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Intramuscular Cysticircosis, Diagnosis, Management with Review of Literature

KEYWORDS: Cysticircosis, taenia, intramuscular

Dr Halikar Sudhir G

Associate professor, department of,ENT,Institute of Medical Sciences & Research, Mayani, Satara

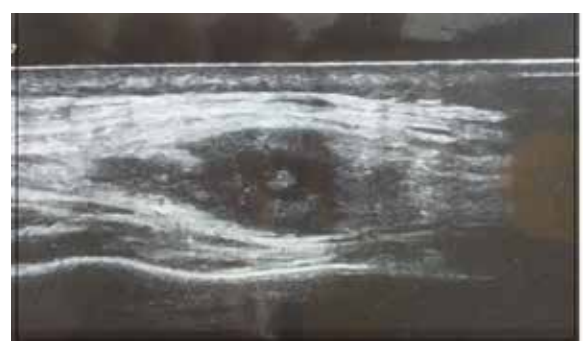
ABSTRACT *Human cysticercosis is a common tropical disease which is caused by Cysticercus cellulosae, larvae of a tapeworm, Taenia solium. Cysticercosis is endemic with high prevalence in most of the developing countries because of the co-existence of poor sanitary conditions and domestic pig raising. Cysticercosis can involve any tissue in the body; the most common affected sites are central nervous system, subcutaneous tissue, eyes, and muscles. Extensive intramuscular Cysticercosis without any other systemic involvement is a very rare finding. Here, we report two cases of intramuscular Cysticercosis diagnosed by plain ultrasonography in two middle aged men who presented with swelling in neck and temporal region repectively.*

Introduction :

Cysticercosis is a systemic manifestation caused by dissemination of the larval form of the pork tapeworm, Taenia solium. A high prevalence has been reported from the developing countries because of the co-existence of poor sanitary conditions and domestic pig raising without proper veterinary control or surveillance systems (1). It occurs mainly in pork eating nations due to consumption undercooked pork or measly pork. Humans are the definitive hosts and carry intestinal adult tapeworm. Intermittent faecal shedding of proglottids or free eggs occurs, and the intermediate host (normally pigs) ingests the excreted eggs in contaminated food or water. Embryos penetrate the gastrointestinal mucosa of the pig and are haematogenously disseminated to peripheral tissues with formation of larval cysts. When undercooked pork is consumed, an intestinal tapeworm is formed again, completing the life cycle of the worm. Human cysticercosis occurs when eggs are ingested via faecal-oral transmission from a tapeworm host. The human then becomes an accidental intermediate host, with development of cysticercosis within organs. Cysticercosis can affect various organs the brain, spinal cord, muscles, orbit, subcutaneous tissues and heart. The clinical manifestation of the patient varies depending upon the site of larval encystment, number of cyst and the extent of associated inflammatory responses. Isolated involvement of the soft tissues is very rare and can potentially mimic other soft tissue lesions including infective, inflammatory and neoplastic lesions.

Case reports :

First case was 35-year-old male who presented with a swelling on the rt. side of neck inside the mass of rt. sternocleidomastoid muscle. During anamnesis, the patient reported that the lesion was painless and was present for about six months, showing a slow rate of growth. Past medical history was noncontributory. Second case was a 42 yr male who presented with swelling in left temporal region. He was getting pain on chewing and pressure symptoms. Ultrasonography was done to confirm the diagnosis in both the cases. After diagnosis, complete blood count and stool examination were performed which were normal. To eliminate the possibility of neurocysticercosis, a computarized tomography of the head and an electroencephalogram were performed and no other parasitosis focus was found in both the cases. In the first case patient was willing to undergo surgery. During surgery, he was found to be having the cyst in the substance of the muscle mass surrounded by extensive fibrosis. Cysticircosis was confirmed on histo-pathology. Medical line of therapy in the form of Albendazole was given in the postoperative period for three weeks. In second case the patient was not willing for surgery and hence was prescribed Albendazole for four weeks of therapy only. Both recovered very well without any anomaly. Follow-up USG was done at 15 days and at three months. The follow-up USG done at 15 days showed resolution of edema, while the follow-up USG done at three months showed complete resolution of the cyst and edema.



