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Disseminated cysticercosis and neurocysticercosis with classic starry-sky appearance in an adolescent vegetarian Indian male

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An 11-year-old vegetarian boy presented with two weeks of headache, nausea, vomiting, altered sensorium (GCS: E2V1M4), and a recent seizure episode. His condition rapidly deteriorated to status epilepticus, characterized by persistent seizures without interictal recovery. Notably, he exhibited non-tender swelling of the calves and shoulders. Neurologically, he demonstrated extensor plantar responses bilaterally and brisk deep tendon reflexes. Initial management included anticonvulsants and empiric antibiotics. Imaging techniques were crucial in establishing the diagnosis. Whole-body MRI confirmed disseminated cysticercosis with extensive involvement of the muscles in the upper and lower limbs, as well as the paraspinal muscles (Fig. 1). A CT scan of the head further showed numerous calcified cysticercal lesions scattered throughout the brain parenchyma, exhibiting the classic 'starry-sky' appearance (Fig. 2). MRI scans of the brain revealed multiple hyperintense cystic lesions with eccentric dot-like foci throughout the brain parenchyma, consistent with neurocysticercosis (Figs. 3 and 4). Serologic testing via enzyme linked immunosorbent assay (ELISA) was positive for cysticercosis IgG antibodies. The diagnosis of neurocysticercosis prompted the initiation of corticosteroids, while albendazole was deferred due to concern of encephalopathy. Despite the management, the patient eventually succumbed to the disease few months after.

Neurocysticercosis remains the most common parasitic disease of the central nervous system and a leading cause of epilepsy in endemic regions. [1] Disseminated cysticercosis, although rare, represents extensive parasitic invasion affecting multiple organ systems, including the brain, muscles, and subcutaneous tissues. This patient's case is particularly notable due to the vegetarian diet, which traditionally reduces exposure to infected pork—a common source of *Taenia Solium*. However, despite the absence of pork in the patient's diet, the infection could have been acquired through other routes. The ingestion of contaminated produce or water remains a significant risk factor, especially in endemic regions where *Taenia Solium* eggs can contaminate food sources. Unfortunately, in this case, the exact source of infection remains speculative, as it was not possible to trace the specific exposure route due to the advanced disease state at presentation. This underscores the fact that even individuals who do not consume pork are susceptible to the disease. This case highlights the critical need for increased awareness that neurocysticercosis can be acquired through contaminated vegetables or water, emphasizing the broader scope of transmission beyond dietary habits alone. The timely recognition of neurocysticercosis is essential, especially in patients presenting with seizures or encephalopathy in endemic regions. Early intervention with corticosteroid therapy is crucial in mitigating inflammation and reducing long-term sequelae, particularly in severe presentations such as status epilepticus. [2] The extensive dissemination observed in this patient underscores the importance of early recognition and management of severe disseminated cysticercosis which should involve a delicate balance in therapeutic interventions.

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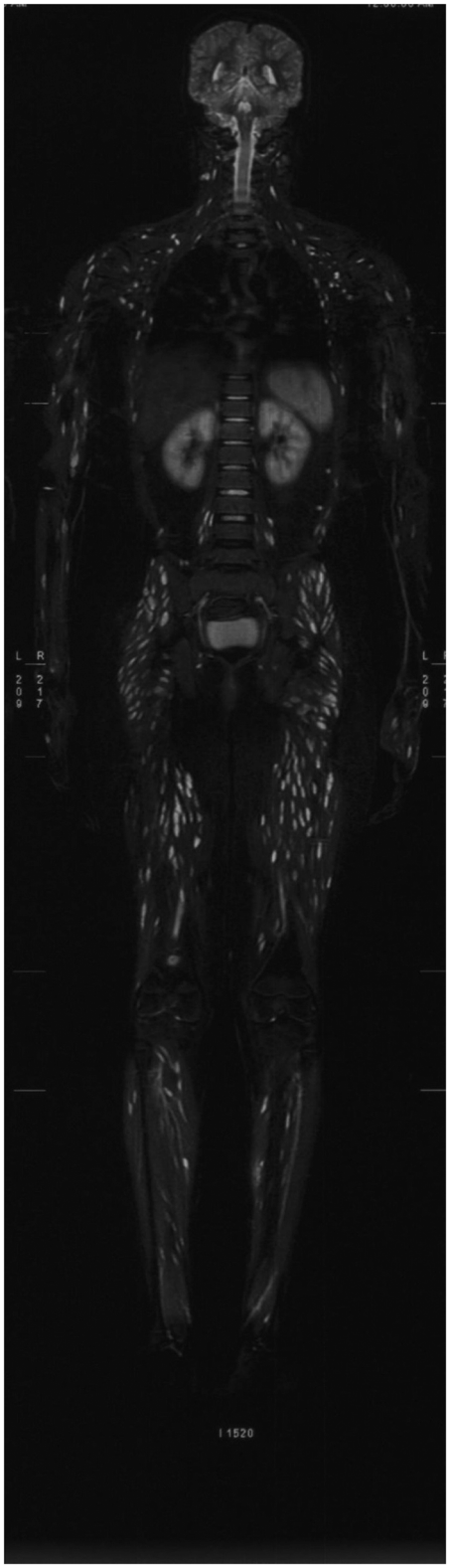

