Corneal opacity due to Setaria digitata in a Jersey cross-bred Cow and its surgical management

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Abstract

A Jersey cross bred cow brought to the peripheral hospital, Uttara Kannada with clinical signs of lacrimation, corneal opacity, bleophorospasm and presence of white thread like worm in its anterior chamber of the right eye. The worm was surgically removed by limbal incision and an adequate post operative care was taken for early recovery. The worm was morphologically identified as *Setaria digitata*. The cow attains normal sight in 3 weeks postoperatively.

Keywords: Jersey cow, corneal opacity, Setaria digitata, Worm, Lacrimation.

Introduction

Setaria spp. is slender, thread like filarid nematodes commonly found in the peritoneal cavity of cattle. Setaria digitata known to cause epizootic cerebrospinal nematodiasis in many of the domestic animals sometimes may also invade into eye (Rodostastis et al., 2003). The adult worms in the peritoneal cavity are mostly harmless. Serious pathogenesis does occur in animals such as sheep, goats and horses when larvae of Setaria spp. migrate erratically to different parts of the body. During their course of migration they may accidentally get lodged in the corneal chamber. Ocular parasitism of Setaria digitata has been reported by various researchers (Jaiswalet al., 2006; Shingh et al., 2002; Nair et al., 1993). The erratic movement of the worm within the eve cause severe irritation to the cornea leading to corneal opacity and blindness in the affected animals. The present study describes the occurrence of ocular Setariosis and its surgical management in a Jersey cross bred cow.

History and Clinical Examination

A Jersey cross bred cow aged about 6 years brought to the peripheral hospital, Uttara Kannada with the history of impaired vision accompanied with severe lacrimation from right eye. The clinical examination revealed severe lacrimation, corneal opacity, conjunctivitis and blepharospasms. The Chloromycetin Apli Caps (Parke-Davis) was applied to the affected eye for three days and no improvement was observed. On close examination of the affected eye, the swirling movement of white thread like worm swimming continuously in aqueous humor of anterior chamber was clearly visible. The affected eye was instilled with 1% Ivermectin solution (Ivectin, Indian Immunologicals, Hyderabad), after one week of the treatment, there was cessation in the movement of worm. But the coiled worm was noticed in the corneal chamber of the eye. Hence, the animal was subjected for surgery to remove the worm from the eye.

Surgical Management

The cow was restrained in lateral recumbency on soft bedding. The affected eye was irrigated with normal saline initially, later 4 to 5 drops of 4% lignocaine hydrochloride (Xylocaine, Astra-Zeneca) was instilled to attain topical anesthesia. After development of anesthesia globe fixation was done and a 5 mm limbal incision (near to the site of worm) was performed. Through the limbal incision a small ocular forceps inserted carefully and the worm was held firmly. With a jerk the forceps along with the worm was withdrawn from anterior chamber of eve. The limbal incision was closed with catgut No. 7-0 with simple interrupted suture. Post operatively the owner was advised to cover the eye with a piece of clean cloth to avoid direct sunlight falling on to the affected eye. Daily cleaning of wound was performed with normal saline and dressed with Chloromycetin Apli Caps for a week.

The worm was collected in normal saline and sent to the Department of Parasitology, Veterinary College, Bangalore for speciation.

Results and Discussion

Gradual reduction in lacrimation and conjunctivitis was noticed on day 7 of post operative

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treatment. The cow was recovered uneventfully and the corneal opacity which was noticed earlier to surgery was slowly cleared from the eye in about 20 days. It was also confirmed that the cow had regained her sight. The worm which was surgically removed from the eye was identified as *Setaria digitata* based on the morphology.

The adult *Setaria* spp. which is commonly found in the peritoneal cavity of cattle generally regarded as harmless to the host. But the heterotrophic parasitism of the worm in our case has caused detrimental changes to the cornea leading to opacity of the eye. In Karnataka state, the prevalence of *S. digitata* (56.8%) in the peritoneal cavity of cattle was reported by Sundar *et al.*, (2005).

Cases of ectopic parasitism of *Seteria digitata* has been reported in eye by Shin *et al.*, (2002) and in the corpus luteum of the ovary of cattle by Nair *et al.*, (1993). According to Nair *et al.*, (1993) species of the genus Setaria commonly found in the peritoneal cavity, sometimes they may undergo erratic migration in cows. On a very rare occasion the adult worms may migrate erratically towards eye and cause corneal opacity (Shin *et al.*, 2002).

Although the mode of heterotrophic parasitism occurred in the present case remains unanswerable, it can be hypothesized either to the erratic migratory behaviour of parasite or may have occurred when infected mosquitoes fed around eyes and deposited the infective larvae, which might have migrated to the aqueous humour of the eye.

Several cases have also been reported related to ocular setariosis in equines (Bhatt *et al.*, 2004; Ansari and Buchoo 2005; Buchoo *et al.*, 2005; Yadav *et al.*, 2005; Jaiswal *et al.*, 2006) where in they had come across clinical signs like initial lacrimation, conjunctivitis followed by cloudiness of cornea and ultimately leading to corneal opacity. However, similar clinical signs have also been recorded in the present case too. Further in the present study it was observed that the corneal transparency was completely regained in 21 days post operatively. This is in agreement with the studies of Buchoo *et al.*, 2005 and Jaiswal *et al.*, 2006 where they found complete corneal transparency in 18 - 21 days.

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