Title: Progressive Headaches in a Woman from Central America: A Rare Case of Subarachnoid Neurocysticercosis

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Introduction: Neurocysticercosis (NCC) is an infection of the central nervous system (CNS) caused by the ingestion of eggs or gravid proglottids from the cestode *Taenia solium* with subsequent intestinal invasion and migration into the CNS. We describe a challenging case of subarachnoid/racemose NCC (SANCC) in an immigrant from Central America.

Case Presentation: A 50-year-old Guatemalan female presented with complaint of 9 months of progressive headaches, blurry vision, tinnitus, hypogeusia, and vertigo refractory to conservative measures and with negative outpatient workup. On initial admission, MRI brain showed hydrocephalus and chronic leptomeningitis with adhesions near the cranial nerves and basal cisterns. Lumbar puncture suggested lymphocytic meningitis with opening pressure of 38 cm H2O, WBC 35/mm^3 (79% lymphocytes, 13% monocytes, 7% eosinophils), protein 35 mg/dL, glucose 48 mg/100mL. She was discharged to home on acetazolamide while workup was pending. Ultimately autoimmune, neurosarcoidosis, and multiple sclerosis workup was negative. Serum syphilis, HIV, coccidiomycosis, and stongyloides testing were negative. Bacterial, fungal, and AFB CSF cultures, and CSF Ascaris, *Borrelia burgdorferi*, enterovirus, varicella zoster, and cytomegalovirus studies were negative. She was readmitted 2 months later with progression of symptoms. On admission, vital signs were normal, however, neurologic examination was significant for left-sided visual field defect, diminished hearing on the right, and hypogeusia. Repeat MRI brain and lumbar puncture showed persistence of prior findings. Metagenomic next-generation sequencing from CSF was sent and resulted with *Taenia* species most similar to *T. solium*. She was diagnosed with SANCC and started on high-dose corticosteroids followed by dual albendazole and praziquantel therapy with symptomatic improvement. Neurosurgery declined shunt placement due to concern for obstruction with cysts. She was discharged to home with plans for prolonged steroid taper and antihelminth therapy.

Discussion: SANCC is a rare and severe form of extraparenchymal NCC caused by migration of cysts into the basal cisterns, leading to complications such as chronic arachnoiditis/meningitis, obstructive hydrocephalus, focal neurologic deficits, and stroke. Due to the high cost and poor availability of enzyme-linked immunoelectrotransfer blot, diagnosis of NCC is typically with clinical suspicion and supportive radiographic findings. SANCC presents with large, multilobular cysts near the basal cisterns rather than the typical presentation with parenchymal cysts or ring-enhancing lesions, thus diagnosis may be challenging, and a high index of suspicion is needed in patients from endemic areas. Molecular testing or metagenomic next-generation sequencing may be used to support diagnosis. Treatment of SANCC involves consideration for shunting to reduce intracranial pressure and a long course of corticosteroids and antihelminth therapy until radiographic resolution.

References:

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