

Cysticercosis as a differential diagnosis of knee pain: A rare case report

Ali Mohammed P¹, Jagdish Menon², DK Patro³, Deep Sharma⁴

¹Dr Ali Mohammed P, Senior Resident, Department of Orthopaedics, ²Dr Jagdish Menon, Head Department of orthopaedics, ³Dr D K Patro Senior Professor, Department of orthopaedics, ⁴Dr Deep Sharma, Associate Professor, Department of Orthopaedics. All are affiliated with Department of orthopaedics, Jawaharlal Institute of Postgraduate Medical Education and Research Pondicherry (JIPMER), India

Address for Correspondence: Dr Ali Mohammed P, Email: dralinisreenmohammedp@gmail.com, No 32,Thiruvalluvar Street,Dr Radhakrishna Nagar,Pondicherry, India.

Abstract

Cysticercosis is caused by larval stage of pork tapeworm (*Taenia solium*). There is difficulty in diagnosing cysticercosis by ultrasound alone in its early stage especially if the lesion is small. We need to adopt MRI for early diagnosis and for starting optimum treatment for the patient. We discuss about a case of cysticercosis of vastus medialis muscle who presented with knee pain in orthopedic OPD and medical treatment was given with complete resolution of infection. **Case Report:** A 31 years old male who presented with complaints of pain in the (L) knee for 2 weeks duration, difficulty in sitting cross legged and squatting for 1 week. He was also complaining of mild swelling on the medial aspect of the knee. On local examination, a diffuse swelling of distal thigh (medial aspect) with knee effusion was present with induration of vastus medialis muscle. On ultrasonography it was diagnosed as a small tear in the vastus medialis muscle. But MRI scan showed evidence of 1x0.8x0.5cm well defined oval cystic lesion in the deep muscular plane of vastus medialis in its distal one third with surrounding muscle edema and knee effusion. Patient was completely asymptomatic with full range of knee ROM after treatment with albendazole alone for 4 weeks. **Conclusion:** We should keep Intra muscular cysticercosis as a differential diagnosis for knee pain especially in endemic areas. Muscular cysticercosis with no other systemic involvement can be treated with albendazole alone. Since isolated cysticercosis is a rare entity we should always rule out other systemic involvement including central nervous system.

Keywords: Vastus Medialis, Cysticercosis, MRI, Knee Pain, Conservative Treatment.

Introduction

Cysticercosis is caused by larval stage of pork tapeworm (*Taenia solium*) [1]. Its cystic stage (cysticercus) affects various parts of human body which includes lungs, heart, peritoneum, muscles, and the maxillofacial region [2,3]. Soft tissue/muscular cysticercosis is most often associated with nervous system involvement [4-10]. but there are few case reports where we have seen muscular cysticercosis with no multiple cysts/brain involvement [5,6,8,9,11-14].

Here we are presenting a case of vastus medialis muscle involvement with no other systemic involvement who

attended orthopaedic outpatient department with complaints pain and decreased ROM of knee.

Case Report

A 31 years old gentleman who presented in orthopaedic outpatient department with complaints of knee pain for 2 week duration which was insidious in onset, slowly progressive in nature, moderate in intensity and dull aching in character. He also complaints of difficulty in sitting cross legged, squatting and he also pointed to a swelling in the medial aspect of distal thigh. No history of trauma, fever, weight loss, decreased appetite or night cries. He was a non-vegetarian. On local examination, there was raised temperature, tenderness and indurations of vastus medialis muscle on the medial

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distal thigh. Knee effusion was also present. He had normal extension of knee but flexion was only upto 30 degrees.

Systemic examination was normal. Complete hemogram and infective markers including ESR and

CRP were normal. USG of thigh reported as muscle tear in the vastus medialis muscle and knee effusion. So patient was given gutter slab for immobilization of thigh and knee and NSAID was prescribed for pain relief.



