

Cysticercosis of sternocleidomastoid muscle presenting as a neck swelling - A rare case report

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ABSTRACT

Cysticercosis is an infection of Cestodes, or tapeworms (larvae), which are segmented worms. The adults reside in the gastrointestinal tract, but the larvae can be found in almost any organ. We present a case of an adult presenting as cystic neck swelling which turned out to be cysticercosis of sternocleidomastoid muscle. On evaluation using USG, FNAC cysticercosis was diagnosed and the same was confirmed by histopathological examination. Hence we conclude that parasitic infestation should be considered as differential diagnosis in any neck swelling.

Key words: Cysticercosis, cestodes, neck swelling, sternocleidomastoid muscle, tenia solium

Introduction

Tenia solium (T. solium) has a complex two-host life cycle. Human beings are the only definitive host and harbour the adult tapeworm (taeniasis), whereas both people and pigs can act as intermediate hosts and harbour the larvae or cysticerci. T. solium exists worldwide but is most prevalent in Latin America, sub-Saharan Africa, China, India, and Southeast Asia.

In cysticercosis, the clinical manifestations are variable. Cysticerci can be found anywhere in the body but are most commonly detected in the brain, cerebrospinal fluid (CSF), skeletal muscle, subcutaneous tissue, or eye. The clinical presentation of cysticercosis depends on the number and location of cysticerci as well as the extent of associated

inflammatory responses or scarring. Neurologic manifestations are the most common.

Diagnosis of Cysticercosis is confirmed by either one absolute criterion or a combination of two major criteria, one minor criterion, and one epidemiologic criterion. A probable diagnosis is supported by the fulfillment of (1) one major criterion plus two minor criteria; (2) one major criterion plus one minor criterion and one epidemiologic criterion; or (3) three minor criteria plus one epidemiologic criterion. (Table 1)

We present a case report of cysticercosis involving muscle. It is rare presentation because it is involving only head and neck and secondly

sternocleidomastoid muscle presenting as neck mass.

Table 1: Diagnostic Criteria for Human Cysticercosis ^[1]

1. Absolute criteria
a. Demonstration of cysticerci by histologic or microscopic examination of biopsy material
b. Visualization of the parasite in the eye by funduscopy
c. Neuroradiologic demonstration of cystic lesions containing a characteristic scolex
2. Major criteria
a. Neuroradiologic lesions suggestive of neurocysticercosis
b. Demonstration of antibodies to cysticerci in serum by enzyme-linked immunoelectrotransfer blot
c. Resolution of intracranial cystic lesions spontaneously or after therapy with albendazole or praziquantel alone
3. Minor criteria
a. Lesions compatible with neurocysticercosis detected by neuroimaging studies
b. Clinical manifestations suggestive of neurocysticercosis
c. Demonstration of antibodies to cysticerci or cysticercal antigen in cerebrospinal fluid by ELISA
d. Evidence of cysticercosis outside the central nervous system (e.g., cigar-shaped soft-tissue calcifications)
4. Epidemiologic criteria
a. Residence in a cysticercosis-endemic area
b. Frequent travel to a cysticercosis-endemic area
c. Household contact with an individual infected with <i>Taenia solium</i>

Case Report

A 20 year male presented with chief complaint of painless single lateral neck swelling (Fig. 1) on left side since 3 weeks, which was slowly increasing in size. There was no history of fever, cough, throat pain, dysphagia, trauma, insect bite, and no other neck swellings. No family history of tuberculosis.



Fig. 1 Neck swelling in Left side of neck over sternocleidomastoid muscle

Reddy: Uncommon presentation of cysticercosis

On examination it was solitary swelling, about 3cms*2.5cms over upper and middle third of sternocleidomastoid on left side which was non tender, mobile horizontally but not vertically, on contraction of Sternocleidomastoid muscle the swelling size remained of same but mobility was restricted, ill defined margins, skin is free from underlying swelling, no secondary changes over it. ENT examination and general physical examination was unremarkable. Considering these findings it was clinically suspected to be tubercular lymphadenitis and subjected him for investigations. USG neck showed well defined anechoic cystic lesion with internal debris measuring about 1.2*0.6cms noted in left sternocleidomastoid muscle, possibly a parasitic cyst. FNAC also showed features of benign parasitic cystic lesion. On blood investigation eosinophil count was raised (7%), absolute eosinophil count was also raised (528cells/mm³), raised erythrocyte sedimentation rate 35mm. USG abdomen was normal so also CT brain.



