Beyond Borders: Neurocysticercosis Case Report

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Cysticercosis is a parasitic infection caused by the pork tapeworm *Taenia solium* in the larval stage acquired by ingestion of eggs shed in the feces of a human tapeworm carrier. Cysticercosis may be acquired from the fecal-oral route through ingestion of eggs in contaminated food/water or by person-to-person spread.[1] Cysticerci can migrate to the central nervous system and cause neurocysticercosis (NCC), which is associated with serious neurological manifestations including seizures and focal neurologic deficits.

An 18-year-old female from Belize arrived at the emergency department with abdominal pain. The abdominal pain resolved after a dose of ceftriaxone; however, the ED physician noted R-sided vision loss for which she was urgently referred to outpatient ophthalmology. The patient was seen in ophthalmology clinic a few days later at which time she was found to have significant papilledema and R-sided monocular vision loss; she was referred to the ED for emergent evaluation. Brain MRI with and without showed two large cystic lesions in the left corona radiata and right frontal lobe with surrounding vasogenic edema as well as rightward midline shift, findings suspicious for neurocysticercosis in various stages (Figure 1).

The patient was admitted to the PICU with pediatric infectious disease, neurology, ophthalmology, and neurosurgery all consulted. High-dose steroid treatment was initiated to decrease edema; however, repeat imaging after several days showed persistent vasogenic edema and midline shift. Given the sheer cyst burden and potential for worsening vasogenic edema with antiparasitic treatment, the decision was made to pursue cyst fenestration with neurosurgery to acutely decrease intracranial pressure. The patient was taken to the OR for bifrontal craniotomies for cyst fenestration and scolex resection. Postoperative course was complicated by hypertensive urgency and seizures, and treatment included three AEDs, nicardipine drip, and high dose steroids. Four days later, antiparasitic treatment with albendazole and praziquantel was initiated to prevent seeding and cyst reformation, and the patient was stable for transfer to the wards service. She was ultimately discharged on hospital day 17.

In the outpatient setting, the patient continues to be seen by ophthalmology for low color vision and bilateral optic atrophy. Per neurology, she continues to be on three AEDs for seizure prevention. Per ID, she has completed the 4-week course of praziquantel and albendazole and is at the end of her steroid taper. Repeat brain imaging approximately 7 weeks after cyst fenestration revealed near-resolution of previously noted cysts and no midline shift (Figure 2). This case highlights the importance of surgical intervention in high-risk cases in which antiparasitics may not be sufficient.

Neglected tropical diseases like neurocystercosis are often considered diseases of the past. Yet, they affect over a billion people, causing significant disability and disfigurement, perpetuating cycles of poverty in the most vulnerable populations.[2] These diseases do not recognize borders; it is imperative that we include them on our differentials when we take care of our diverse patient population. This case illustrates the importance of a thorough history and an emphasis on a multidisciplinary model of care for the best patient outcomes.

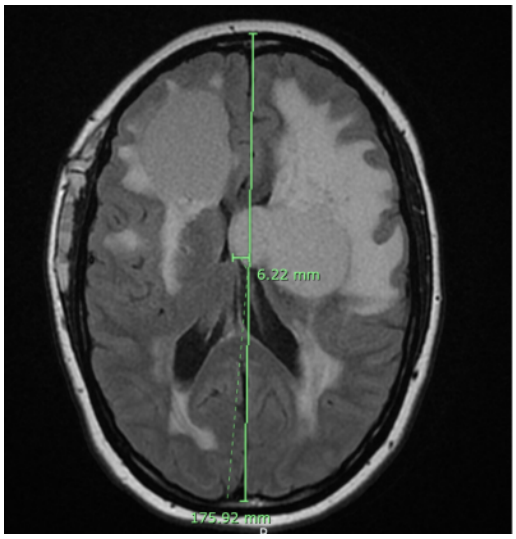

Figure 1: MRI Brain with cystic lesions and midline shift

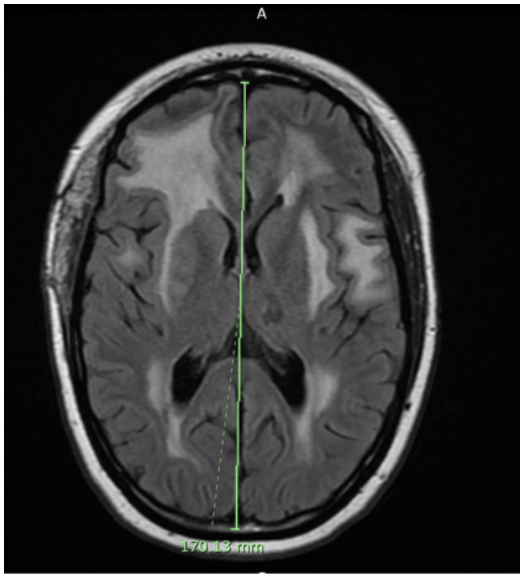

Figure 2: MRI brain with post-surgical changes
and near resolution of previously noted cysts

References:

1. Centers for Disease Control and Prevention. (2019, July 12). *CDC - DPDx - Cysticercosis*. Www.cdc.gov. https://www.cdc.gov/dpdx/cysticercosis/index.html

2. World Health Organization. (2021, November 14). *Neglected tropical diseases*. Www.who.int. https://www.who.int/news-room/questions-and-answers/item/neglected-tropical-diseases

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