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Surgical management of ocular setariasis in a goat: A case report

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Abstract

A 3-year-old male goat was presented to the Large Animal Section, Department of Surgery and Radiology, Veterinary College, Hebbal, Bengaluru, with a history of cloudiness and excessive lacrimation in the left eye for the past 3 days. Ophthalmic examination revealed the presence of a motile, white, thread-like structure in the anterior chamber, suggestive of an eyeworm. The worm was successfully removed after sedating the animal with diazepam, followed by an auriculopalpebral nerve block. A corneal stab incision was made using a 2.8 mm keratome slit blade at the 4 o'clock position, and the worm was extracted. The recovered worm was submitted to the Department of Parasitology and identified as *Setaria digitata*. Postoperatively, broad-spectrum antibiotics, anti-inflammatory drugs, and topical antibiotics were administered. The animal showed an uneventful recovery.

Keywords: Ocular setariasis, eyeworm, *Setaria digitata*, goat

Introduction

Ocular setariasis is a vision-threatening ophthalmic condition in ungulates, particularly equines and occasionally ruminants, caused by the aberrant migration of *Setaria* spp., a genus of filarial nematodes (Gangwar *et al.*, 2008; Radwan *et al.*, 2016) [6,14]. Adult *Setaria* worms typically reside in the peritoneal cavity, but occasionally migrate erratically and end up in unusual locations, like the eye, potentially causing blindness (Soulsby, 1982) [16]. The immature worm can also gain access to eye (Sreedevi *et al.*, 2002; Tuntivanich *et al.*, 2011) [17,20] through the vascular system (Townsend, 2013) [19]. The worm's serrated cuticle and vigorous movements within the eye's anterior chamber cause severe corneal trauma and inflammation, leading to corneal opacity and potentially resulting in blindness (Jaiswal *et al.*, 2006) [8]. The infected animals typically exhibit symptoms such as photophobia and lacrimations (Basak *et al.*, 2007) [2]. The incidence of ocular setariasis is highest during summer and autumn, when mosquito vectors are most prevalent (Mritunjay *et al.*, 2011; Al-Azawi *et al.*, 2012) [12,1]. While ocular involvement is commonly unilateral, bilateral cases have also been reported (Buchoo *et al.*, 2005) [4].

Materials and Methods

A 3-year-old male goat was presented to the Large Animal Section, Department of Surgery and Radiology, Veterinary College, Hebbal, Bengaluru, with a history of cloudiness and excessive lacrimation of the left eye for 3 days. Ophthalmic examination revealed a motile, white, thread-like structure in the anterior chamber suggestive of an eyeworm. Based on clinical findings, surgical correction was planned for the next day. The animal was advised 12 hours of preoperative fasting. Sedation was achieved using diazepam (0.3 mg/kg IV), followed by an auriculopalpebral nerve block using 2% lignocaine hydrochloride. The animal was restrained in lateral recumbency, and the site was prepared aseptically using 5% povidone-iodine scrub. Eyelids were retracted with an eye speculum to provide adequate exposure. A corneal stab incision was made with a 2.8 mm keratome slit blade at the 4 o'clock position, 1 mm away from the limbus (Fig. 1). The eyeworm was removed, and the incision site was left

unsutured for natural healing. The anterior chamber was flushed with Ringer's lactate, and 2% viscomet solution was instilled to protect the corneal endothelium. Postoperatively, enrofloxacin (5 mg/kg IM) and meloxicam (0.2 mg/kg IM) were administered. Topical Ciplox-D eye drops were applied four times daily for 10 days, and fenbendazole (10 mg/kg PO) was given once.

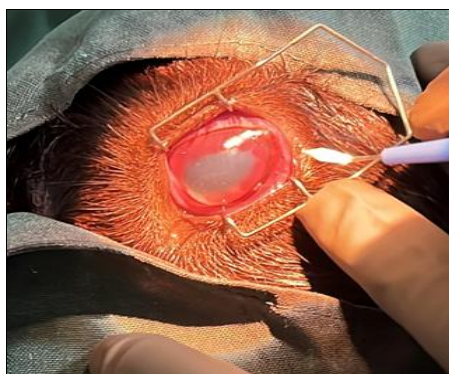


Fig 1: corneal incision using 2.8mm keratome slit blade at 4 o'clock position.



