CASE REPORT https://doi.org/10.3126/njms.v11i2.98521

Isolated Myo-cysticercosis of the Sternocleidomastoid Muscle in a Strict Vegetarian Child: A Rare and Unusual Case Report

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Received: March 01,2026 **Accepted: April 05,2026** **Published: August 12, 2026**

Cite this paper: Sedhai M, Sapkota A. Isolated Myo-cysticercosis of the Sternocleidomastoid Muscle in a Strict Vegetarian Child: A Rare and Unusual Case Report.*Nepal Journal of Medical Sciences.* 2026;11(2):102-109. https://doi.org/10.3126/njms.v11i2.98521

ABSTRACT

Introduction: Cysticercosis, a parasitic disease endemic to developing countries, is caused by the larval stage of *Taenia solium*. While neurocysticercosis is common, isolated myocysticercosis, especially of the sternocleidomastoid (SCM) muscle, is exceedingly rare, particularly in pediatric patients.

Case presentation: We report the case of a 9-year-old strictly vegetarian female child presenting with painless left-sided neck swelling. Ultrasonography revealed a well-defined cyst with a central echogenic focus, suggestive of a scolex. Fine-needle aspiration cytology (FNAC) confirmed the diagnosis of cysticercosis. Computed tomography ruled out a neuro-ocular involvement. The patient was treated conservatively with albendazole, corticosteroids, and antihistamines, which led to complete resolution within three months and no residual disease or recurrence after six months.

Conclusion: This case highlights the importance of considering myocysticercosis in the differential diagnosis of neck swelling in children, even among vegetarians. Early diagnosis using noninvasive modalities and conservative management can ensure excellent outcomes while avoiding unnecessary surgical interventions in endemic regions.

Keywords: *Albendazole; Case report; Cysticercosis, Myocysticercosis; Pediatric Parasitic Infection*

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INTRODUCTION

Cysticercosis results from tissue infection by the larval form (*Cysticercuscellulosae*) of the pork tapeworm, *Taenia solium*. The disease is most common in regions with poor sanitation and limited food safety practices, such as parts of Asia, Latin America, and sub-Saharan Africa. [1] Humans acquire infection through the ingestion of *T. solium* eggs that contaminate food or water. After ingestion, the embryos penetrate the intestinal lining, enter the bloodstream, and develop into cysticerci within the tissues.

Neurocysticercosis is the most common and severe form, but it may also lodge in the subcutaneous tissue, muscle, eyes, and heart. [1] Muscular cysticercosis is uncommon and is often asymptomatic. When symptomatic, it usually appears as a painless swelling. Sternocleidomastoid (SCM) muscle involvement is very rare, with only a few adult cases reported. [2,3,4,5,6]

Pediatric myocysticercosis is extremely rare, particularly in cases of isolated SCM without neurological symptoms. This rarity is due to a long incubation period and underreporting. Only one pediatric case of SCM was reported by Chaudhari et al. [6] Tripathy et al. described solitary deltoid muscle cysticercosis in a child, highlighting its diagnostic challenges. [7]

High-resolution ultrasonography is the preferred diagnostic tool, showing cysts with a central scolex and surrounding inflammation. [8] Fine needle aspiration cytology (FNAC) aids in diagnosis by revealing parasitic fragments and inflammatory cells. [2, 3, 9] Treatment is mainly medical, with albendazole and corticosteroids. [1] while surgery is rarely required.

Early recognition is key to avoiding misdiagnosis and unnecessary surgery, particularly in endemic regions.

Case Report

A 9-year-old female child, strict vegetarian since birth, presented with a gradual, painless swelling in the left Level II region of the neck. There was no fever, weight loss, appetite loss, trauma, family history, drug use, contact of tuberculosis or allergies. On ENT and general examination, a single 1×1 cm partially mobile, fluctuant,

non-tender swelling free from overlying skin or deeper tissues, more prominent on turning of head to right was noted. Nasopharyngeal exam was unremarkable. (Fig 1A, 1B).