USG picture : Long horizontal arrow is cyst and small vertical arrow is head or scolex

Review of Literature :

The tapeworm is composed of the scolex (head) and proglottids (caudal end). Each proglottid contains from 40,000 to 60,000 eggs, which are released through faeces. The pig becomes infected by ingesting the eggs from the ground contamined by human faeces and develops the larval form. By consuming inadequately cooked infected pork, man acquires the larva, which becomes, inside the small intestine of the host, an adult worm, theTaenia sp[4,6]. Humans can have taeniasis for long periods and contaminate environment continuously[4]. When man ingests the eggs, he becomes the intermediate host, a role usually played by the pig, and a larval form will develop. The ingestion of Taenia solium eggs happens through ingestion of fecally contaminated vegetables, food or water, as well as self-contamination, by reflux of the proglottid from the intestine into the stomach or contamined hands. The eggs develop into oncospheres that penetrate

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intestine wall and - via lymphatic or vascular circulation - reach a destination, where larvae develop and become the cysticerci or "bladder worm", a fluid-filled cyst4.

Once a person becomes the host of Cysticercus cellulosae, cysticercosis can develop in various organs and tissues7. The most serious involvement is that of the central nervous system, followed by ocular involvement, usually the only ones which are symptomatic6. Generalized symptoms include headache, fever and myalgia. Patients with neurocysticercosis can present with several signs and symptoms, being the most frequent seizures, increased intracranial pressure, obstructive hydrocephalus, meningitis, and mental disorders[7].

The most frequently affected decade is the third (32%), followed by the fourth decade (20.6%). There is usually an equal distribution between genders, the patient complaint is a swelling. Although pain is not a frequent feature, it had been reported in secondarily infected . Histopathological examination makes up a diagnosis of cysticercosis by the detection of a cystic space containing the Cysticercus cellulosae. The scolex has four suckers and a double crown of rostellar hooklets[3]. A duct-like invaginated segment, lined by a homogeneous anhistic membrane, composes the caudal end. The eosinophilic membrane that lines the capsule is double-layered, consisting of an outer acellular and an inner sparsely cellular layer5. After a period within three and five years the larva dies and the cyst undergoes calcification. High-frequency USG has become relatively inexpensive and is a readily available and reliable diagnostic modality for the diagnosis of soft tissue cysticercosis. The most common USG appearance of soft tissue cysticercosis is that of an intramuscular abscess with an eccentrically situated typical cyst with a scolex within. This appearance may be due to chronic intermittent leakage of fluid from the cyst due to degeneration of the cyst, resulting in a chronic inflammatory response with a fluid collection around the cyst[2]. The second most common appearance was that of a typical cysticercosis cyst with a scolex within and surrounding mild edema but no abscess. Such patients may present with subcutaneous nodules or pseudohypertrophy of muscles if multiple cysts are present[2]. The least common appearance was that of an irregular cyst with no scolex within but with minimal fluid surrounding the cyst on one side indicating leakage of fluid[2]. The non-visualization of the scolex may be due to escape of the scolex outside the cyst or partial collapse of the cyst during larval death. Such patients present with myalgia[2]. The clinical features depend on the location of the cyst, the cyst burden, and the host reaction3,8. Subcutaneous cysticercosis may cause painless or painful subcutaneous nodules. Muscular cysticercosis may present clinically with myalgia, pseudotumor or mass and pseudohypertrophy3,8. Clinically, soft tissue cysticercosis can be misdiagnosed as lipoma, epidermoid cyst, abscess, pyomyositis, tuberculous lymphadenitis, neuroma, neurofibroma, sarcoma, myxoma, ganglion, or fat necrosis[6]. Since it is a common soft tissue infection, clinicians should always consider cysticercosis in the differential diagnosis whenever a patient presents with painful or painless swelling of long duration. USG is the initial and most reliable diagnostic modality for a soft tissue swelling[5,6]. CT scan and MRI are useful in anatomical localization of the cysts, CT being more sensitive than MRI in detecting small calcifications. However, MRI is more sensitive than CT as it identifies scolex and the cyst. Cysticercosis is seen as a cystic lesion that appears hyperintense on T2W and hypointense on T1W images. Peripheral rim enhancement of the cyst wall is also known. Intramuscular cysts are oriented in the direction of the muscle fibers[2,8] .The scolex is also appreciated as a tiny hypointense speck within the hyperintense cyst2.The diagnosis of cysticercosis can be confirmed by fine-needle aspiration cytology (FNAC) or biopsy, which shows the detached hooklets, scolex, and fragments of the spiral wall of Cysticercosis cellulosae[1]. Sometimes, the larval parts may not be seen in the specimen, but an inflammatory reaction consisting of large numbers of eosinophils and histiocytes can still be seen[1]. Drugs as praziquantel and albendazole are potent antihelminthics used in the treatment of cysticercosis4,7. Drugs should be used especially in cases where surgical treatment is risky or not possible, and or if the patient is not willing for surgery.

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