Case Report

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Surgery Section

Myocysticercosis as A Rare Cause of Hand Swelling: A Case Report With Review of Literature

ARJUN AGARWAL, CHEENA GARG, MOHIT AGARWAL

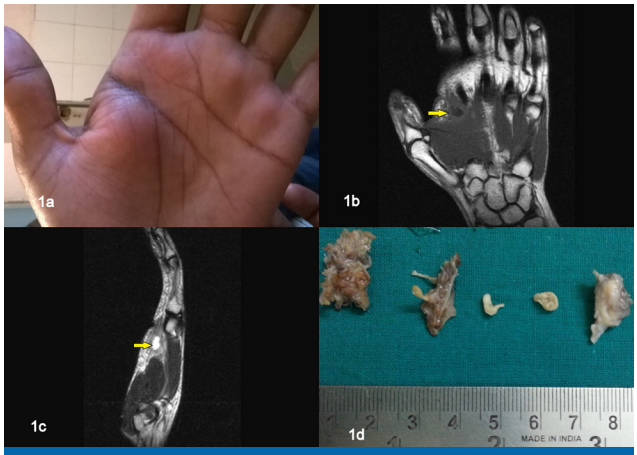
ABSTRACT

In developing countries, cysticercosis is a common human infestation that usually presents as neurocysticercosis. Lesions in eye, skeletal muscles and subcutaneous tissues are rare. We report this case of an uncommon clinical presentation of soft tissue cysticercosis as an isolated hand swelling without neurological involvement. We want to highlight that it should be considered as a differential diagnosis especially in endemic areas and sometimes when it does not get resolved by medical management, it should be surgically excised as it happened in our case.

Keywords: Cysticercosis, Sites, Surgical excision

CASE REPORT

A 26 years old non-vegetarian male presented to Rohilkhand Medical College and Hospital, Bareilly with complaints of swelling on his left hand for one month. Swelling was initially of a size of marble which gradually progressed to its present state. There was no history of pork consumption, trauma, epilepsy sensory or motor deficit of his involved hand. On examination there was a 5x4 cm swelling over the thenar eminence of his left hand with normal overlying skin. Swelling was soft, non tender with normal surface temperature. The surface was smooth, margins were ill defined and fluid thrill was absent. The swelling was fixed to underlying structures but overlying skin was free [Table/Fig-1a]. Sonography of hand was suggestive of a cystic swelling. MRI hand showed a cystic lesion of 1x1cm with eccentric scolex and mild surrounding edema in deep muscle plane medial to distal part of second metacarpal suggesting myocysticercosis [Table/Fig-1b,1c]. Visualised bony structures and rest of the soft tissue were unremarkable. FNAC was suggestive of an inflammatory lesion and biopsy was advised. Three weeks course of albendazole was given but owing to its failure excision was done. On pathologic examination the cyst wall and contents were received in five pieces. These were oval, white to opalescent, largest 1.5 cm long and showed cysticercus larva on microscopy [Table/Fig-1d]. Patient was discharged on the same day and post-operative course was normal. Other causes of isolated hand swelling include accidental trauma, animal bite, hypothenar hammer syndrome and hand compartment infection. Our diagnosis of myocysticercosis was made by MRI scan and confirmed per operatively and after pathological analysis. Due consent has been taken from the patient.



[Table/Fig-1a-d]: a) Ill defined, smooth swelling over the left thenar eminence; b) MRI hand shows cystic lesion with eccentric scolex, mild perilesional edema near the distal part of second metacarpal (T1W image); c) MRI T2W image of the same lesion; d) Gross examination with white opalescent fragments

DISCUSSION

Pork consumption, poor pork husbandry practices and poverty are risk factors associated with cysticercosis .The prevalence of the disease is high in India with higher prevalence in North India as compared to the South [1,2].

Two different presentations of pork tapeworm infestation can be seen that depend upon whether humans are infected

with adult tapeworms in the intestine (Taeniasis) or with larval forms in the tissues (cysticercosis). While humans are the only definitive hosts for *T. Solium*, pigs on the other hand are the usual intermediate hosts. Dogs, cats, and sheep may harbour the larval forms. The ensuing clinical disorder is named after the name of the larval stage, Cysticercosis Cellulosae [3].

86% of the diagnosed cases are either ocular or cerebral. The remaining 14% are in the subcutaneous, cardiac, pulmonary, muscular, hepatic and oral locations [4]. Why they occur more in brain and muscles is not completely understood, but it may be related to increased blood supply in these tissues compared with other organs [5].

As the occurrence of cysticercosis related to poverty therefore it has been designated as a `biological marker' of the social and economic progress of a community. In India all the biological markers for transmission of *T.solium* can be seen. Disease is likely to be under reported in India because due attention has not been given and systematic population based studies in India are lacking. Wide variations within the country in geography, ethnicity, religion, income, food habits, personal hygiene, level of education and standards of living exist which are likely to influence the disease burden [2,6]. Other countries where this disease is still prevalent includes Central and South America, South Asia and China [7].

In India only a minority of population eats meat products. 80% are Hindus with different ideas and practices in different regions of the country. Consumption of beef is against religion in Hindus and eating of pork is generally restricted to the lower socio-economic strata. Muslims constitute 14% of the population and they do not consume pork, whereas Sikhs, Jains, Buddhists, and Christians have differing dietary practices [1].

