



Case Report

Central nervous system infections masquerading as cerebrovascular accidents: Case series and review of literature



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ABSTRACT

Introduction: Central nervous system (CNS) infections can have various presentations including Cerebrovascular accidents (CVA) which may go unrecognized as a presentation of infection. We describe three cases of different CNS infections complicated by CVA.

Presentation: Case 1 describes a 27-year-old man, presenting with symptoms consistent with a transient ischemic attack found to have racemose neurocysticercosis. Case 2 describes a 55-year-old man with low grade fevers for 4 weeks accompanied by visual and gait disturbances and delayed speech diagnosed with multiple small left thalamocapsular and superior cerebellar infarcts secondary to cryptococcal meningitis. The third case describes a man with pneumococcal meningitis complicated by cerebellar infarcts.

Discussion: CNS vascular compromise secondary to infections may be due to vasculitis, an immune-mediated parainfectious process causing vasospasm or thrombosis, or a hypercoagulable state with endothelial dysfunction. Patients with CVAs are at risk for aspiration pneumonia, urinary tract infections (especially catheter related) and other nosocomial infections and their clinical presentation may be very similar to CNS infections.

Conclusion: The cases described demonstrate that CNS infections need to be considered in the differential diagnosis of CVAs presenting with fevers. The signs and symptoms of non-CNS infections associated with CVAs may be clinically indistinguishable from those of CNS infections. The outcomes of untreated CNS infections are extremely poor. It is thus imperative to have a high index of suspicion for CNS infection when evaluating CVAs with fevers or other signs of infection.

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Introduction

Central nervous system (CNS) infections can have various presentations including Cerebrovascular accidents (CVA) which may go unrecognized as a presentation of infection. We describe three cases of different CNS infections complicated by CVA.

Case series

Case 1

A 27-year-old Gautemalan man, with no past medical history presented after noticing dizziness and dysarthria, lasting for 2 min. He also described transient right-sided facial paralysis. On arrival his vital signs were stable, except blood pressure of 143/89. Physical exam revealed no neurological deficits. Laboratory results

were normal. His symptoms were thought to be consistent with a transient ischemic attack.

A CT scan of the head revealed moderate hydrocephalus with prominent cerebrospinal fluid in the left perimesencephalic cistern and the suprasellar cisterns. Magnetic resonance imaging and angiogram revealed multiple septated cystic lesions in the suprasellar and prepontine cisterns consistent with racemose neurocysticercosis (Fig. 1). There was mild narrowing of the middle cerebral artery branches, but no large vessel occlusions (Fig. 2).

Further testing revealed a positive serum cysticercosis antibody. He was treated with dilantin intravenous steroids and albendazole and subsequently discharged on albendazole 400 mg Po bid and prednisone taper. The patient had no recurrences and follow-up MRIs showed decreased size of the cystic lesions.

Case 2

A 55-year-old man with recently diagnosed renal cell carcinoma and partial nephrectomy 6 weeks prior to admission presented

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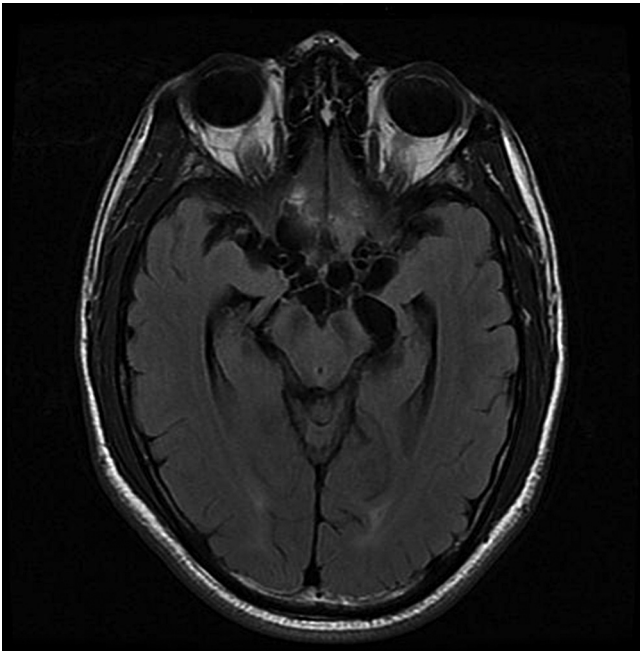


Fig. 1. T2 axial flair MRI demonstrating suprasellar and prepontine cistern multiple septated cystic lesions with slight enhancement consistent with racemose neurocysticercosis.

with low grade fevers for 4 weeks accompanied by visual and gait disturbances and delayed speech. Periods of altered mental status were also reported. Outpatient fever workup including echocardiogram, blood cultures, and HIV testing were negative.

