

# Ocular cysticercosis: an unusual cause of ptosis

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## ABSTRACT

**A nine-year-old girl presented with pain, unilateral ptosis, inflammation of the upper eyelid and restricted ocular motility. She was diagnosed to have ocular cysticercosis by magnetic resonance imaging of the orbit, which showed a well-defined ring-enhancing lesion in the superior rectus muscle of the left eye. Enzyme-linked immunosorbent assay for serum antibodies against cysticercus was positive. The patient improved dramatically on a therapeutic trial of albendazole and oral steroids. There was a history of spontaneous extrusion of the cyst five days after starting therapy. The conjunctival defect healed without any surgical intervention.**

**Keywords:** eye infection, ocular cysticercosis, ophthalmoplegia, parasitic infection, ptosis, *Taenia solium*

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## INTRODUCTION

Human cysticercosis is a parasitic infection caused by *Cysticercus cellulosae*, the larval form of the cestode, *Taenia solium*. Cysticercosis is endemic in the developing countries of Latin America, Asia and Africa, especially in areas with poverty and poor hygiene.<sup>(1)</sup> It is considered to be the most common parasitic disease of the central nervous system. It also affects the eye, skeletal muscle and subcutaneous tissue. The extraocular muscles are the most common site involvement of orbital cysticercosis. We report a case of ocular cysticercosis which presented with pain, ptosis, inflammation of upper eyelid and restricted ocular motility.

## CASE REPORT

A nine-year-old girl presented with progressively-increasing ptosis associated with pain in the left eye for one month. Examination of the left upper eyelid revealed ptosis and signs of acute inflammation. She had painful ocular motility and ophthalmoplegia, with maximum restriction of the upward gaze (Fig. 1). The sclera and cornea were normal, and the pupils were bilaterally symmetrical and reacting to light. Fundoscopy and the



**Fig. 1** Photograph of the patient at presentation shows swelling and ptosis of the left eye.

cranial nerve examination were normal. The search for other soft tissue swelling over the body did not reveal any, and systemic examination was unremarkable. Magnetic resonance (MR) imaging of the head and orbit showed a well-defined ring-enhancing lesion of 1.1 cm × 1.4 cm, with an eccentric nodule in the superior rectus muscle of the left eye, associated with focal expansion of the muscle (Fig. 2). The remaining extraocular muscles, eyeball and optic nerve of the left eye were normal. The right eye was normal, and there was no intracranial focal lesion. Enzyme-linked immunosorbent assay for serum antibodies against cysticercus was positive. Microscopy of the stool did not reveal any *Taenia* spp. eggs. The complete blood count was normal, with an absolute eosinophil count of 140 eosinophils/mm<sup>3</sup>. With a diagnosis of cysticercosis, the child was treated with oral prednisolone and albendazole. After ten days of follow-up, oedema, inflammation and ptosis of the left upper eyelid were markedly improved (Fig. 3). The parents gave a history of extrusion of a whitish nodule the size of a small rice grain, from the left eye five days later. A reddish spot was present in the upper palpebral conjunctiva without any obvious defect.

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Fig. 2 Series of MR images of the orbit and head show a ring-enhancing lesion in the superior rectus muscle.

## DISCUSSION

The first case of ocular cysticercosis was reported by Semmering in 1830. The larva was demonstrated and extracted by Schott in 1836.<sup>(2)</sup> Ocular or adnexal involvement occurs in 13%–46% of infected patients. While the most common site of localisation reported in Western studies is the posterior chamber, in the Indian literature, the ocular adnexa is the most common site.<sup>(3)</sup>

Orbital and adnexal cysticercoses are emerging as a far commoner disease than previously considered, both in endemic and nonendemic areas of cysticercosis. A review of the literature on orbital and adnexal cysticercoses revealed a predilection for children and young adults with no sex preponderance.<sup>(1)</sup> Extraocular muscle involvement is the most common variety of orbital cysticercosis. The subconjunctival space is the next common site,



**Fig. 3** Photograph of the patient after ten days of treatment shows that both the eyes are normal.

followed by the eyelid, optic nerve, retro-orbital space and lacrimal gland.<sup>(1)</sup> All the extraocular muscles are involved in myocysticercosis. However, the lateral rectus, medial rectus and the superior oblique muscles have been found to be affected to a greater extent.<sup>(4)</sup> The clinical manifestations depend on the location, size, relation to adjacent structures and stage of development of the cyst. The most common presenting features are restricted ocular motility with diplopia, and recurrent pain and redness.<sup>(4)</sup> Other presentations reported are proptosis, subconjunctival cyst, acquired ptosis, atypical optic neuritis, papilloedema, lid nodule, and subretinal and intravitreal cysts.<sup>(1)</sup> Concurrent orbital and systemic cysticercoses are rare.

Though intraocular cysticerci are easily diagnosed by ophthalmoscopy because of their visibility, the diagnosis of extraocular cysticercosis was largely speculative until the advent of advanced imaging modalities, such

as computed tomography (CT) and MR imaging. Cysticercosis is easily diagnosed by orbital imaging as its appearance is highly specific. CT and MR imaging not only confirm the diagnosis but also help to rule out neurocysticercosis. Tissue diagnosis is not essential for starting treatment. Medical therapy with albendazole and oral steroid is recommended for the extraocular muscle form and retro-orbital cysticercosis, and dramatic improvements have been reported.<sup>(1,5,6)</sup> However, therapy must be individualised according to the location of the parasite and tailored according to the activity of the disease. Intraocular cyst requires timely surgical removal to obviate sight-threatening sequelae.<sup>(1)</sup>

In our patient, the cyst was present in the superior rectus muscle, and there was a history of spontaneous extrusion of the cyst after five days of starting medical treatment. The conjunctival defect healed without any surgical intervention. Similar spontaneous extrusion of the cyst has been reported by other authors within 3–5 days of starting albendazole therapy.<sup>(5,6)</sup> It is uncertain whether this therapy played any role in extrusion. In conclusion, a high index of suspicion is needed for extraocular cysticercosis, especially in cases of painful ptosis and ocular motility disorder, particularly in a child or young adult living in an endemic area. MR imaging of the orbit plays a vital role in diagnosis. Medical therapy with albendazole is an effective mode of therapy.

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