

Varicella-Zoster Virus Vasculopathy Leading to Multi-focal Stroke in an Immunocompromised Patient

To the Editor:

A 51-year-old man presented to the dermatology clinic with a 1-week history of diffuse vesicular eruption in his trunk, back, and face (Figure 1). He had been recently hospitalized for a flare of his underlying autoimmune hemolytic anemia and was receiving therapy with mycophenolate mofetil and high-dose prednisone of 40 mg.

Tzanck smear and varicella zoster virus polymerase chain reaction (PCR) confirmed the diagnosis of disseminated cutaneous varicella zoster virus and the patient was treated with intravenous acyclovir for 4 days, followed by oral valacyclovir, for a total of 10 days of anti-viral therapy with complete resolution of cutaneous varicella zoster virus.

Over the following 2 months, he was hospitalized several times for generalized weakness. On his most recent hospital admission, he presented with acute dysarthria and left-sided hemiparesis. Thromboembolic workup with transesophageal echocardiography and coagulation tests were negative. Autoimmune workup was negative. Magnetic resonance imaging and computed tomography angiography of the brain demonstrated multiple bilateral basal ganglia infarcts and irregular vascular stenoses concerning for vasculitis (Figure 2). Lumbar puncture was performed with opening pressure of 33 cm H₂O, lymphocytic predominant pleocytosis, and positive cerebrospinal fluid varicella zoster virus PCR.

The patient was diagnosed with varicella zoster virus vasculopathy and was treated with oral prednisone 1 mg/kg per day for 5 days and intravenous acyclovir 10 mg/kg twice daily for 14 days. Upon completion of treatment, follow-up magnetic resonance imaging of the brain showed no new strokes, and varicella zoster virus PCR of the cerebrospinal fluid was negative. The patient recovered partial

mobility of his left lower extremity by the time he was discharged from hospital. Given the patient's severe course and immunocompromised state, he was transitioned to oral valacyclovir 1 gram twice daily, with infectious disease follow-up evaluation to determine treatment duration.

Infection is a rare cause of stroke. Among these infections, varicella zoster virus may cause ischemic stroke. In retrospect, his symptoms of generalized weakness and confusion leading to his stroke may have been signs of vasculopathy.

Most varicella zoster virus vasculopathies develop within 6 weeks after herpes zoster infection with a median 4-month interval for stroke.¹ Both immunocompetent and immunocompromised individuals may suffer from varicella zoster virus central nervous system disease, but the latter group tends to be more seriously affected.² A prophylactic dose of valacyclovir at 500 mg twice daily can be considered for long-term suppression in immunocompromised patients.³

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Written consent was obtained from the patient and his family to publish the case with the included images.

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Figure 1 Numerous vesicles and bulla surrounded by an erythematous halo located on the trunk.

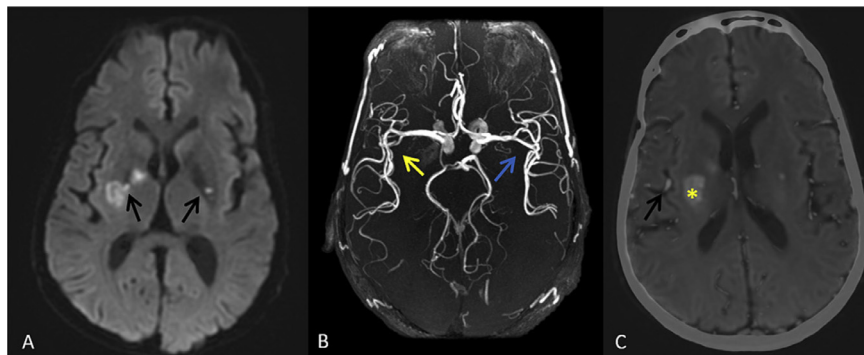


Figure 2 (A) Magnetic resonance imaging demonstrated diffusion weighted image signal within the bilateral posterior lentiform nuclei and right posterior limb internal capsule (black arrows). (B) Time-of-flight magnetic resonance angiography demonstrated alternating segments of vascular narrowing and dilation of the right middle cerebral artery (yellow arrow). Note the relatively normal appearance of the contralateral left middle cerebral artery (blue arrow). (C) Computed tomography angiography of the head and neck demonstrated irregular dilatation of the M2 branch of the right middle cerebral artery (black arrow). Diffusion-weighted imaging overlay demonstrated infarction within the right lentiform nuclei in the territory of the right lateral lenticulostriate arteries (yellow asterisk). Infarction within this area accounts for the presenting symptoms of left-sided weakness.