

THE “DOT-IN-HOLE” SIGN IN PEDIATRIC CUTANEOUS CYSTICERCOSIS: A NON-INVASIVE DIAGNOSIS

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Case report. A 4-year-old child from southern India presented with a 1-month history of painless swellings on the back. There was no history of trauma, fever, headache, vomiting, or seizures, and psychomotor development was age-appropriate. Physical examination revealed two firm, mobile, non-tender subcutaneous nodules with normal overlying skin (Fig. 1). General and neurological examinations were unremarkable.

High-resolution ultrasonography, performed with a 10–15 MHz linear probe, revealed a well-defined 8 × 6 mm cystic lesion in the subcutaneous plane. An eccentric echogenic focus, representing the scolex, produced the “dot-in-hole” sign (Fig. 2). A surrounding hypoechoic area secondary to inflammation was present, while color Doppler ultrasonography showed no internal vascularity. This appearance corresponds to a viable-to-degenerating cyst with surrounding inflammation (1, 2, 3).

ELISA testing for cysticercosis was positive, confirming the ultrasonographic diagnosis. Funduscopic examination and ocular ultrasonography were normal. Because the child was asymptomatic and had no abnormal neurological findings, neuroimaging was deferred after discussing the diagnostic benefits, the need for sedation, and resource availability with the family; consequently, occult asymptomatic neurocysticercosis could not be ruled out. Oral albendazole at a dosage of 15 mg/kg/day was administered for 14 days, accompanied by a short course of corticosteroids to mitigate treatment-associated inflammation. At the 4-week follow-up, the nodules had significantly regressed, and the child remained well.

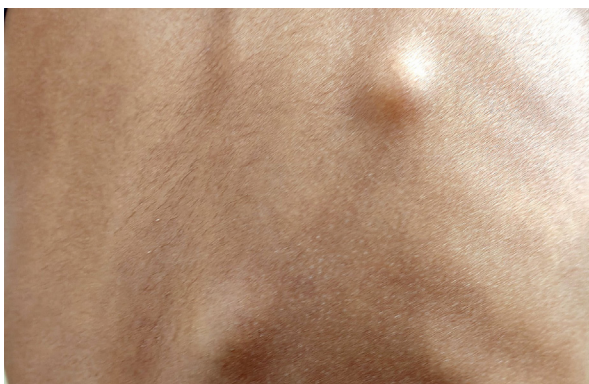


Fig. 1

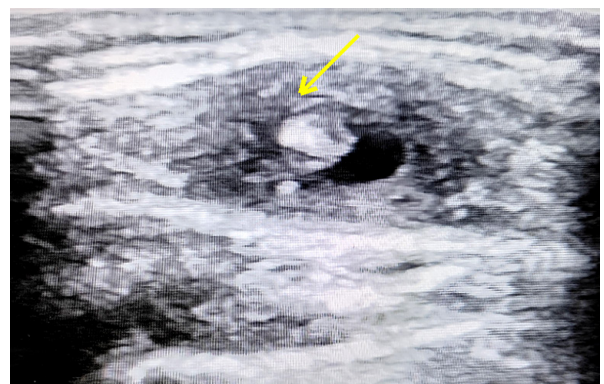


Fig. 2

Fig. 1, 2: Cutaneous cysticercosis: subcutaneous nodules of the back (Fig. 1). Ultrasound (Fig. 2) shows a well-defined cyst with an eccentric echogenic scolex and a surrounding hypoechoic area.

Discussion. The ultrasonographic appearance of soft-tissue cysticercosis varies depending on the parasite's stage and the associated inflammatory response. Described patterns include: a cyst with an eccentric scolex and a surrounding inflammatory mass, an irregular cyst with minimal fluid, a cyst within a larger exudative collection, and a calcified lesion (2, 3). The primary diagnostic feature is the visualization of the cysticercus itself. In this child, the cystic architecture, eccentric scolex, mild perilesional inflammation, and absence of internal vascularity allowed for the diagnosis. The positive serology and therapeutic response confirmed the accuracy of the diagnosis.

Ultrasonography is particularly advantageous in children because it is rapid, cost-effective, radiation-free, and usually does not require sedation. It can differentiate cysticercosis from abscesses, epidermoid cysts, and vascular malformations, reserving biopsy or surgical excision for atypical or ambiguous lesions. Investigating for disease at other sites remains important. A careful neurological evaluation should guide neuroimaging, whereas an ophthalmologic assessment prior to antiparasitic therapy helps prevent treatment-associated inflammation in the presence of an unrecognized intraocular cyst (4). Disseminated cutaneous disease, including oral involvement, has been recently highlighted and should prompt a broader systemic evaluation (5).

Conclusion. In a child from an endemic region presenting with otherwise non-specific subcutaneous nodules, identifying the “dot-in-hole” sign can establish a definitive, non-invasive diagnosis, prevent unnecessary surgical excision, and prompt appropriate neurological and ophthalmologic evaluations.

Conflicts of interest

The author declares no conflicts of interest.

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