Taenia solium in CSF

delvedetect CEREBROSPINAL FLUID

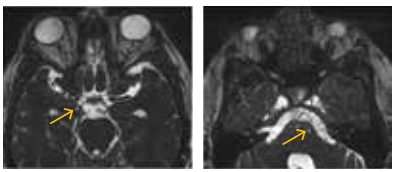
Rapid Diagnosis of Subarachnoid Neurocysticercosis Preventing ICP Crisis and Enabling Full Neurologic Recovery

1 Presentation

A 63-year-old woman from Mexico living in a non-endemic region for cysticercosis developed progressive headaches and pulsatile tinnitus over 1 year, with serial MRIs demonstrating worsening non-obstructive hydrocephalus. She later presented with 1 week of confusion and gait imbalance, raising concern for an underlying CNS process with elevated intracranial pressure (ICP).

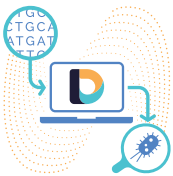
2 Clinical Workup

Initial infectious evaluation was unrevealing aside from eosinophilia (8.1%) and subsequent positive *Taenia solium* and *Echinococcus* IgG serologies. CSF demonstrated lymphocytic and eosinophilic pleocytosis, elevated protein, markedly low glucose, and negative meningitis panel, WNV testing, AFB culture, and cryptococcal antigen, prompting empiric broad-spectrum antimicrobials. Advanced MRI with high-resolution 3D-CISS sequences revealed multifocal thinly septated cysts within the prepontine and interpeduncular cisterns, along with subtle spinal "drop" cysts in the lumbosacral thecal sac that had not been appreciated on prior routine MRI sequences.



High-resolution 3D-CISS MRI demonstrating multifocal thinly septated cysts in the prepontine and interpeduncular cisterns (yellow arrows), not visualized on prior standard MRI sequences.

3 Delve Detect



Given worsening headaches, nausea, and vomiting concerning for impending ICP decompensation, Delve Detect CSF mNGS was performed and identified *Taenia solium* with high-confidence sequencing metrics, including elevated reads per million, numerous unique reads, and high microbial biomass. Sequencing analysis supported species-level identification of *Taenia solium*..

4 Clinical Impact

Rapid diagnosis of subarachnoid neurocysticercosis enabled transition from empiric antimicrobial therapy to guideline-based management with prophylactic external ventricular drain placement, corticosteroids, and carefully monitored antiparasitic therapy under ICU observation. The patient experienced no ICP decompensation or neurologic worsening, the EVD was subsequently removed, and she was discharged home neurologically intact to continue antiparasitic treatment

5 Delve Insights

Integration of advanced neuroimaging and CSF mNGS can support definitive diagnosis in diagnostically challenging CNS presentations, particularly in non-endemic settings where neurocysticercosis may be under-recognized. Early use of Delve Detect CSF may help accelerate diagnosis and support timely targeted management, including critical neurosurgical and antiparasitic interventions in patients at risk for neurologic deterioration.

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