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Surgical management of ocular squamous cell carcinoma in a cross breed Holstein Friesian cattle

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Abstract

Five years old cross breed Holstein Friesian cow was presented with the history of swelling on the right eye. On histopathological examination the mass was diagnosed as squamous cell carcinoma and it was managed by extirpation of the right globe on nerve block techniques.

Keywords: cattle, extirpation eye ball, ocular, squamous cell carcinoma

Introduction

Squamous cell carcinoma (SQCC) is an epithelial cell tumour, mostly affects eyes of the bovine (Fazili *et al.*, 2001 and Sivaseelan *et al.*, 2008) ^[1, 2]. The most commonly affected portion of the eyes are junction of cornea and sclera, third eyelid, upper and lower eyelid margins (Goldschmidt and Hendrick, 2002) ^[3]. The etiology for ocular SQCC is poorly understood, however multiple factors that predispose the occurrence of SQCC includes heredity, nutrition, age, UV light and viruses (Tsujita *et al.*, 2010) ^[4]. Treatment is depends on the location of the tumor mass and the degree of invasion of adjacent tissue. Enucleation is indicated in severely affected cases (Schulz *et al.*, 2010) ^[5] and this is the most feasible method in field condition (Magda *et al.*, 2015) ^[6].

Clinical history and observation

Five years old cross breed Holstein Friesian cattle was referred to Veterinary Clinical Complex, Veterinary College and Research Institute, Salem with the history of swelling in the right eye ball since past one month. On clinical examinations we found that mass was ulcerated and sized about 6 cm diameter located at the junction of cornea and sclera (limbus) (Figure 1), tentatively the mass was diagnosed as squamous cell carcinoma, for further conformation piece of mass was collected in 10% formalin solution and transported to histopathological diagnosis. On histopathological examination the mass was confirmed as squamous cell carcinoma based on the specific characteristic as classical epithelial pearls cell or cell nest and high mitotic figures.

Treatment and discussion

The animal was restrained by standing sedation with Xylazine at the rate of 0.05 mg/kg. The hair around the eye was clipped and skin was surgically prepared with 5% Betadine and anesthesia was achieved with 2% Lignocaine hydrochloride by retro bulbar and auriculo-palpebral nerve block. Surgery was performed by making an elliptical incision around the eye (Figure 2) ball after temporary tarsorrhaphy was done. The rectus and oblique muscle was incised by blunt dissection. The haemorrhage was controlled and the globe was removed (Figure 3) by transection of the optic nerve and fat around the globe. The cavity was packed with sterile gauze and the eyelid margins were closed with non-absorbable suture material (Figure 4) by simple interrupted sutures pattern and left a small gap at medial canthus for dressing and drainage. Post operatively Streptopenicillin 5.0 g and Flunixin meglumine at the rate of 1.1 mg/kg was given to prevent bacterial infection and pain respectively. The present case was in similar with the treatment method of Schulz *et al.* (2010) ^[5] and Magda *et al.* (2015) ^[6]. Ocular squamous cell carcinoma or “cancer eye” is the most common malignant neoplasm of epithelial origin affecting cattle and is responsible for significant economic losses (Fazili *et al.*, 2001 and Sivaseelan *et al.*, 2008) ^[1, 2]. Even though there are several techniques and methods available for the management of ocular squamous cell carcinoma, extirpation of

the globe is the simple and effective method of management in field condition without much complication and expensive (Magda *et al.*, 2015) [6].

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Fig 1: Tumour mass



Fig 2: Making an elliptical incision around the eye ball



Fig 3: Extirpated globe



Fig 4: Closing of eye lid margins

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