Fig: 2 Intraoperative picture of cyst excision

Excision of swelling (Fig. 2) under regional block and local anesthesia was done and excised specimen was sent to histopathological examination. HPE (Fig. 3,

4) showed fragments of fibromuscular tissues with areas of necrosis surrounded by palisading histiocytes, langerhans type of gaint cells and eosinophils. Parasitic structure morphologically resembling cysticercus was seen. Sections were negative for malignancy. Hence diagnosis of cysticercosis of sternocleidomastoid was made.

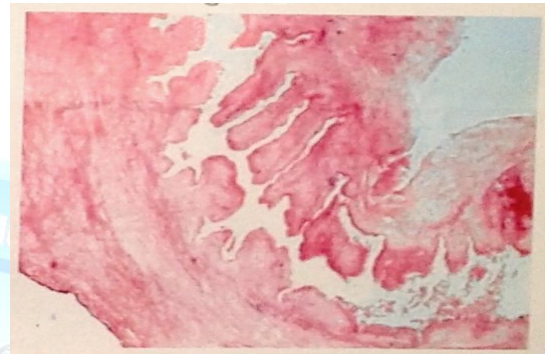


Fig. 3 Demonstrating fibromuscular tissues with areas of necrosis (H&E X 100)

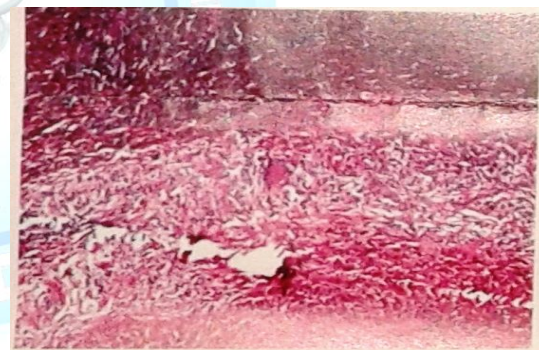


Fig.4 Showing necrosis surrounded by palisading histiocytes, langerhans type of gaint cells and eosinophils. (H&E X 400)

Patient was discharged form hospital next day with tab. Albendazole 400mg twice daily for 4 weeks. On subsequent follow up symptoms were reduced and the course was uneventful.

Discussion

The 2003 World Health Assembly declared that T solium is of worldwide public-health importance, and that it is an eradicable

parasitic disease worldwide. Adult taeniid tapeworms expelled from people in almost all Asian countries appeared to be *T. saginata* (the so-called Asian Taenia), even though they ate pork. The organism is now named *T. asiatica*, and has been found in Taiwan, Korea, China, Vietnam, and Indonesia. But it has been difficult to differentiate *T. saginata* from beef and Asian Taenia from pork. Diagnosis is based on serology, imaging and histology, but confirmation is best obtained by histopathological examination.

In this case we suspected it to be tubercular pathology as the burden of tuberculosis in our country is high, neck mass is one of the common manifestations of tuberculosis but on further evaluating it turned out to be parasitic etiology hence to confirm it we planned for surgical excision and histological examination.

Retrospectively we found that it could be because of consumption of contaminated food as he is non vegetarian but epidemiological data could not be confirmed. A further test to rule out intestinal neurocysticercosis was negative by stool study and CT scan brain respectively.

Brown ST, et al ^[2] reported a case of cysticercosis involving only the sternocleidomastoid muscle of an otherwise healthy pregnant woman is presented where an enzyme-linked immunoelectrotransfer blot assay for cysticercosis was nonreactive. He concluded that the results of serological tests for such patients may not be positive and histopathology remains the only reliable method for confirming the diagnosis of cysticercosis.

