudden onset transient right upper extremity numbness, weakness, and dysarthria. He was tachycardic to the 110s-120s with otherwise normal vital signs. General and neurologic physical exams were normal.

EKG showed sinus tachycardia and AV block. He underwent CT angiogram of the head and neck that demonstrated multifocal narrowing and beaded appearance of intracranial arteries, including the left supraclinoid internal carotid artery (ICA), proximal bilateral A1 segment of the ACA, proximal bilateral M1 segment of the MCA, and distal basilar artery. Brain MRI with and without contrast was unremarkable.

He was admitted to the stroke unit where further history revealed fatigue for the preceding six months and migratory arthralgia for the preceding month. Six months prior to presentation, the patient spent two months living in a tent in rural Michigan. He denied any interval history of tick bites, rash, fevers, chills, or headaches. He underwent typical stroke workup including transthoracic echocardiogram, lipid panel, hemoglobin A1c, and arterial hypercoagulability markers which were unremarkable.

Serologic workup was notable for WBC 11.8 K/uL, ESR 99 mm/hr, RF 38 IU/ml, CRP 3.6 mg/dL, positive C-ANCA. The patient also had positive serum borrelia antibodies screen with confirmatory testing pending. CSF studies demonstrated 92 WBC/mcL (94% lymphocytes), Glucose 35 mg/dL, Protein 97 mg/dL, 9 RBC/mcL, and IgG-CSF 37.8 mg/dL, IgG index of 1.49 with 3 O-bands. Several days later, confirmatory serum *Borrelia burgdorferi* test (modified two-tier test methodology) was positive. Ten days after presentation, an antibody index (CSF/serum antibody ratio) was elevated at 1.5.

Intravenous Ceftriaxone 2g Q24H was administered for 21 days. Antiplatelet therapy with Aspirin 81mg was continued for six months.

Diagnosis:

Per Blanc and colleagues' proposed criteria in 2007 [1], our patient satisfies all aspects supporting the diagnosis of lyme neuroborreliosis (LNB). The criteria necessitates the presence of four of the following

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five items to diagnose LNB: “(1) no past history of neuroborreliosis, (2) positive CSF ELISA serology, (3) positive anti-Borrelia antibody index, (4) favorable outcome after specific antibiotic treatment, and (5) and no other etiologic diagnosis.”

Given this particular presentation, we diagnosed our patient with CNS vasculitis secondary to LNB.

Take-Home Points:

1. While autoimmune causes of CNS vasculitis are statistically more likely, infectious causes of CNS vasculitis must be considered in the setting of low CSF glucose, lymphocytic pleocytosis, and persistent tachycardia.
2. Inflammatory markers can be positive in both infectious and autoimmune processes due to both involving inflammation.
3. We recommend testing for Lyme disease in the initial evaluation of suspected CNS vasculitis and ischemic stroke. These considerations may be important regardless of the prevalence of Lyme disease in a geographical location. As the range of endemic Lyme disease expands, relying on geographical patterns to establish pre-test probability may have diminishing clinical value.
4. In the setting of diagnostic uncertainty and suspicion for Lyme disease, one should consider delaying treatment for autoimmune vasculitis (i.e., immunosuppression) prior to confirmatory Lyme disease testing.
5. Lyme Neuroborreliosis is more common in Europe than the United States, thus the European guidelines [2] were used in the management of this patient. Neuroborreliosis with CNS vasculitis is exceedingly rare and, in 2017, there were only 88 documented cases worldwide [3].

See the discussion, including references, in the full case published here:

<https://interactn.org/2024/06/10/case-4738-year-old-man-with-transient-right-arm-weakness-and-dysarthria/>