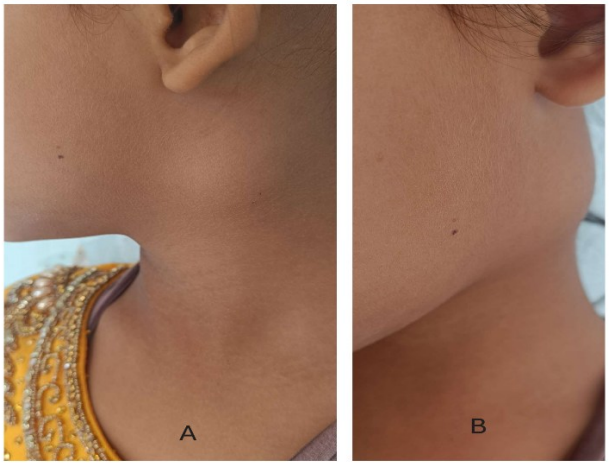


Fig 1: The clinical presentation of a 9-year-old female child with a single 1 × 1 cm partially mobile, fluctuant, non-tender swelling free from overlying skin or deeper tissues, more prominent on turning of head to right; A-Left lateral view, B- Oblique view (for better visualization of swelling)

Laboratory tests including complete blood count and renal function were within normal limits. Ultrasonography of the neck revealed a bulky left sternocleidomastoid muscle with a 9 × 7 mm well-defined oval cyst containing a 2 mm echogenic focus likely representing calcification, no internal vascularity, and surrounding inflammatory changes: features suggestive of myocysticercosis of left Sternocleidomastoid region. Multiple bilateral cervical lymph nodes up to 4 × 5 mm in size showed reactive morphology. (Fig 2A)

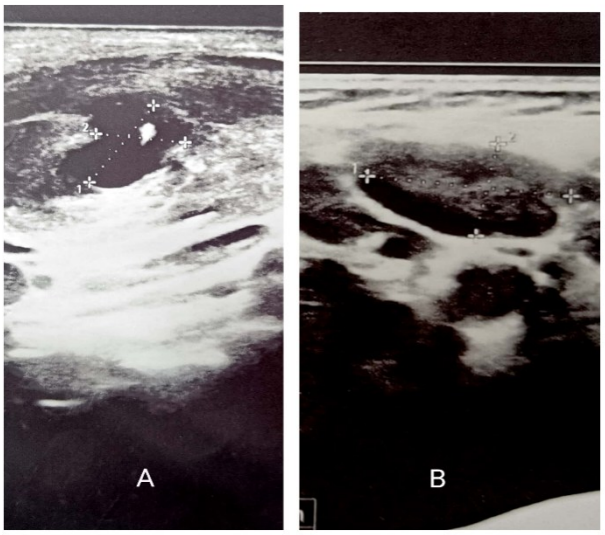


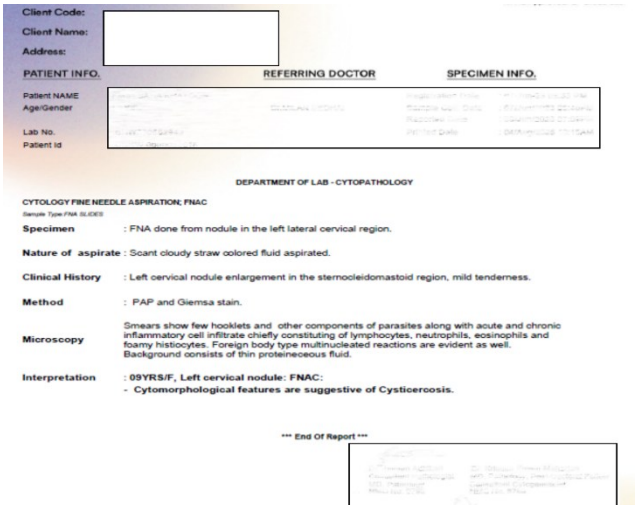
Fig 2: (A): Ultrasonography image of thepatient at the time of presentation showing- abulky left sternocleidomastoid muscle with a 9 × 7 mm well-defined oval cyst containing a 2 mm echogenic focus likely representing calcification/scolex, no internal vascularity, and surrounding inflammatory changes: features suggestive of myocysticercosis of left Sternocleidomastoid

region. Multiple bilateral cervical lymph nodes up to 4 × 5 mm in size showed reactive morphology;

(B): Repeat Ultrasonography image of thesame patient at 1 month follow-up showing- lesion shrinkage to 8.8 × 4.8 mm without internal complexity (radiological signs of improvement)

A CT scan of the head and neck (axial and coronal views) was performed. IgG Serum cysticercosis antibody levels were sent. FNAC of the lesion was carried out. In addition, stool microscopy was sent that showed no ova or cysts.