How cysticercosis presents depends on its location in the body, the number of lesions at a particular site and on the inflammatory response generated. In 87% cases it presents as a solitary lesion [8]. As the striated muscle cysts do not get favourable environment, they die early and can calcify after death. Inflammatory response is usually not generated by the living parasite. During the involution phase, a surrounding granulomatous inflammatory response comprising mainly of plasma cells, lymphocytes eosinophils and macrophages occur. In long standing cases the dead cyst is surrounded by a dense layer of fibrosis or calcification [9].

Three different types of myocysticercosis have been described [10]. Myalgic type is due to leakage of cyst fuild causing inflammatory pain. The second type is myopathic type in which degeneration of cyst causes chronic minimal leakage from cyst leading to chronic inflammation and mass or abscess like swelling. Lastly there is pseudo hypertrophy type in which multilocular cyst formation occurs in a group of muscle. Our case was of myopathic type.

If the cyst has calcified, routine imaging (X-ray) can detect it. Multiple calcified "puffed-rice" lesions are seen on plain X ray, however MRI gives specific findings [11]. Fluid equivalent signal with perilesional edema with hypointense T1 and hyperintense T2 image in absence of systemic features suggests cysticercosis. Visualisation of scolex confirms the diagnosis as in our case. Treatment depends on the site of infestation, number of cysts and presence of symptoms. Isolated myocysticercosis usually requires no treatment unless it is painful which requires excision though some recent case reports encourage conservative treatment with albendazole with good results [12]. Cysticercosis is a preventable disease. Preventive measures comprise of good personal hygiene including proper hand washing and sanitization, adequate washing and cleaning of vegetables and salads which are consumed raw, proper disposal of faeces, treatment and prevention of human intestinal infections and proper cooking of pork to kill cysticerci.

CONCLUSION

Myocysticercosis of the hand is a rare clinical presentation of not an uncommon disease therefore, high index of suspicion is required in endemic region like India. X-ray and ultrasonography does not give much help but MRI scan can be diagnostic. Medical treatment includes albendazole which is successful in many cases. Failure warranties surgical excision.

REFERENCES

[1] Vedantam R. Epidemiology of Taenia solium taeniasis/ cysticercosis in India and Nepal. Southeast Asian. *J Trop Med Public Health*. 2004; 35(1): 247-51.
[2] Prasad KN, Prasad A, Verma A, Singh AK. Human cysticercosis and Indian scenario: a review; *J. Biosci*. 2008; 33(4): 571-82.
[3] Evans CAW,Garcia HH,Gilman RH.Cysticercosis.In: Strickland GT (Ed).Hunter's tropical medicine (8th ed). Philadelphia, PA: WB Saunders Co ,2000.
[4] Mahajan D, Khurana N, Setia N. Coexistence of salivary gland cysticercosis with squamous cell carcinoma of the mandible. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*. 2007;103(3):e47–50.
[5] Kumar R, Singh V, Rastogi A. Cysticercosis of temporalis muscle: a case report. *J Pediatr Neurol*. 2005;3(4):269–72.
[6] Ratnam S, Khanna PN, Bandyopadhyay AK. Incidence of taeniasis in man. *Indian J Public Health*. 1983; 27(2):70-74.
[7] Prasad KN, Prasad A, Gupta RK, Pandey CM, Uttam S. Prevalence and associated risk factors of T. solium taeniasis in a rural pig farming community of North India; Trans. R. Soc. Trop. *Med. Hyg*. 2007; 101(12): 1241-47.
[8] Pandey SC; Pandey SD. Lingual cysticercosis: *Indian J Plast Surg*. 2005; 38(2): 160-61.
[9] White AC, Robinson P, Khun R. *Taenia solium* cysticercosis: host parasite interaction and the immune response. *Chem. Immunol*. 1997; 66(2): 209-30.
[10] Horton J. Biology of tapeworm disease [letter].Lancet 1996;348:481. http://dx.doi.org/10.1016/S0140-6736 (05 64584-9.

[11] Dixon HB, Lipscomb FM. Cysticercosis: an analysis and follow up of 450 cases. Privy Council Med Res Council, Special Report Series No 299. Her Majesty's Stationery office, London. 1961; *Special Report Series No* 299:1-58.

[12] SS Rangdal, S Prabhakar, SS Dhatt, M Prakash, M Dhillon. Isolated muscular cysticercosis.A rare pseudotumor and diagnostic challenge, can it be treated nonoperatively? A report of two cases and review of literature. *Journal of Postgraduate Medicine, Education &Research*. 2012;46(1) :43-48.

AUTHOR(S):

1. Dr. Arjun Agarwal
2. Dr. Cheena Garg
3. Dr. Mohit Agarwal

PARTICULARS OF CONTRIBUTORS:

1. Resident, Department of Surgery, Rohilkhand Medical College and Hospital (RMCH), Bareilly, U.P, India.
2. Professor, Department of Pathology, Rohilkhand Medical College and Hospital (RMCH), Bareilly, U.P, India.
3. Resident, Department of Radiology, VMMC and Safdarjung Hospital, New Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Cheena Garg,
35/C8, Rampur Garden, Bareilly, U.P.-243001, India.
E-mail: cheena.garg@gmail.com

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