On admission vital signs were normal except a blood pressure of 145/95. Physical and neurologic exam revealed an awake male who was slow to answer questions, able to name some objects, and repeat words. Motor and sensation were intact. No dysmetria was noted. CT of the head revealed a new focal hypodensity involving the posterior limb of the left internal capsule and medial aspect of the left globus pallidus concerning for infarct. Given the concern

for a CNS infection a lumbar puncture (LP) was obtained. Treatment with ceftriaxone and acyclovir was initiated. Admission blood and urine cultures were eventually negative. LP revealed a total nucleated cell (TNC) count of 350 cells/ μ L, with a lymphocytic pleocytosis (84%), protein 169 mg/dL, glucose 15 mg/dL. MRI of the brain revealed a basilar leptomeningeal process and multiple small left thalamocapsular (Fig. 3) and superior cerebellar infarcts concerning for an arterial vasculitis secondary to the leptomeningitic process. Bacterial culture, fungal culture, acid fast bacilli, herpes simplex virus, enterovirus, and VDRL were all negative from the CSF.

CSF cryptococcal antigen was positive with a titer of 1:16. Treatment with amphotericin and flucytosine was initiated on hospital day 3, other antimicrobials were discontinued. Repeat HIV testing was negative. Amphotericin and flucytosine were later discontinued and IV fluconazole was started on day 11 due to elevated creatinine. On hospital day 13 the patient was discharged on IV fluconazole to finish a 3 week course. Repeat serum cryptococcal antigen was negative and repeat MRI showed evolution of the original infarcts. After 3 months of treatment, the fluconazole was discontinued.

Case 3

A 48-year-old man with a past medical history of multiple sclerosis presents with a few hour history of confusion, rigors, and headache. The patient was in his usual state of health until 3 days ago when his wife noted the patient to have some nasal congestion, attributed to seasonal allergies. Family history and social history were noncontributory and there was no recent travel.

On presentation, he had temperature of 101.3°F. Blood pressure was 240/108, heart rate 112, and respiratory rate 26 breaths per minute. Physical exam revealed an obtunded male, sluggish pupillary light reflexes bilaterally, nuchal rigidity, and left ear otitis media. CT head was negative for infarct, hemorrhage, or mass effect but was positive for a left mastoiditis and acute sinusitis of the left maxillary and ethmoid sinuses. Lumbar puncture revealed TNC 94 cells/ μ L, 96% neutrophil, protein 119 mg/dL, and glucose 60 mg/dL. Serum glucose was 126 mg/dL and WBC 10,700 cells/ μ L. Gram stain from the CSF had numerous gram positive cocci in



Fig. 2. 3D volume rendered MRA revealing narrowing of several branches of the middle cerebral arteries within the sylvian fissure.

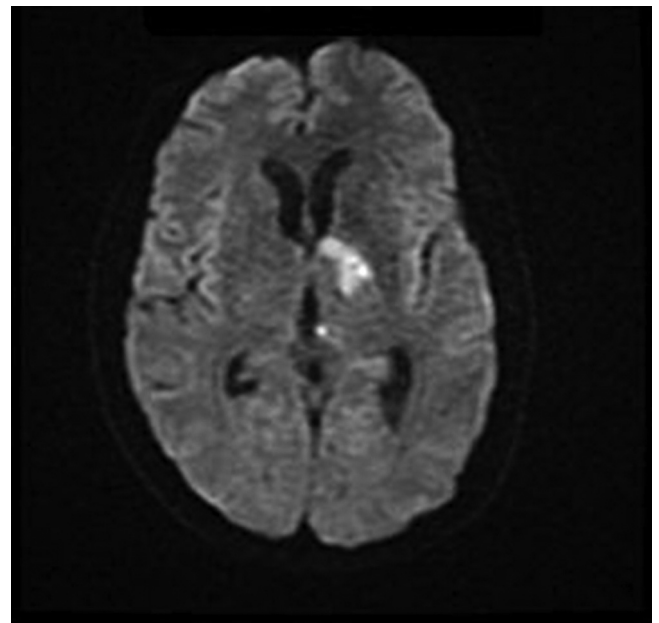


Fig. 3. Diffusion weighted MRI revealing small left thalamocapsular acute infarct.

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