Figure 1: Lateral view of X- ray knee **Figure 2:** AP view of X- ray knee

After 3 days of immobilization patient was reviewed with severe complaints of knee pain and increased swelling of distal thigh and knee effusion. He was not able weight bear on the affected limb due to pain. At that point of time MRI was advised as the repeat ultra sound was not showing any cystic swelling or mass lesion except for small tear in the vastus medialis and knee effusion. MRI had shown 1x0.8x0.5cm sized well defined oval cystic lesion in the deep muscular plane of vastus medialis in its distal one third segment. The lesion showed T2/PD hyper intense and T1 hypo intense signal intensities and small punctate hypo intensity noted within the lesion. There was thin T2 hypo intense peripheral rim present. T2/PD hyper intensities also noted in surrounding muscle fibres suggestive of edema. Rest of the visualized thigh muscles appeared normal. Left knee joint structures were normal except for knee joint effusion and it was diagnosed as intra muscular cysticercosis.

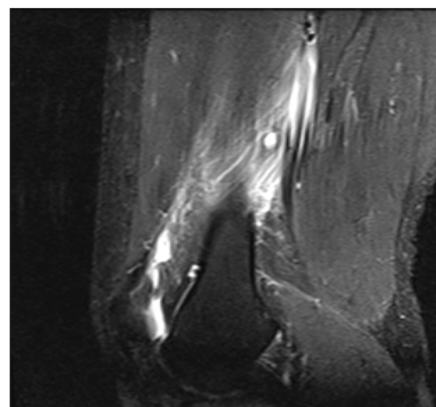
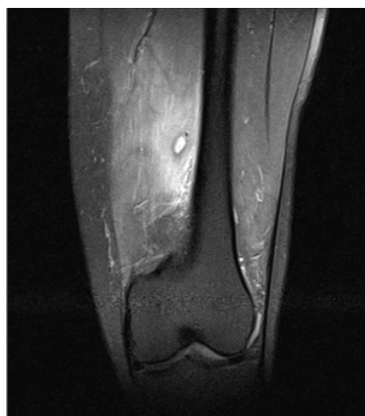


Figure 3 & 4: Coronal & Sagittal section of knee showing ring shaped lesion

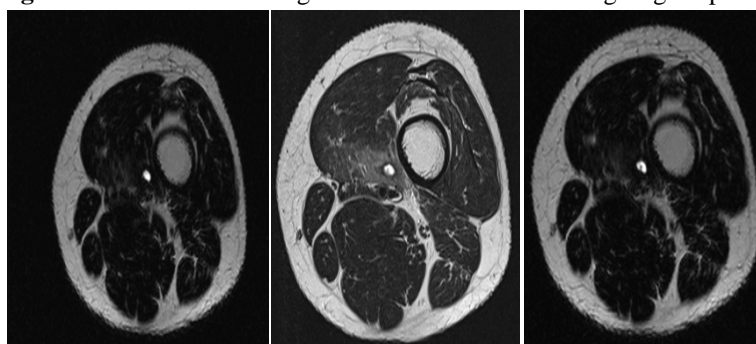


Figure 5,6&7: axial section of distal thigh showing ring shaped lesion

Serology for parasitic infection was done which showed higher titres of antibody to taenia solium infection as shown below. Since single lesion cysticercosis is rare without central nervous system involvement MRI of brain was ordered, but it showed no focal enhancing lesion/cysts except few tiny non-specific T2 hyper intense foci in bilateral white matter.

