

Unusual Presentation of Cysticercosis: A detailed Case Report

Aditi Kothari¹, Neha Choudhary², Priyanka Tiwari³, Sangeeta Tiwari⁴,
Vadika Rathore⁵

How to cite this article:

Aditi Kothari, Neha Choudhary, Priyanka Tiwari, *et al.*. Unusual Presentation of Cysticercosis: A detailed Case Report. J Microbiol Relat Res. 2023;9(2): 73-75.

Abstract

Human taeniasis, a common tropical disease, is a zoonotic condition resulting from infection with the adult stages of *Taenia solium*. Animals are the primary host where the parasite lives but humans can also be infected after consuming contaminated food and water. We report a case of a vegetarian homemaker with disseminated cysticercosis, who reported to us with a sub-scapular swelling.

Keywords: Cysticercosis; *T. Solium*; Taeniasis.

INTRODUCTION

Cysticercus are the larval forms of the tapeworm *Taenia solium* or *Taenia saginata*. The adult tapeworms are found in the small intestine of humans, being the definitive host, and the larval forms are found in the skeletal muscle of the intermediate host, pig. Cysticercosis occurs when the eggs mature within the small intestine of humans. Eggs enter the small intestine of humans

by ingestion or inhalation of egg contaminated food/ water or auto-infection. These cysticerci spread through intestinal wall and carried by the blood stream to muscles, brain and subcutaneous tissues, leading to clinical manifestations.¹

Taeniasis is characterized by mild symptoms or none at all. Symptoms include abdominal pain, distension, diarrhea, and nausea attributed to worm infestation. No data is available from controlled experiments demonstrating any association. Most patients seem to be free of symptoms, and do not look for medical care nor do they notice the tapeworm segments in their stools.

Identification of *T. solium* infections is important because of the risk of cysticercosis in the carrier or the immediate environment.²

CASE REPORT

We report a case of a 35 old female farmer, with vegetarian diet presented to the surgery OPD with decreased appetite, progressing pain and weight

Author Affiliation: ^{1,3}Assistant Professor, ⁵Demonstrator, Department of Microbiology, ⁴Professor, Department of Surgery, American International Institute of Medical Sciences, Udaipur 313001, Rajasthan, India, ²Senior Demonstrator, Department of Microbiology, RNT Medical College, Udaipur 302004, Rajasthan, India.

Corresponding Author: Neha Choudhary, Senior Demonstrator, Department of Microbiology, RNT Medical College, Udaipur 302004, Rajasthan, India.

E-mail: docuk23@gmail.com

Received on: 29.06.2023

Accepted on: 08.08.2023

loss past 2 months. She observed a progressive swelling over the right sub-scapular region which was present for the past 3 years. Swelling was insidious in onset, gradually increasing in size from pea size, firm to hard in consistency with blunt margins. She had complained of progressing headache since 15 years along with intermittent fever for 3 years. No history of any chronic illness. Hysterectomy was performed 10 years ago.

On examination there was muscle tenderness with increased pain on movement of the shoulder. Ultrasonography showed a thick walled cystic lesion with eccentric mural nodule 21x19mm in deep subcutaneous plane at right scapular region which was likely to be cysticercosis. Magnetic resonance imaging (MRI) brain was clear with no intracranial abnormality.

Surgery of that region was performed which showed a mature cyst (bladder like structure) with an opalescent ellipsoidal body and a milky white spot in the center. The specimen was sent for histopathology examination (HPE).

Cystic fluid of the patient was sent to microbiology department. On wet mount, the fluid revealed hooklets which correlated with the finding

of Taeniasis. Biochemical examination of the aspirates showed salts and albumin content. HPE of the section showed a cystic cavity containing the larval form scolex of teania and multiple undulating membranes.

The scolex was seen at the cephalic region. The larval form was composed of a duct like invagination lined by double layered, eosinophilic membrane and lumen. Ovoid basophilic calcified corpuscles were seen adjacent to duct like invaginations.

Stool was examined for 3 consecutive days to confirm the presence of gravid proglottids in the macroscopic examination of the stool. Microscopic examination of stool by formal ether sedimentation method showed few spherical eggs with 3 pair of hooklets.

Investigations revealed hemoglobin of 11.8 gm/dl, total lymphocyte count (TLC) of 5200/cu mm and normal differential leukocyte count with decreased platelet to 1.1 lakh cu mm and normal PT-INR. Routine biochemical investigations revealed normal glucose, renal and liver function test. Serum sodium and serum creatinine were slightly decreased.



