

Cysticercosis: The Hidden Parasite With Short Review Of Literature

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Citation

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Abstract

Background: Cysticercosis is the most common parasitic infection of soft tissue. In India it is more common in northern parts. Fine needle aspiration cytology is a useful and rapid technique in the diagnosis of Cysticercosis.

Case details: In this retrospective study 5 cases presented with soft tissue swellings. Clear fluid was aspirated from four of the swellings and pus from one. Microscopically all the cases showed features of inflammation, presence of calcospherules and fragments of wall. However none showed presence of hooklet.

Discussion: Fine needle aspiration cytology is useful in the diagnosis of parasitic infections. For definitive diagnosis of Cysticercosis cellulose, hooklets and fragments of wall are required apart from the inflammation. A careful search for hooklets is indicated wherever clear fluid is aspirated with eosinophilic prominence.

Conclusion: In endemic areas, cysticercosis should be included in the differential diagnosis of nodular lesions. This study helps to spread the awareness.

INTRODUCTION

Cysticercosis is the most common parasitic infection of soft tissue. It is endemic in Latin America, Africa and Asia. In India it is more common in northern parts. The commonest sites of involvement include brain, muscle, eye and heart. Man occasionally serving as the larval host of *Taenia solium* becomes infected either by drinking contaminated water or by eating uncooked vegetables infected with eggs₁. Fine needle aspiration cytology is a useful and rapid technique in the diagnosis of cysticercosis cellulose.

MATERIALS AND METHODS

In this retrospective study from January 2001-2006 there were 5 cases. In all the cases smears stained with Papanicolaou and May-Grünwald-Giemsa were reviewed.

CASE DETAILS

Two cases presented with chest wall swelling, one case each with neck, axillary and calf muscle swelling. In all the five cases there was no clinical suspicion of Cysticercosis cellulose. (Table-1)

Figure 1

Table 1

SL.No.	Age/Sex	Site	Clinical presentation	Clinical diagnosis
Case- 1	34/F	Chest	3.0x2.0 cm, nontender, mobile, well-defined borders	Lipoma
Case- 2	10/F	Chest wall	2.0x2.0 cm, hard, freely mobile over underlying rib	Soft tissue tumor
Case- 3	30/F	Right axillary lymph node	2.0x2.0 cm, nontender, firm mass	Lymphadenopathy ? Tuberculosis
Case- 4	16/F	Left cervical lymph node	4.0x3.0 cm, tender, firm mass	Lymphadenopathy ? Tuberculosis
Case- 5	39/M	Lump left calf	3.0x3.0 cm, nontender, mobile, prominence with contraction of muscle	Soft tissue tumor

On aspiration four of the swellings yielded clear fluid and pus was aspirated from one. Microscopically all the five

cases showed features of inflammation comprising of both acute and chronic inflammatory cells, presence of calcospherules and fragments of wall of cysticercosis cellulose with multiple granular nuclei in a fibrillary matrix. (Figures 1,2) However none showed presence of hooklet.

Figure 2

Figure 1: Wall of (Papanicolaou stain x 200)

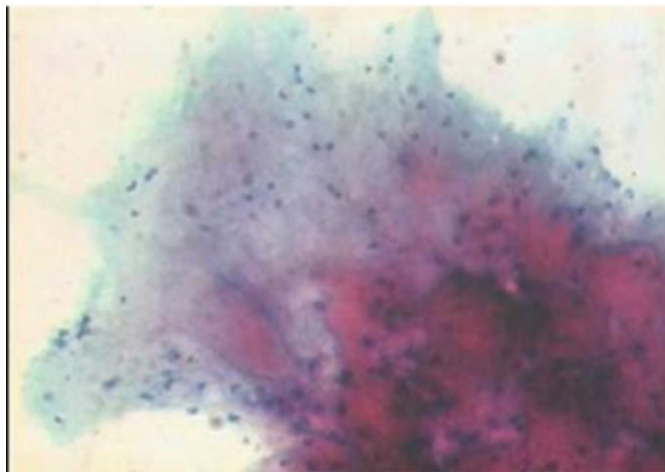
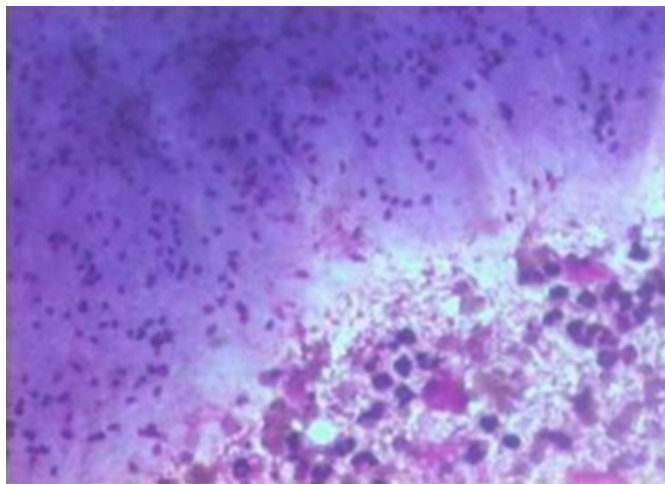


