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# Orbital Cysticercosis Presenting as Swelling in the Medial Canthus

**Kaleem Ahmad, Sajid Ansari, Mukesh Kumar Gupta, Kanchan Dhungel, Mohammad Azfar Siddiqui[1], Raj Kumar Rauniyar**

From the Department of Radiodiagnosis & Imaging, B. P. Koirala Institute of Health Sciences, Dharan, Nepal; Department of Radiodiagnosis, Jawaharlal Nehru Medical College[1], A.M.U., Aligarh, Uttar Pradesh, India.

**Abstract:**

The orbital involvement of the cysticercosis is a rare manifestation involving eyelids, extraocular muscles, orbit, conjunctiva, anterior chamber, uvea, retina, vitreous and optic nerve. All the extraocular muscles are involved in myocysticercosis. Ultrasonography and Computed tomography are the imaging modalities for evaluation of orbital cysticercosis. The patients can be treated with systemic steroids and albendazole; however surgical excision is the treatment of choice. Hereby, we report an unusual case of orbital myocysticercosis with involvement of medial rectus muscle and swelling in the region of left medial canthus.

**Key words:** Cysticercosis, Tomography, Conjunctiva, Anterior Chamber, Albendazole, Retina.

## Introduction

Cysticercosis is the commonest parasitic manifestation of the central nervous system which also affects the eye, skeletal muscle and subcutaneous tissue. The orbital involvement by cysticercus larvae is seen in eyelids, extraocular muscles, orbit, conjunctiva, anterior chamber, uvea, retina, vitreous and optic nerve [1]. Most common site of involvement is subconjunctival space, followed by eyelids, optic nerve, retro-orbital space and lacrimal gland. All the extraocular muscles are involved in myocysticercosis [2]. Hereby, we report an unusual case of orbital myocysticercosis with involvement of medial rectus muscle and swelling in the region of left medial canthus.

## Case Report

A 22 years old male presented with complaint of painful swelling in the region of left medial canthus for last 1 month. The pain was aggravated by movement of the eyeball. Patient had no history of fever, headache and vomiting. There was also no evidence of limb weakness, deviation of mouth or slurring of speech. Central nervous system examination was normal except for weakness of the left medial rectus muscle with restricted movement of the eye ball. There was no proptosis and bilateral pupils were normal in size reacting to light. Fundus examination was normal. Visual acuity was 6/6. Hematological investigations were within normal limit.

**Corresponding Author:** Dr. Kaleem Ahmad
Email: drkalim17@yahoo.co.in
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Ultrasonography (USG) orbit [Fig.1] revealed thickened proximal part of the left medial rectus muscle with anechoic cystic lesion with an echogenic focus suggesting scolex. Computed tomography (CT) scan of orbits [Fig.2a,2b] revealed a small non enhancing well defined hypodense lesion in the left medial rectus muscle proximally with a hyperdense calcified focus in centre suggesting cysticercosis with scolex. There was mild thickening of the proximal part of the left medial rectus muscle. Optic nerve and canal were normal. CT scan of brain was normal.

Initially medical management was done by systemic steroids and albendazole. There was mild improvement in the symptoms. Later on the cyst was excised surgically and was sent for histopathology which was consistent with cysticercosis. On follow up, there was no drooping of eye lid and pain subsided.

## Discussion

Cysticercosis is caused by larval form of the tapeworm *Taenia solium* and spreads through haematogenous route in various parts of the body. Man is the intermediate host in the life cycle of *Taenia solium* by consuming contaminated food infected by eggs. In humans, the cysticercus cellulosae cysts lodge itself in muscles, central nervous system and in the eye [3]. Common clinical manifestations of ocular cysticercosis are restricted ocular movement, proptosis, ptosis, diplopia, redness, intermittent pain and diminution of vision [3]. Cysticercosis may cause significant visual loss, especially if the cyst is located in the optic nerve or is compressing the optic nerve. Double vision (diplopia) occurs due to misalignment of the visual axes, and the pattern of image separation is the key to diagnosing which particular cranial nerve (and extraocular muscle) is involved.

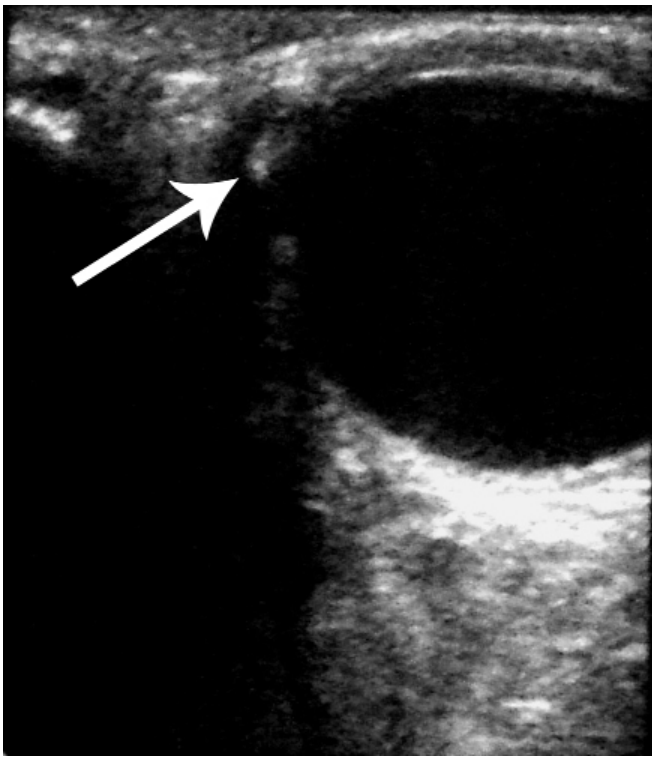

**Fig.1:** Ultrasonography of the left eye showing a cystic lesion with an echogenic focus suggesting scolex(white arrow) along with thickened proximal part of the left medial rectus muscle.