FNAC cytology demonstrated parasitic structures-including scolices and hooklets-with mixed acute and chronic inflammatory cells, foamy histiocytes, eosinophils, and multinucleated giant cells in a proteinaceous background, diagnostic of cysticercosis (Fig 3). CT imaging also supported localization of the cyst within the left sternocleidomastoid muscle, with no intracranial or ocular involvement. However, IgG serum cysticerosis antibodies were negative (value: 0.50; Normal limit: <0.90) (Fig 4). Likewise, neurology and ophthalmology evaluations were performed to exclude neuro- or ocular cysticercosis; findings were negative.


Client Code:
Client Name:
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PATIENT INFO.
REFERRING DOCTOR
SPECIMEN INFO.
Patient NAME
Age/Gender
Lab No.
Patient Id
DEPARTMENT OF LAB - CYTOPATHOLOGY
CYTOLOGY FINE NEEDLE ASPIRATION; FNAC
Specimen : FNA done from nodule in the left lateral cervical region.
Nature of aspirate : Scant cloudy straw colored fluid aspirated.
Clinical History : Left cervical nodule enlargement in the sternocleidomastoid region, mild tenderness.
Method : PAP and Giemsa stain.
Microscopy : Smears show few hooklets and other components of parasites along with acute and chronic inflammatory cell infiltrate chiefly constituting of lymphocytes, neutrophils, eosinophils and foamy histiocytes. Foreign body type multinucleated reactions are evident as well. Background consists of thin proteineceous fluid.
Interpretation : 09YRS/F, Left cervical nodule: FNAC:
- Cytomorphological features are suggestive of Cysticercosis.
*** End Of Report ***

Fig 3: Fine needle aspiration cytology report of the patient confirming the diagnosis of cysticercosis

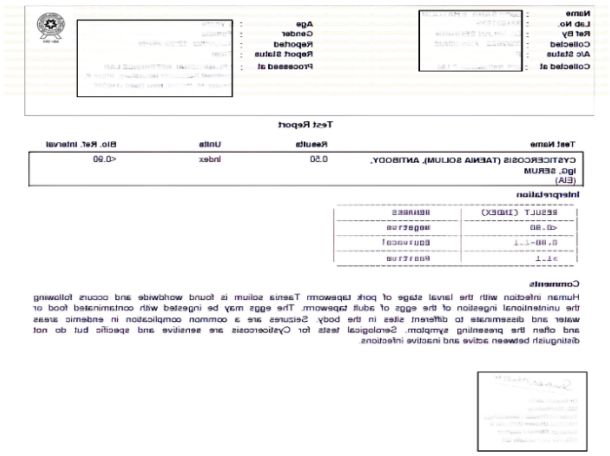

Fig 4: Serum IgG antibody to Cysticercosis report of the patient showing no elevation of antibody levels (Seronegativity)

At baseline weight of 22 kg, treatment was started with albendazole 165 mg orally twice daily (2.1 ml BD) (dosage: 15 mg/kg/day) for one month, prednisolone 5 mg once daily for 15 days, and fexofenadine 120 mg at bedtime for 15 days.

At 1-month follow-up, the swelling had reduced substantially (< 0.5 × 0.5 cm) (Fig 5A, 5B). Ultrasonography showed lesion shrinkage to 8.8 × 4.8 mm without internal complexity (Fig 2B). Albendazole was continued for another one month; steroids were discontinued.

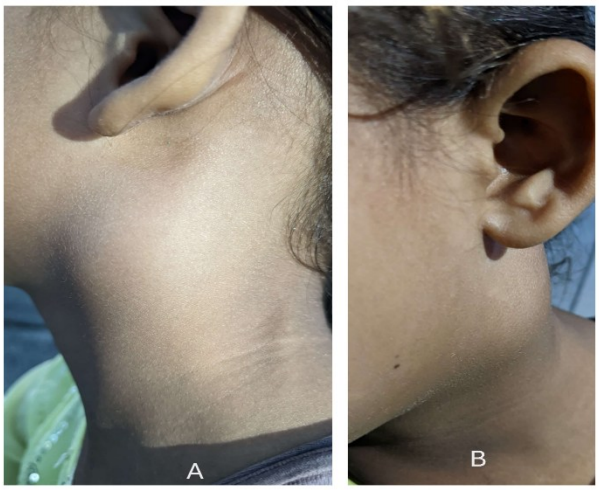

Fig 5: The clinical status of the patient afterone month of medical therapy with oral albendazoleand 15 days therapy with coricosteroid. The swelling has decreased to be<0.5cm x0.5 cm; (A): Lateral view, (B): Oblique view (for better visualization)