Figure 3

Figure 2: with acute inflammatory cells (May-Grünwald-Giemsa stain x 200)



DISCUSSION

Fine needle aspiration cytology is useful in the diagnosis of parasitic infections. For definitive diagnosis of Cysticercosis cellulose, hooklets and fragments of wall are required apart from the inflammation. So careful search is required in presence of dense inflammation by eosinophils and histiocytes. The tissue response to cysticercus has been divided into five stages². The initial response comprises macrophages and lymphocytes. Afterwards a well-formed layer of palisading histiocytes is seen. Eosinophils appear as

the inflammatory response achieves chronicity. Later on polymorphs invade the necrotising parasite. However, most of these parasites often do not invoke any host tissue response as the parasites produce taeniaestatin and other poorly defined molecules that interfere with the cellular immune response³. The factors responsible for the parasite degeneration are not known. One of the reasons considered is the appearance of various HLA molecules on the surface of the parasite.⁴ Certain physical factors such as the firm non-expansile nature of the host tissue may contribute in limiting the growth of the parasite and initiating the host inflammatory response. Differential diagnosis includes Echinococcus, granulomatous lesions and soft tissue swelling. Arora et al studied 298 cases where characteristic fragments of bladder wall cytologically corresponding to viable or partially necrotic lesions were seen in 203 cases. Identification of fragments of an invaginated larva (i.e., hooklets, scolex or spiral wall) established the diagnosis in 33 of the suspected lesions. Cytomorphologically all these cases were from either necrotic or calcified lesions⁵.

Kamal et al described presence of polymorphous inflammation and fragments of wall in subcutaneous cysticercosis⁶. Verma et al studied aspirates from 182 cases of subcutaneous cysticercosis and semiquantitated the type and degree of inflammatory response, and the amount and preservation of the parasite. They concluded that the tissue response is variable with 88–92% being eosinophils, 50–70% palisading histiocytes, 68–80% epithelioid cell granulomas and 46–74% giant cells⁷. In another large study of 132 cases by Khurana et al showed presence of calcospherules and fragments of wall in all the cases in addition to hooklets seen in 98 cases⁸. In the present study clear fluid was aspirated in three cases and microscopically presence of inflammation, calcospherules and fragments of wall was seen in all the cases. These spherules represent the degenerated integument of the parasite found in the histologically excised cyst. They indicate the presence of an encysted flat worm, but are not specific for cysticercosis cellulose, whose identification is based on the study of the cephalic extremity of the parasite.

Cysticercus generally presents as soft tissue swelling and is not clinically diagnostic as illustrated in the present study as well as in other studies where there was no clinical suspicion of cysticercus. In cases where clear fluid is aspirated diagnosis of cysticercus can be considered. A careful search for hooklets is indicated wherever there is clear fluid

aspiration with eosinophil prominence. In our cases no hooklets were seen as in other studies, where however the diagnosis was proved by histopathological examination. (Table – 2)

Figure 4

Table 2

	Kamal et al	Khurana et al	Arora et al	Present study
Number of cases studied	9	132	98	5
Clinical suspicion	0	25	0	0
Aspiration of clear fluid	-	-	90	4
Aspiration of pus	-	-	8	1
Inflammation	9	2	98	5
Calcospherules	-	132	90	5
Fragments of wall	9	132	90	5
Hooklets	0	98	5	0

CONCLUSION

Fine needle aspiration cytology in cysticercosis is low cost, out- patient procedure. Cysticercosis cellulose is more common than usually thought. In endemic areas, Cysticercosis cellulose should be included in the differential diagnosis of nodular lesions. To the best of our knowledge

these are the first reported cases of cytology in Cysticercosis cellulose from South India. Thus this study helps to spread the awareness.

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