

*Short Communication*

Surgical Management and Mitomycin Adjunct Therapy for Ocular Squamous Cell Carcinoma in Cow

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ABSTRACT

A six years old crossbred Holstein Friesian cow was presented with progressive cauliflower like growth on the right eye third eye lid for the past two months. Ophthalmic examination revealed cauliflower like mass occupied entire third eye lid with profuse lacrimation and mild purulent discharge. Gross appearance and cytological examination was suggestive of tumour. Under auriculopalpebral nerve block and local infiltration, the tumour mass was excised. Topical instillation of mitomycin 0.04% was followed for three months. The combination of topical mitomycin administration along with surgical therapy results in complete recovery.

Key Words: Cow, Eye, Ocular squamous cell carcinoma, Mitomycin, Surgical management, Mitomycin

INTRODUCTION

Economic losses in production and reproduction were high due to neoplasms. The most common tumors of eyelids and eye ball of cattle is found to be ocular squamous cell carcinoma (Radostits *et al*, 2003). Causative agents for ocular squamous cell carcinoma still not clear but some of the factors like age, UV light exposure, nutrition level and genetic susceptibility may contribute to its development (Tsujita and Plummer, 2010). The benefits of different treatment modalities depend on nature, type, location and extensiveness of tumour (Lakshmi *et al*, 2021). Surgical excision is the most common treatment adopted for ocular squamous cell carcinoma (Payne *et al*, 2009). Mitomycin tumor-targeted deoxyribonucleic acid (DNA) synthesis inhibitor, topical administration as an adjuvant following surgical excision of Squamous Cell Carcinoma of eye in human patients (Buss *et al*, 2010). This report presents the surgical

management along with mitomycin adjunct therapy for ocular squamous cell carcinoma in the third eye lid of a cow.

Case History

A six years old crossbred Holstein Friesian cow was presented to Veterinary Clinical Complex, Veterinary College and Research Institute, Udumalpet with the history of progressive cauliflower like growth on the right third eye lid for the past two months. On clinical examination of the animal showed all vital parameters within the normal range except mild tachycardia. Ophthalmic examination revealed the presence of soft, greyish red, multi lobulated mass measuring about 2.5 X 2.5 cm occupying entire third eye lid. Profuse lacrimation and mild purulent discharge were also noticed. Under surface anesthesia the mass was examined and there was no involvement of eye ball or other associated structures. The tumour mass was present on the third eye lid which occupied the

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half of the eye ball (Fig. 1). Gross appearance on ophthalmic examination was suggestive of tumour. Fine Needle Aspiration Cytology was taken from the mass and stained with Leishman-Giemsa stain. Examination of cytology smear confirmed it as Squamous Cell Carcinoma.

Treatment and Discussion

The animal was prepared for surgical excision. Auriculopalpebral nerve block and local infiltration were done using lignocaine 2% as per standard protocol. Eye lids, eye ball and surrounding structures including tumour mass were washed with normal saline and prepared aseptically. Blood supply to the tumour mass was arrested by using catgut size 2-0. Tumour mass including a portion of healthy tissue was excised after application of curved haemostatic clamps at the base of the tumour (Fig. 2). Postoperatively ophthalmic drops ofloxacin and dexamethasone combination was instilled three times a day for seven days. Topical instillation of mitomycin 0.04% two times a day for three months. Antibiotic enrofloxacin at 7.5 mg per Kg and analgesic flunixin at 1.1 mg per Kg were administered intramuscularly for five days continuously. Uneventful recovery of the animal was appreciated seven days after surgical excision. No signs of recurrence were reported after six months.

Nictitating membrane was the common site of occurrence of squamous cell carcinoma with less chance of invasion to other sites (Kainer, 1984). Surgical excision was the recommended protocol with highest efficacy and less chance of reoccurrence compared to other treatments (Amirtha *et al*, 2018 and Lakshmi *et al*, 2021). Mitomycin had potent antiproliferative effects on subconjunctival fibroblasts and modulates the wound healing response and also recorded 100 percent absence of recurrence in cattle (Podarala *et al*, 2020). Surgical excision under regional anaesthesia and topical instillation of mitomycin in the present case also end up with the above said results.

CONCLUSION

Early observation of eye tumour and early presentation minimize the loss to the farmers. Surgical therapy was the mainstay for the treatment of eye neoplasm in the early stage. The combination of topical mitomycin administration along with surgical therapy resulted in complete recovery.

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