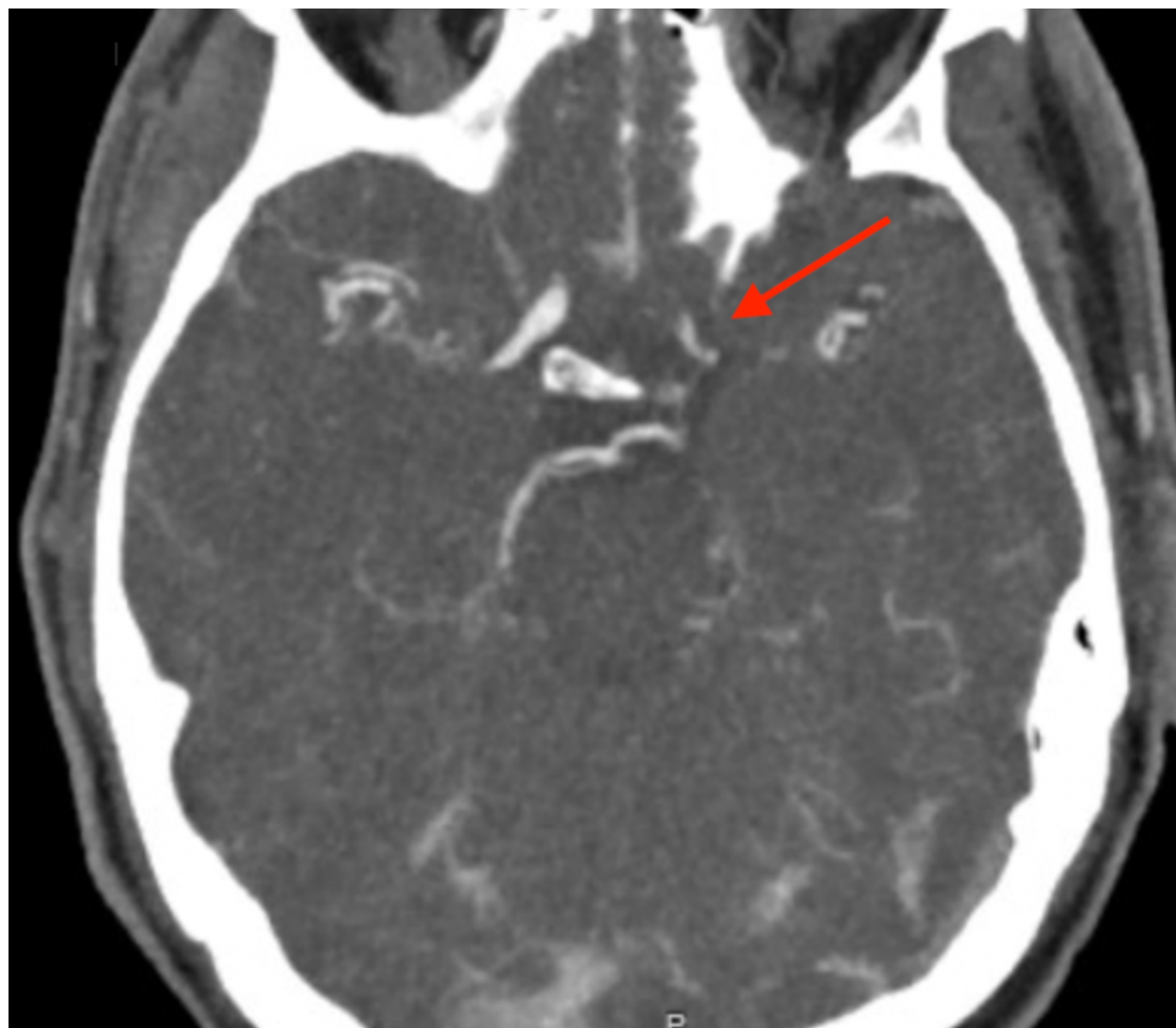


Image1 (1).PNG

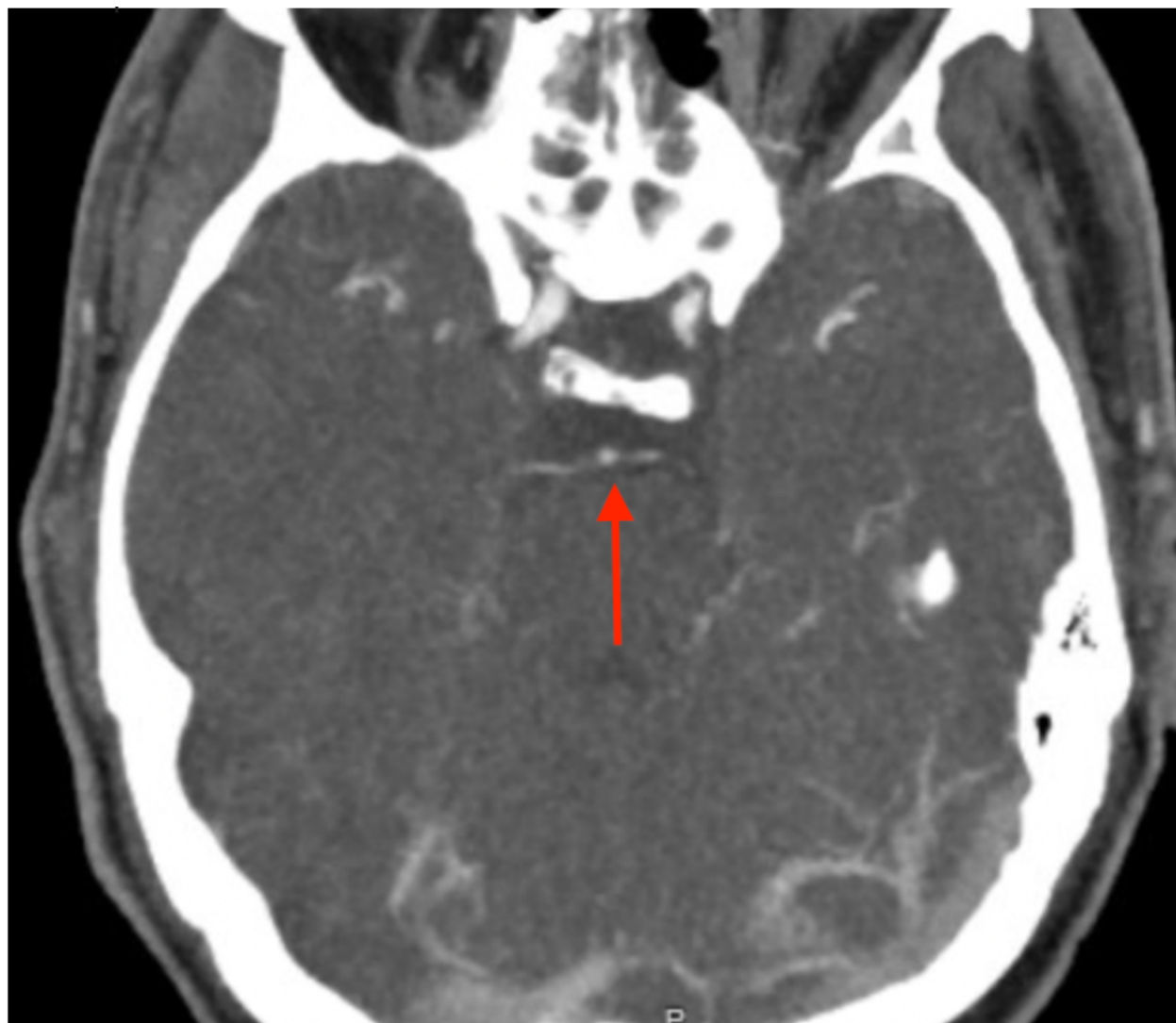


Image2.PNG