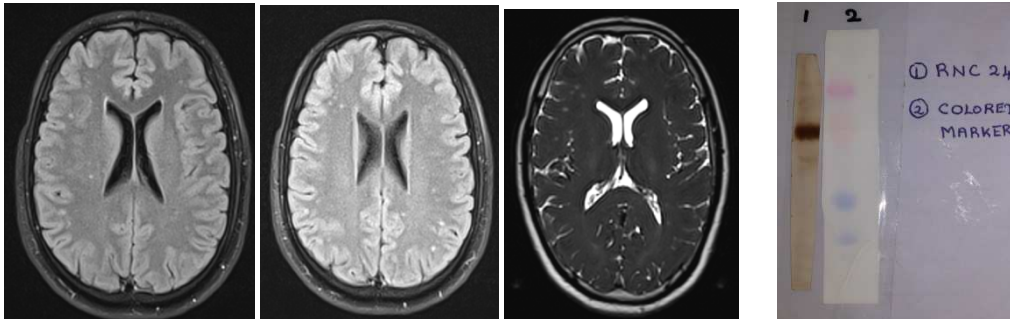


Figure 8, 9, 10: MRI images of brain as shown showing no lesion **Figure 11:** positive serology

This patient was given tablet albendazole at a dose of 15mg/kg /day for 28 days. After four weeks of drug therapy, he was completely asymptomatic with complete resolution of pain and full knee ROM was regained. Patient was followed up after 2 months with no complaints and a repeat MRI was done with no evidence of lesion in the thigh.

Discussion

Cysticercosis is caused by larval stage of pork tapeworm (*Taenia solium*) [1]. Cysticercosis is common in Africa, India, China and some part of America [7]. Tapeworm infestation is found to be common in under developed countries with poor sanitation and overcrowding causing higher chance of feco oral contamination of water with infective organism [3,15]. Pigs are the intermediate host and man is definitive host for the parasite *taenia solium*. The infection of humans starts with the use of water or food contaminated with eggs of infective agent. In the intestine oncospheres released from eggs which will penetrate mucosa of intestine and reach muscles/soft tissues causing cysticercuscellulosae (encysted stage of *T. solium*). Patient has been found to be asymptomatic in majority of cases of cysticercosuscellulosae. Symptomatic cysticercosis has been typed into 3 which includes myalgic, tumour, and pseudotumour types [1,3].

There are studies where high resolution sonography had been used to diagnose muscular cysticercosis [2,7]. But in our study we were not able to come to a final conclusion based on ultrasound findings alone. It can be due to very small size of the lesion. We came to a diagnosis of cysticercosis base on the MRI findings. MRI had shown well defined oval cystic lesion in the deep muscular plane of vastus medialis with T2/PD hyper intense and T1 hypointense signal intensities and small punctate hypo intensity noted within the lesion (suggestive of scolex). T2/PD hyper intensities

also noted in surrounding muscle fibers suggestive of edema of muscles. The swelling of knee and severe pain with features of inflammation is supposed to be due to death of the larva inside the cyst and breakage of cystic wall causing exudation of toxic materials to surrounding tissues leading to host immune reaction.

In this patient Complete hemogram showed no increase in esinophils even though he was symptomatic with pain, inflammation and effusion of knee. This is in contrast to some other case report where symptomatic helminthic infection is associated with raised esinophils [10, 16]. Plain x-ray of knee with thigh showed no bony lesion or periosteal reactions and diagnosis of cysticerci by xray is not easy except in chronic cases. We were not able to diagnose cysticercosis by ultra sound may be because of very small size of the lesion in our case. In general it is really a challenge to diagnose cysticercosis by ultra sound since there is higher inter observer variation.

On the basis of serology and MRI findings, albendazole was started at a dose of 15mg/kg/dose for 4 weeks (old regim) even if there are novel trials which showed good response with 8 day therapy with albendazole [4]. Anti-helminthic drug albendazole acts by depleting ATP level and causing demise of parasite. Patient was symptomatically better in terms of pain after 1 week of drug therapy but complained of decreased flexion of knee with difficulty in squatting and sitting cross legged. Patient was completely asymptomatic with full

range of knee ROM after treatment with albendazole alone for duration of 4 weeks.

Conclusion

We should keep Intra muscular cysticercosis as a differential diagnosis for knee pain especially in endemic areas. Muscular cysticercosis with no other systemic involvement can be treated with albendazole alone. Since isolated cysticercosis is a rare entity we should always rule out other systemic involvement especially central nervous system.

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