Fig 2: Setaria digitata

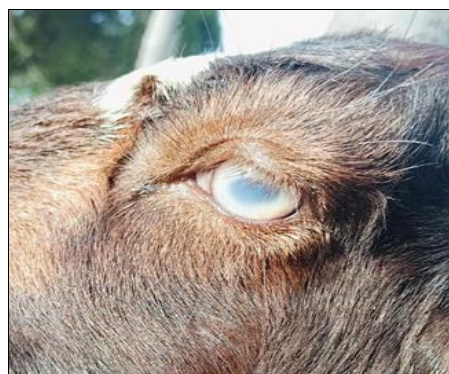


Fig 3: 3rd post operative day

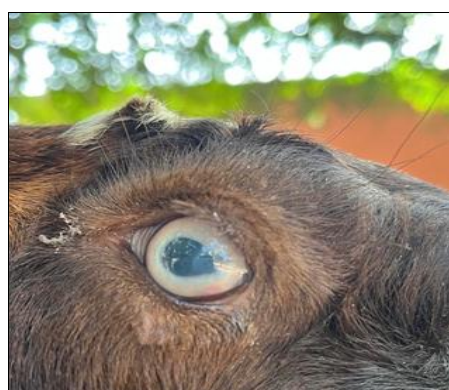


Fig 4: 7th postoperative day

Results and Discussion

The animal recovered uneventfully within 2 weeks, with a gradual reduction in the corneal opacity observed on the 3rd and 7th post operative day (Fig. 3 and Fig. 4). No post operative complications were observed. The recovered worm was sent to the Department of Parasitology and confirmed as *setaria digitata* on the basis of its morphological characteristics (Fig. 2).

The adult species of *Setaria* is commonly seen in peritoneal cavity and was found to be harmless to the host (Mritunjay *et al.*, 2011) [12]. However, erratic migration of larvae into anterior chamber causes changes in cornea leading to corneal opacity. surgical extraction of the worm, typically via needle paracentesis or corneal incision, performed under general or regional anesthesia, remains the preferred treatment method for ocular setariasis (Tuntivanich *et al.*, 2011; Chaithra *et al.*, 2024) [20,5]. Lumb and Jones (2001) [9] reported regional nerve blocks like supraorbital, auriculopalpebral and retrobulbar can be performed using 2% lignocaine hydrochloride as per standard method. Different incision sites have been utilized, including the 12 o'clock, 3 o'clock or 6-8 o'clock positions, as well as the 2-9 o'clock position, according to various studies (Buchoo *et al.*, 2005; Verma *et al.*, 2019; Gosai *et al.*, 2025) [4,21,7]. In the present study, the worm was removed under sedation with diazepam and auriculopalpebral nerve block using 2% lignocaine hydrochloride, through a corneal stab incision using 2.8mm keratome slit blade given at 4 O'clock position 1mm away from the limbus was found to be effective. The animal showed recovery after 2 weeks of worm removal. Ivermectin administration (200-300 micrograms/kg body weight, orally) can help minimize the occurrence of filarial nematodes (Muhammad and Saquib, 2007) [13]. However, medical treatment alone is often deemed insufficient due to the slow resorption of dead parasites, which can trigger uveitis (Moore *et al.*, 1983) [11]. Cattle and buffaloes in India are known to be commonly infected with *Setaria digitata* (Mohanty *et al.*, 2000; Sundar *et al.*, 2015) [10,18]. The goats exposure to infected cattle and mosquitoes during the rainy season probably heightened their risk of infection, leading to clinical disease (Bazargani *et al.*, 2008; Smith *et al.*, 2009) [3,15]. No incidence of the disease was reported earlier in the Karnataka local goats from the place of present reporting.

Conclusion

From the results of the present study, surgical removal through corneal incision at 4 o'clock position under mild sedation and auriculopalpebral nerve block yielded good result and is convenient for successful removal of eye worms in goat.

Conflict of Interest

Not available

Financial Support

Not available

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