After two months of therapy, the swelling was clinically imperceptible. Repeat ultrasonography confirmed absence of cyst in the sternocleidomastoid muscle, with residual non-significant lymph nodes. Eventually, Albendazole was given for an additional month and then stopped. Final ultrasound at three months showed no evidence of cyst or lymphadenopathy. The patient was followed for six months post-therapy, remaining asymptomatic with no signs of recurrence (Fig 6).

Fig 6: The clinical photograph of the patient at final 6 months post therapy; there were no signs of residual pathology or recurrence

DISCUSSION

Cysticercosis remains a notable parasitic disease in areas with poor sanitation and hygiene, including Nepal, India, parts of Latin America, and sub-Saharan Africa. [1] While neurocysticercosis is the predominant presentation, muscular forms are far less common and often go unrecognizable. Within skeletal muscles, SCM involvement is rare. [2,3,4,5,6,9] and pediatric cases without neurological or ocular lesions are exceptionally uncommon; the only previous pediatric SCM case was reported by Chaudhari et al. [6]

Our case involved a 9-year-old strictly vegetarian female with a solitary, painless, gradually enlarging swelling in the left Level II cervical region. The absence of systemic features and slow progression are typical features of isolated myocysticercosis. [3,5] Her vegetarian status suggests that cysticercosis can occur via ingestion of *T. solium* eggs in contaminated food or water. [1]

High-resolution ultrasonography revealed a well-defined cyst with an echogenic nidus suggestive of a scolex or calcification, which is a hallmark feature of cysticercosis. [8] Similar ultrasonographic patterns were noted by Thapa et al., who detected SCM involvement in an adult female. [1]

FNAC confirmed cysticercosis by identifying hooklets, scolices, and multinucleated giant cells, which is consistent with the findings of Sharma et al. and Chaudhari et al. [2,6] As noted by Marasini et al. solitary intramuscular cysticercosis can mimic a pseudotumor, making FNAC critical for avoiding unnecessary excision. [10]

We excluded systemic dissemination through CT imaging of the brain and orbits and full neurological and ophthalmological evaluations that showed no other foci. As Goyal et al. emphasized, thorough evaluation is essential, even in localized muscular cases, to rule out neurocysticercosis or ocular involvement. [3]

Due to the paucity of pediatric-specific guidelines for isolated myocysticercosis, treatment generally follows neurocysticercosis protocols. [8] Albendazole (15 mg/kg/day) for at least 14 days is preferred for the treatment of single cysts. Corticosteroids such as

prednisolone are co-administered to counteract inflammatory reactions. [1] In our patient, albendazole, prednisolone, and fexofenadine produced excellent clinical and radiological improvement, aligning with other reports. [4,5,6] At six months, the lesion completely resolved without recurrence, similar to the outcomes in adult cases and the pediatric report by Chaudhari et al. [6] Structured follow-up with serial ultrasonography ensured close monitoring and early relapse detection.

This case highlights the critical role of public health measures like improving sanitation, ensuring clean water, and promoting hygiene to prevent these parasitic infections. Educating communities on properly washing fruits and vegetables and avoiding untreated wastewater for irrigation is essential, even for vegetarian households at risk of contamination. It also emphasizes the importance of interdisciplinary collaboration among pediatricians, radiologists, pathologists, and infectious disease specialists for accurate diagnosis and management. In resource-limited settings, high-resolution ultrasonography and FNAC are indispensable alternatives when MRI is unavailable.

CONCLUSIONS

Documenting rare pediatric cases like isolated SCM myocysticercosis enriches clinical knowledge, helps avoid unnecessary invasive procedures, and guides standardized treatment approaches.

DATA AVAILABILITY

The datasets used during the current study are available from the corresponding author on reasonable request.

ABBREVIATIONS

ENT: Ear Nose Throat

SCM: Sternocleidomastoid muscle

CT: Computed tomography

MRI: Magnetic resonance imaging

FNAC: Fine Needle Aspiration Cytology

IgG: Immunoglobulin G

CONFLICT OF INTEREST

None

SOURCES OF FUNDING

None

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