Fig. 1. Whole body MRI depicting disseminated cysticercosis. Multiple hyperintense cystic lesions are visualized in the paraspinal muscles, along with involvement of the muscles of the upper and lower limbs. The symmetrical distribution of these lesions indicates widespread dissemination of cysticerci throughout the body consistent with disseminated cysticercosis.

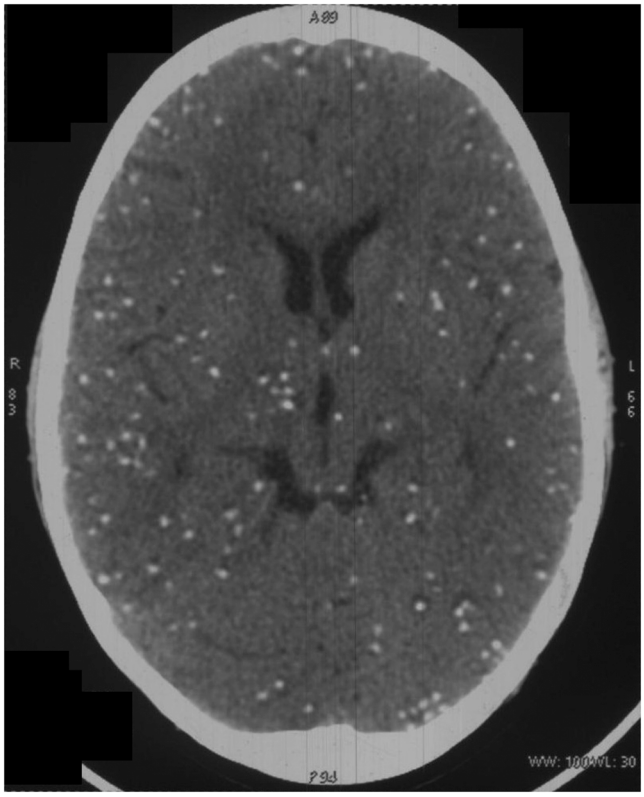

Fig. 2. Axial non-contrast CT showing multiple calcified cysticercal lesions ("starry sky appearance") scattered throughout the brain parenchyma, indicative of chronic neurocysticercosis. The calcifications are consistent with the degenerative (calcified) stage of the disease, reflecting a chronic course.

Ethics statement

Due consent was obtained from the patient to publish the radiological images. As per the guidelines of the institutional review board, ethical consent was waived off for this publication.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author agreement statement

All authors have seen and approved the final version of the manuscript. All authors warrant that the article is the authors' original work, hasn't received prior publication and isn't under consideration for publication elsewhere.

