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## Surgical removal of eyeworm in indigenous cow

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### Abstract

A 10-year-old, non-lactating cow was brought clinics with a history of the opacity of eye. The clinical examination revealed epiphora, corneal opacity, severe conjunctivitis with loss of vision. Gross examination revealed a thread-like structure. The thread-like structure was removed under the effect of Peterson nerve block and identified as *Thelazia rhodesii* on laboratory examination. The opacity resolved within 15 days.

**Keywords:** cow, eyeworm, peterson nerve block, limbus

### Introduction

The worm of *Thelazia* genus, commonly known as eyeworms, are nematodes. These are found in the orbital cavities and associated tissues of canines, felines, ruminants, equines and humans. *Thelazia gulosa*, *Thelazia lacrymalis*, *Thelazia rhodesii* and *Thelazia skrjabini* are of veterinary concern. The cattle are mainly infected by *T gulosa*, *T brevispiculata*, *T skrjabini*, *T ferulata*, and *T rhodesii* [1]. *T rhodesii* is the most common and harmful to cattle in the Old World. It is found on the cornea, in the conjunctival sac, and under the eyelids and nictitating membrane. It is less invasive than other *Thelazia* species [2]. In India, eye worm was more prevalent during summer season and high incidence of eyeworm was in free range grazing indigenous cattle [3]. The intermediate hosts of *Thelazia rhodesii* are flies. The flies got infected with first stage larvae during feeding on lacrimal secretion. Third stage larvae (L<sub>3</sub>) are infective and it emerge from labella of fly during feeding on lacrimal secretion. The L<sub>3</sub> feed on lacrimal secretion and transformed into adult worm [4]. Its serrated cuticle causes localized irritation and inflammation. When it invades lacrimal gland and excretory ducts, may cause inflammation and necrotic exudation. Mild to severe conjunctivitis and blepharitis are common, keratitis, including opacity, ulceration, perforation, and permanent fibrosis may develop in severe cases [2]. Treatment measures used for cattle include removal of the adult parasites or administration of ivermectin, doramectin and eprinomectin [5]. The present study describes the occurrence of eyeworm *T rhodesii* and its surgical management in an indigenous cow from southern Rajasthan.

### Case History and Presentation

A 10-year-old, nonlactating cow was brought to the veterinary clinical complex, CVAS, Navania, Udaipur with history of the opacity of right eye. The cow was not dewormed and maintained on pasture. The clinical examination revealed epiphora, corneal opacity, severe conjunctivitis with loss of vision. On close examination of the affected eye, the white thread-like structure was found in the anterior chamber of the eye.

### Treatment

The cow was gently restrained in lateral recumbency on large animal operating table. The affected eye was irrigated with normal saline initially, later 4 to 5 drops of 4% lignocaine hydrochloride were instilled to attain topical anaesthesia. Peterson nerve block using lignocaine hydrochloride was done to immobilize globe. The eye speculum was applied to retract eyelids. followed by a nick incision was given at limbus region (Figure 1) on 10' o'clock position and worm pulled out with the help of forceps. The incision is left open. Postoperatively, corneal opacity was managed by moxifloxacin eye drop instilled topically 4 drops 3 times for 5 days. The affected eye was irrigated with normal saline and boric acid, before topical medication. After 15 days, opacity resolved completely. The worm was collected in normal saline and sent to the Department of Parasitology, CVAS, Navania,

Udaipur for identification. The worm *Thelazia rhodesii* was

identified on laboratory examination (Figure 2).



**Fig 1:** Photograph showing eye worm in the anterior chamber of eye and nick incision being made in the limbus region at 10°o clock position for removal of eye worm



**Fig 2:** Retrieved eye worm (*Thelazia rodensi*)

### Discussion

One worm was found in the eye's anterior chamber, on gross examination. A clinically feasible technique for the reliable detection of adult eyeworms is lacking. In the case of *T rhodesii* gross inspection of the eyes is recommended [2]. Contrary to our findings, Khasatiya *et al.* [6] reported the presence of large numbers of thread-like worms in buffalo, which were removed surgically and identified as *Thelazia rhodesii*. Eye worms were observed as a thread-like moving structure in the anterior chamber showing epiphora, severe corneal opacity and conjunctivitis with loss of vision. The serrated cuticle of the worm and lashing movements within the anterior chamber caused severe trauma and corneal opacity which eventually resulted in blindness [7, 8]. Kennedy [9] and Soil *et al.* [10] demonstrated >99% efficacy of the injectable formulation of ivermectin against *Thelazia* species. However, medicinal treatment has not been considered suitable because of the slow absorption of dead parasites and the attendant antigenicity [11, 12]. Surgical removal of the parasite is the best treatment [13] that can be performed under general anaesthesia or regional nerve blocks with or without sedation [14].

### Conclusion

Eyeworm infection may occur in healthy cattle maintained on pasture and it is difficult to identify by farmers in initial stage due to less pronounced symptoms. Eyeworm can be managed with injectable and pour on preparation of ivermectin and

doramectin and surgical removal through limbus incision. Routine deworming with macrocyclic lactone may be helpful in reducing occurrence of eyeworm in free range grazing cattle.

### Acknowledgement and Conflict of Interest

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