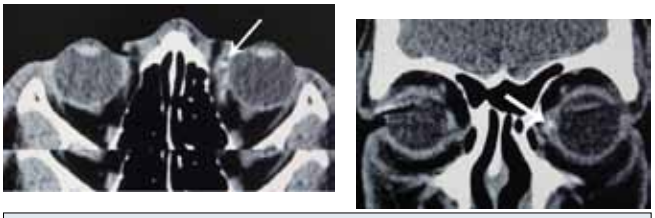

**Fig.2a and 2b:** Axial CT image (Figure 2a) and coronal CT image (Figure 2b) of orbits showing a small well defined hypodense lesion in the left medial rectus muscle with a hyperdense calcified focus within it suggesting cysticercosis with scolex (white arrow). Mild thickening of the proximal part of the left medial rectus muscle also seen.

In 1830, Soemmering was the first person to report the case of ocular cysticercosis [4]. The most devastating intraocular location is intravitreous and subretina which leads to blindness in 3 to 5 years unless the parasite is surgically removed. According to literature, ocular involvement of cysticercosis is more common in left eye [5]; however no obvious reason has been mentioned. Extraocular muscle involvement is uncommon. All the extraocular muscles are involved in myocysticercosis; however medial rectus muscle is the most frequently involved extraocular muscle in cysticercosis [2,4]. Patients presenting with restricted ocular movement and inflammatory signs, extraocular muscle cysticercosis should be considered. The association of neurocysticercosis is very rare with ocular cysticercosis [6]. In our case, there was no evidence of neurocysticercosis.

Ultrasonography (USG), Computed tomography (CT) and Magnetic resonance imaging (MRI) are the various imaging modalities for diagnosing cysticercosis. On USG, the cyst appears as hypoechoic lesion with echogenic pinhead focus within it representing the scolex. On CT scan it appears as enlarged extraocular muscle with ring enhancing cystic lesion containing hyperdense focus (suggesting scolex) within it. Magnetic resonance imaging (MRI) has greater sensitivity in characterizing the orbital pathologies with the use of fat suppressed T1- weighted imaging with or without contrast enhancement. In orbital cysticercosis, MRI reveals a cystic mass in the affected muscle which appears hypointense on T1-weighted and hyperintense on T2-weighted sequences relative to the extraocular muscles showing rim enhancement on post-contrast study. On the T1-weighted image, scolex appears as intracystic hyperintense focus which corresponds to hyperdense area on CT scan. CT and MRI helps in confirming the diagnosis and also has added advantage of detecting neurocysticercosis at the same time [7,8].

The common differential diagnoses of orbital cysticercosis are endocrine orbitopathy (Grave's disease) and orbital pseudotumor. Less common differentials are arteriovenous fistulas and malformations and orbital tumors. Grave's disease is found in majority of patients and the CT and MRI imaging findings are bulky extraocular muscles predominantly involving the belly of the muscles with sparing of tendinous attachment along with inflammatory changes in the intraorbital fat. It is usually bilateral with involvement of more than one muscle along with lid retraction. The orbital pseudotumor is usually unilateral and presents with pain, enlargement of extraocular muscles including its tendinous insertion. On MRI, pseudotumor appears as hypointense lesion both on T1- and T2-weighted images (probably due to fibrotic changes) and shows marked gadolinium enhancement. A prompt response to steroid treatment, in conjunction with the radiological findings, supports the diagnosis of a pseudotumor. Orbital hydatid cyst is rare entity and they are often larger in size and mostly require surgical excision.

Histopathological examination of the parasite reveals scolex and suckers. The initial management of intraocular cysticercosis is complete surgical removal which is followed by antiparasitic medication (albendazole) and corticosteroids. Initial medical management can induce severe intraocular reactions and thereby cause eventual blindness [9]. Early surgical removal of the parasite is the treatment of choice in extraocular myocysticercosis; however it is difficult because the cysts are attached to the underlying orbital structures, the amorphous consistency of degenerating cyst and risk of neurovascular damage [10]. There could be postoperative restrictive myopathy as a post-surgical complication. Oral albendazole and systemic steroids had marked clinical response in extraocularcysticercosis [11]. Our patient was managed surgically followed by antiparasitic

medication and corticosteroids.

## Conclusion

This case report is to emphasize that orbital cysticercosis should be included in the differential diagnosis of enlargement of orbital muscle. Ultrasonography, CT and MRI are the important imaging tools for proper evaluation and diagnosis of orbital cysticercosis. MRI is the best imaging modality for evaluation of orbital cysticercosis with its added advantage of detecting neurocysticercosis.

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