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Himanshu Jindal: Writing – review & editing, Writing – original draft, Supervision, Conceptualization. **Priyanka Gupta:** Writing – review & editing, Supervision, Conceptualization. **P. Purushothaman:** Writing – review & editing. **Hardika Arora:** Writing – original draft,

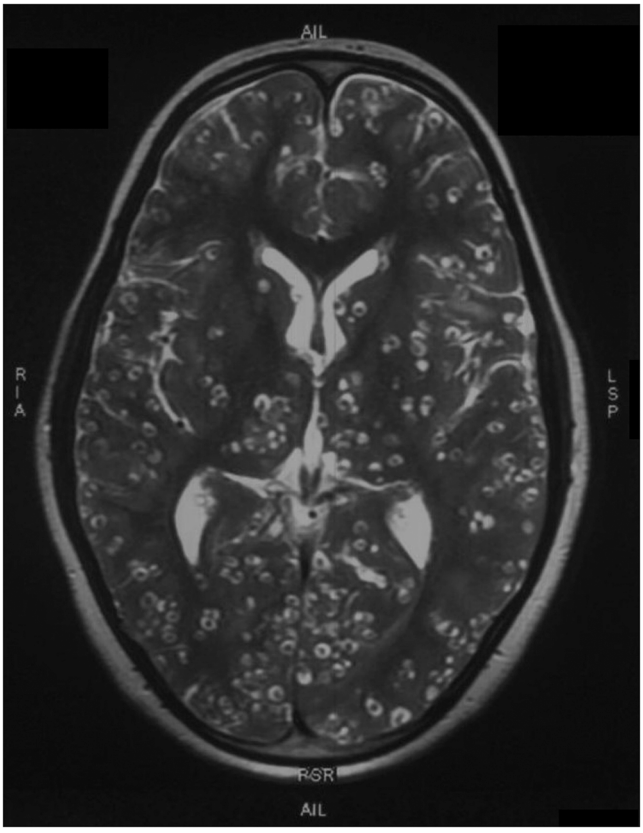

Fig. 3. Axial T2-weighted MRI showing multiple hyperintense cystic lesions with eccentric dot-like foci ("scolex") visible throughout the brain parenchyma, consistent with neurocysticercosis in the vesicular stage. These lesions are diffusely distributed, involving the cortex and deep structures, demonstrating the classic imaging appearance of neurocysticercosis.

Data curation.

Declaration of Competing Interest

The authors declare that they have no competing interests.

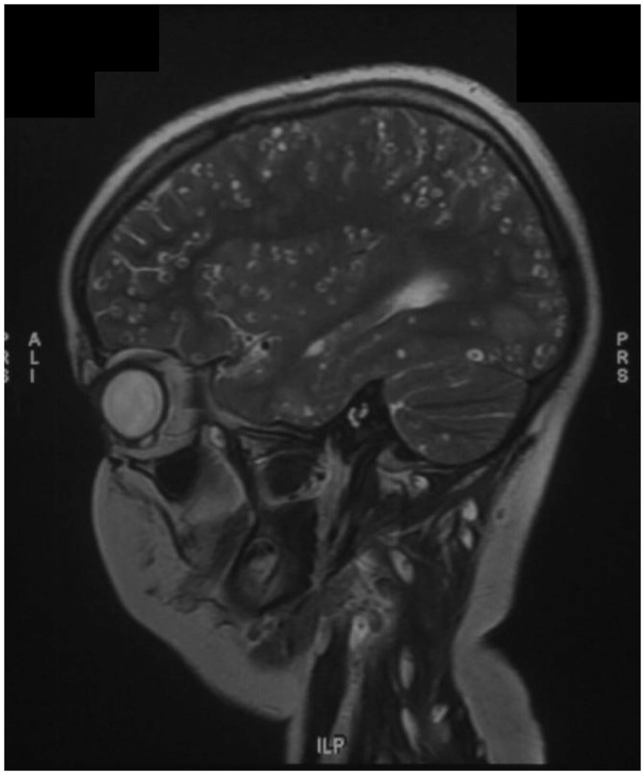

Fig. 4. Parasagittal T2-weighted MRI demonstrating multiple small, hyperintense cystic lesions scattered throughout the brain parenchyma, consistent with vesicular stage neurocysticercosis. These lesions represent cysticerci in various stages of development. Notably, a hyperintense lesion can be seen in the left orbital region. Also, similar small hyperintense cystic lesions with eccentric dot like foci can be noted in muscular plane in paraspinal muscles demonstrating appearance of disseminated cysticercosis.

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