Sharma R, et al reported a similar case report and concluded that such case is reported because it is a rare one and to

reinforce the fact that parasitic etiology should be kept in mind while dealing with a case of neck swelling. ^[3]

Holt GR et al ^[4] study said that certain uncommon systemic infections may be present with head and neck manifestations either initially or during the course of the disease. A high index of suspicion is required on the part of the otolaryngologist with the subsequent procedures leading to the appropriate diagnosis. The manifestations of infectious diseases such as erysipelas, histoplasmosis, rabies, tetanus, botulism, and cysticercosis must be understood by the head and neck specialist. For successful management, many of the infections require prompt identification and initiation of therapy.

Kinnman J et al study concluded that Cysticercosis is not likely to be the first diagnosis the otologist has in mind when regarding tumors in the head and neck area. ^[5]

The fact that this disease may present a diagnostic and therapeutic problem is illustrated by three cases, appearing in the tongue, buccal mucosa, and midline of the neck, respectively. The local finding of a soft nontender mass, the typical calcifications in the soft tissues visible on roentgenograms, and the histopathological findings are methods for diagnosis. Such solitary presentation of muscular cysticercosis is extremely rare with only a handful of sporadic reports in the literature.

Measures for the prevention of intestinal *T. solium* infection consist of the application to pork of precautions similar to those described above for beef with regard to *T. saginata* infection. The prevention of cysticercosis involves minimizing the opportunities for ingestion of fecally derived eggs by means of good personal hygiene, effective fecal disposal,

and treatment and prevention of human intestinal infections. [6] Mass chemotherapy has been administered to human and porcine populations in efforts at disease eradication. Finally, vaccines to prevent porcine cysticercosis have shown promise in studies and are under development.

Marshall Lightowlers and colleagues recently demonstrated that recombinant oncosphere vaccines against several taeniid cestodes, including *T. ovis*, *T. saginata*, *T. solium*, and *Echinococcus granulosus*, are highly effective. [7] Protection was almost 100%, in the laboratory and in the field.

Conclusion

Cysticercosis is an infection of Cestodes, or tapeworms (larvae), which are segmented worms. Cysticercosis is not likely to be the first diagnosis the otologist has in mind when regarding swelling in the head and neck area and even though neurocysticercosis is most common manifestation there are also case reports of isolated involvement of muscle and hence otolaryngologist should be highly suspicious of the parasitic etiology. We conclude that parasitic infestation should be considered as differential diagnosis in any neck swelling.

References

1. OH Del Brutto, V Rajshekhar, A C White Jr, VC W Tsang, TE Nash, OM Takayanagui, et al. Proposed diagnostic criteria for neurocysticercosis. *Neurology* 57:177-183,2001.
2. Sheldon T Brown, Arthur E Brown, Daniel A Filippa, Daniel Coit, Donald

Armstrong. Extranural cysticercosis presenting as a tumor in a seronegative patient. *Clin Infect Dis* 1992 Jan;14(1):53-5.

3. Sharma R, Gautam P, Kumar S, Elhence P, Bansal R, Gupta G. Isolated cysticercosis cellulosa of sternocleidomastoid muscle: a case report with review of literature. *Indian J Otolaryngol Head Neck Surg* 2011 Jul;63(Suppl 1):127-30.
4. Holt GR, Young WC, Aufdemorte T, Mattox DE, Gates GA. Head and neck manifestations of uncommon infectious diseases. *Laryngoscope* 1982 Jun;92(6 Pt 1):634-9.
5. Jan Kinnman, Chung Hee Chi, Jae Hoon Park. Cysticercosis in otolaryngology. *Arch Otolaryngol* 1976 Mar; 102(3):144-7.
6. A Clinton White Jr, Peter F Weller, editors. *Cestode Infections*. Dan L Longo, Anthony S Fauci, Dennis L Kasper, Stephen L Hauser, J Larry Jameson, Joseph Loscalzo. *Harrison's Principles of Internal Medicine*. 18ed. New York: McGraw Hill; 2011.p.1759-62.
7. MW Lightowlers, CG Gauci, C Chow, DR Drew, SM Gauci, DD Heath, et al. *Int J Parasitol* 2003;33:1207-17.

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