

Successful management of Keratoconjunctivitis in goats in Chennai

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Abstract

Present study was undertaken to study the management of keratoconjunctivitis in five non-descriptive female goats presented to Madras Veterinary College Teaching Hospital, Tamil Nadu with the history of gradual clouding of eyes and partial loss of vision after 15 days from kidding. On clinical examination, the present study observed purulent discharge from eyes and congested conjunctival mucous membrane of goats with other clinical parameters which were normal. Eye examination showed creamy white spot and opacity of corneal opacity with absence of reflexes such as menace, papillary light reflex (PLR) and with partial blindness. Hemato biochemical parameters showed normal values except neutrophilia. Sterile ocular swabs were collected and the organism was identified as *Moraxella bovis* based on their colony morphology and biochemical tests. Based on the Antibiotic sensitivity test (ABST), the affected goats were treated with sensitive antibiotics, eye drops and supportive therapy and the affected goats showed clinical improvement followed by uneventful recovery after one week and prevent further complications such as corneal ulceration and blindness, which in turn affects the economy of the farmer.

Keywords: Creamy spots, Goats, Keratoconjunctivitis, *Moraxella bovis*

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INTRODUCTION

Infectious keratoconjunctivitis also called pink eye is a highly contagious painful ocular disease which affects all age groups of Cattle and occurs worldwide (Jeyabal *et al.*, 2013). The primary infectious agent concerned is the haemolytic *Moraxella bovis* (Abdullah *et al.*, 2015). The disease is mostly transmitted by *Musca autumnalis* a face fly which feeds around the eyes. This infection will cause the inflammation of the tissue lining the eyelid, the cornea and conjunctiva ultimately causing ulceration which may progress to produce pain and worsen leading to temporary or permanent blindness (Abdullah *et al.*, 2013). The early signs include copious watery lacrimation, blepharospasm, photophobia and mild fever in some cases. Within 1-2 days opacity appears in the

centre of cornea and this may complicated into corneal ulcer in next two days. Diagnosis of the disease is made by the clinical signs, isolation and identification of organism from the eyes of the affected animals (Biberstein and Hirish 1999). This disease is usually self limiting but early treatment will prevent scarring of eyes. The present study was conducted to study the management of keratoconjunctivitis in goats in Chennai.

MATERIALS AND METHODS

Five non-descriptive female goats were presented to Madras Veterinary College Teaching Hospital Large Animal Medicine Unit with the history of gradual clouding of eyes and partial loss of vision after 15 days from kidding. On clinical examination, the conjunctival mucous membrane was congested and there was a purulent discharge from

eyes with absence of menace and pupillary light reflex (PLR) reflexes. All the goats showed a creamy white spot and opacity of cornea (Fig. 1) with partial blindness. Other clinical parameters were found to be normal. Venous blood and sterile corneal swabs were collected for further laboratory investigations. Haematological analysis was done as per Chauhan, (2003) using automated haematology analyser (Mindray-bc-2800 vet) and parameters such as haemoglobin (Hb), packed cell volume (PCV), total erythrocyte count (TEC), total leukocyte count (TLC) and differential count (DC) were estimated. Quantitative estimation of serum aspartate transaminase (AST) by IFCC (International Federation of Clinical Chemistry) method, serum alkaline phosphatase (SAP) by IFCC method, serum total protein and albumin by modified Biuret and Dumas method. The sterile ocular swabs were collected from infected goats under aseptic precautions and cultured on 10 % sheep blood agar at 37°C for 48 hours under aerobic conditions to observe haemolytic colonies (Fig. 2) on blood agar (Jeyabal *et al.*, 2013).

Antimicrobial susceptibility testing was carried out at equivalent to 0.5 McFarland turbidity standard by agar disc diffusion method on Mueller-Hinton agar plates following the guidelines of CLSI (2008). All the bacteria isolated were tested *in vitro* for their sensitivity to different antibiotics, that are commonly used in veterinary practice. Commercially available antibiotic discs (Himedia, Mumbai) were used in the study viz., Ceftriaxone (CTR 30 mcg), Ciprofloxacin (CIP 5 mcg), Vancomycin (VA 30 mcg), Cefatoxime (CTX 30 mcg), Tetracycline (10 mcg), Azithromycin (AZM 15 mcg), Gentamicin (GEN 10 mcg), Ofloxacin (OF 5 mcg), Penicillin G (P 10 units), Ampicillin (AMP 10 mcg) and Amoxicillin (AMX 10 mcg). The sizes of the zone of inhibition were recorded and interpreted as either bacteria were susceptible or resistant to the exposed agent. The goats were treated with Ceftiofur @ 1.1mg/kg SID intramuscular, topical ophthalmic drops containing Gatifloxacin for one week and supportive treatment with Meloxicam @ 0.2-0.5mg/kg intramuscular.

RESULTS AND DISCUSSION

The clinical signs include congested mucous membrane, absence of menace, pupillary light reflex and corneal opacity. Infectious keratoconjunctivitis commonly called as pink eye is highly contagious contagious ocular diseases of ruminants which may lead to temporary or permanent blindness (Brian *et al.*, 2006). The disease is transmitted by nasal and ocular discharge from infected animals and by face flies.

The organism was gram negative diplococci (Fig 3) resembling tumbles and was non motile, catalase and oxidase positive. Based on culture, morphological and biochemical tests the causative



Fig. 1. Corneal opacity and congested conjunctival mucous membrane **Fig. 2.** Hemolytic colony on blood agar Small to medium sized flat to hemispherical greyish colonies



Fig. 3. Showing Gram negative diplococci in pairs.

organism was identified as *Moraxella bovis* (Jeyabal *et al.*, 2013). There are only few reports on *Moraxella* sp. from India (Jeyabal *et al.*, 2013 and Vaid *et al.*, 2014).

The complete blood count of all animals showed neutrophilia and leukocytosis with other blood counts were normal. Serum biochemistry profile showed normal values. ABST showed the organism was sensitive to Ceftriaxone (100 %), Ciprofloxacin (80 %), Vancomycin (60 %), Cefatoxime (60 %), Tetracycline (60 %), Azithromycin (40 %), Gentamicin (40 %), Ofloxacin (40 %) and resistant to Penicillin G (100 %), Ampicillin (80 %) and Amoxicillin (60 %). All the goats were successfully treated with topical installation of Gatifloxacin eye drops along with parenteral administration of antibiotics Ceftiofur. The organisms are sensitive to most of the antibiotics but resistant to erythromycin, lincomycin and tylosin (Blood and Radostits 2007). Abdullah *et al.* (2015) reported that parenteral therapy with long acting oxytetracycline (20 mg/kg body weight) and topical application of tetracycline eye ointment was effective. Topical treatment has been reported to speed up the recovery process of the affected animal (Pugh and Baird, 2012). Early treatment of pinkeye is important, not only for a successful outcome of the individual animal affected, but also to stop the shedding of the bacteria in order to decrease the risk of transmission to other animals (Whittier, 2009). The prognosis in the present case was good since it was discovered early and treatment was promptly instituted.

Conclusion

Five non-descriptive female goats were presented with the history of gradual clouding of eyes and partial loss of vision after 15 days from kidding and on clinical examination purulent discharge from eyes and congested conjunctival mucous membrane with other clinical parameters were normal. Sterile ocular swabs were collected and the organism was identified as *Moraxella bovis* based on their colony morphology and biochemical tests. The goats were successfully treated with parental Ceftiofur, Gatifloxacin eye drops and supportive therapy and showed uneventful recovery after one week of treatment.

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