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Surgical extraction of eye worm in equine

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Abstract

Ocular setariasis is a significant parasitic condition of equines, frequently leading to corneal opacity, ocular inflammation, and potential vision loss. The present case report aimed to document the clinical presentation, surgical management, and post-operative recovery of a 7-year-old Marwari stallion affected with an intraocular filarial worm. The animal was presented with a history of a thread-like motile worm in the anterior chamber of the left eye, accompanied by lacrimation, conjunctivitis, and partial loss of vision. Detailed ophthalmic examination using a hand-held slit lamp confirmed the presence of the worm along with marked corneal opacity. Pre-operative management included tetanus prophylaxis, systemic and topical non-steroidal anti-inflammatory drugs, antibiotics, and sedation using xylazine combined with supraorbital and auriculopalpebral nerve blocks. Local anesthesia was achieved with topical proparacaine. Paracentesis at the corneo-scleral junction was performed using a 16G needle to extract the worm, followed by sub-conjunctival auto-blood therapy to support corneal healing. Post-operative treatment consisted of topical antibiotics and anti-inflammatory agents for five days.

Progressive improvement was noted from the 7th post-operative day, with marked reduction in corneal opacity by the 15th day. Complete clearance of the cornea and restoration of vision were achieved by the 28th day without complications. The successful outcome highlights needle paracentesis as an effective and minimally invasive approach for managing equine ocular setariasis, ensuring rapid recovery and preservation of vision.

Keywords: Ocular setariasis, equine, anterior chamber worm, paracentesis, corneal opacity

Introduction

India, *Setaria digitata*, *Setaria equina* and *Thelazia lacrymalis* are commonly responsible for equine corneal opacity (Sellon and Long, 2013) ^[9]. *Setaria digitata* is primarily prevalent in Asia and parasitizes cattle and other hoofed animals. Worldwide, Horses and other equids are infected with *Setaria equina*. Adult *Setaria* worms typically prefer the peritoneal cavity. They can occasionally enter the eyes or the central nervous system (Yadav *et al.*, 2006) ^[15]. The blood contains microfilariae which are young larvae. *Anopheles peditaneniatus* and *Culex nilgirus* mosquitoes spread the parasite through blood stream. Microfilariae are released by adult female worms into their host's abdominal cavities. The microfilariae enter the bloodstream and travel to the skin's capillaries. When mosquitoes consume the blood of infected hosts, they can contract microfilariae. Within 2 to 3 weeks, these microfilariae transform into infectious larvae inside the mosquitoes. The infected mosquitoes then transmit these infective larvae to other susceptible hosts during their blood meals.

The ocular setariasis spreads mostly in summer and autumn when the mosquito vectors are most prevalent (Al-Azawi *et al.*, 2012) ^[1]. The parasite can be detected in a variety of organs, including the heart, lung, spleen, kidney, uterus, oviduct, ovary, and bladder, and it can migrate in odd hosts including horses, donkeys, or humans. In general, ocular worms are more common in all horses (Jayakumar *et al.*, 2012) ^[4]. Additionally, the immature worm might enter the eye (Tuntivanich *et al.*, 2011) ^[12] through the vascular system (Townsend, 2013) ^[11].

When worms are localized in the anterior chamber of an equine's eye, it causes ongoing irritation and excruciating pain (Kumar *et al.*, 2011) ^[5]. Typically, the infected animals exhibit lacrimation and photophobia (Basak *et al.*, 2007) ^[2]. The worm's serrated cuticle and its lashing motions inside the anterior chamber of the eye severely damaged and inflamed the cornea, causing corneal opacity and ultimately blindness. Corneal oedema caused by dead filarial worm adhering to the endothelium in the anterior chamber.

The dead worm may release toxins into the anterior chamber, which could cause corneal oedema and be fatal to the endothelium. Devastating consequences like retinal detachment, cataracts, and synechia could result from it (Paglia *et al.*, 2004) [6]. Although eye involvement is typically unilateral, reports of bilateral occurrences have sometimes been made (Buchoo *et al.*, 2005) [3].

Materials and Methods

A 7-year-old Marwari Stallion was presented at Department of Veterinary Surgery and Radiology, Kamdhenu University, Anand with a history of thread-like floating worm in the left eye along with corneal opacity. Complete ophthalmic examination was performed using hand held slit lamp. The anterior chamber was thoroughly examined by both lateral and retro-illumination to detect the presence of worm in the anterior chamber and lacrimation, conjunctivitis with partial loss of vision was observed clinically. Tetanus toxoid (5 ml, IM), topical (0.3% flurbiprofen), systemic (flunixin meglumine @ 0.5 mg/kg of body weight, IV) non-steroidal anti-inflammatory agents and antibiotic (strepto-penicillin 5g) were administered pre-operatively. Sedation was carried out by Xylazine HCl 1.1 mg/kg, IV in combination with supraorbital nerve block and auriculopalpebral nerve block using 2% lignocaine HCl. Topical local anesthetics 0.5% proparacaine was instilled to control the movement of eye ball. Paracentesis of worm was carried out in standing position with 16 G needle at the corneo-scleral junction at 6 'o'clock position (Fig.1). Auto blood therapy was carried out by sub-conjunctival injection of blood (Fig. 2). Afterward topical antibiotic moxifloxacin and NSAID (flurbiprofen) were instilled in the eye. Temporary tarsorrhaphy was done by using non-absorbable suture material. Post-operatively topical antibiotics and anti-inflammatory were given for 5 days.



Fig 1: Needle paracentesis with 16G needle



Fig 2: Sub-conjunctival auto blood therapy

Results and Discussion

On 7th post-operative day, progressive reduction in lacrimation and conjunctivitis was seen. There was reduction in corneal opacity at 15th post-operative day. Similar findings also reported by Patil *et al.* (2016) [7]; in eye worm infestation in horses. Surgical interventions include incision at 3 O'clock (Vadalia, 2013) [13] or at 6-8 O'clock (Verma *et al.*, 2019) [14] and at 12 O'clock position (Buchoo *et al.*, 2005) [3]. Similar to present study, Verma *et al.* 2019 [14] carried out needle aspiration of the worm by inserting 18 gauze needle successfully. Complete corneal opacity reduced after 28th post-operative days and recovered uneventfully with clear vision.

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