Fig. 1: Ultrasound Image Revealing Hypoechoic lesion within dense hyperechoic space



Fig. 2: Surgical Removal of Cyst

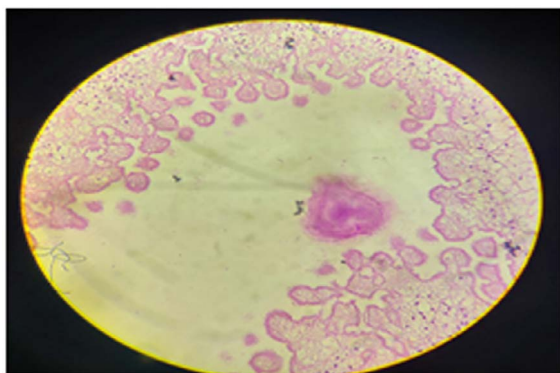


Fig. 3: Double layered, Eosinophilic membrane and lumen on Histopathology

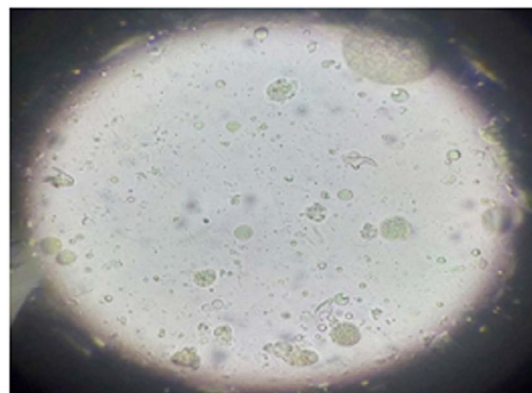


Fig. 4: Sickle shaped hooklets from the aspirate of cysticercus.

DISCUSSION

Taeniasis, a parasitic infection/infestation caused by *T. solium*, *T. saginata*, and *T. asiatica*. *T. solium* is acquired through consumption of under-cooked pork and *T. saginata* after eating contaminated under-cooked beef. These infections often go unnoticed as they remain asymptomatic or silent.³ Increasing prevalence of these infections have been reported mostly from developing countries because of poor sanitary conditions and domestic pigs without proper veterinary control as also vegetables contaminated with *Taenia solium* eggs.⁴

The present case describes a 35 year old vegetarian female subjects with a solitary right subscapular swelling. In contrast to Shah *et al* cysticercosis, presents with multiple subcutaneous swelling with a diet history of eating pork. Various study like Shah *et al*⁴ and Alamaya *et al*⁵ reports infection in vegetarians with solitary nodules in their study similar to ours.

The presentation of cysticercosis mainly depends on the anatomic locations and number of cysts. The commonly reported sites are skin, skeletal muscles, heart, eye and most importantly central nervous system. Our case demonstrates, solitary cyst in the skeletal muscle of subscapular region seen in ultrasonography with a clear MRI of brain. The present study reveals that cysticercosis can occur at any age group irrespective of gender and dietary habits, if one is not cautious about hygiene. This is concordant with the study of Kumar *et al*.⁶

CONCLUSION

Cysticercosis is a global public-health problem, especially in developing countries including India. It is considered as a "biological marker" of social and economic development. It is becoming quite important to keep Cysticercosis in differential diagnosis when inspecting a case of subcutaneous swelling as the presentation can be quite discrete clinically and even people with vegetarian diet can present with cysticercosis, but a good synergy with radiology and central laboratory, diagnosis can be brisk. Since Cysticercosis is a preventable and eradicable disease, appropriate measures like health education, hygienic practices (like washing

our vegetables thoroughly), mass awareness, better medical facilities, mass treatment of *T. solium* carriers, and monitoring sale of pork may help to reduce the disease burden in endemic areas.

Declaration of Patient Consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial Support and Sponsorship:

Nil

Conflicts of Interest:

There are no conflicts of interest

REFERENCES

1. Bhalla A, Sood A, Sachdev A, Varma V. Disseminated cysticercosis: a case report and review of the literature. *Journal of Medical case reports*. 2008 Dec;2(1):1-3.
2. *Taenia solium* cysticercosis Héctor H, García MD Kandi V, Moses VK. Taeniasis Presenting as Motile Worms in the Stools: An Emerging but Neglected Parasitic Disease. *Cureus*. 2022 Oct 8;14(10).
3. Prasad KN, Prasad A, Verma A, Singh AK. Human cysticercosis and Indian scenario: a review. *Journal of Biosciences*. 2008 Nov;33(4):571-82.
4. Sah K, Grover N, Chandra S, Gulia S. Oral cysticercosis in a vegetarian female: A diagnostic dilemma. *Journal of oral and maxillofacial pathology: JOMFP*. 2019 May;23(2):289.
5. Amatya BM, Kimula Y. Cysticercosis in Nepal: a histopathologic study of sixty-two cases. *The American journal of surgical pathology*. 1999 Oct 1;23(10):1276.
6. Kumar S, Jaiswal CP, Sagar S. Histopathological Spectrum of Cysticercosis and thir Demographic Study in Tertiary Care Hospital at NMCH, Patna, Bihar.

