Surgical excision of squamous cell carcinoma on right third eyelid of cow

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Abstract

Bovine ocular squamous cell carcinoma was reported in a 5 year old jersey cow located in vizianagarm. The right third eyelid was involved as purulent cauliflower like growth that has extended completely to the eyelid and was pressing the eyeball. Histopathological findings revealed nests of neoplastic squamous epithelial cells. Macroscopic and microscopic characteristics of the lesions were in accordance with invasive squamous cell carcinoma without any damage to eyeball and optic nerve.

Key words: Squamous cell carcinoma; Third eyelid; Jersey cow; Histopathology.

Introduction

Squamous cell carcinoma is the second most common form of skin cancer. It is a malignant tumor of epidermal cells (Ashna et al 2019). Bovine ocular squamous cell carcinoma (BOSCC), also known as 'cancer eye and is economically significant neoplasm of eye in the cattle (Sozmen *et al*., 2017). BOSCC can be manifested at various ocular and periocular locations, such as the cornea-sclera junction, upper and lower eyelids, third eyelid, cornea, conjunctiva, and palpebral skin (Tsujita H and Plummer 2010). Malignancy of third eyelid and the globe is common in cattle worldwide (Daryoush M *et al*., 2011). There is a higher incidence of BOSCC at elevated altitudes, a predisposition in hairless or sparsely hairy areas and the lesion typically affects non-pigmented areas in the ocular region. BOSCC is a multifactorial neoplasm, and its prevalence is mostly associated with exposure to solar UV radiation. Squamous cell carcinoma, a significant neoplasm of the eye, is a malignant tumor derived from the stratum spinosum of the stratified squamous epithelium (Aksoy *et al*., 2006 and Mahjoor et al., 2003). Usually, this tumor was presented with an ulcerative, dense, lobular structure and a cauliflower-like appearance. The highest incidence of this condition in cattle is observed in geographic areas with the longest annual hours of sunlight and exposure to ultraviolet radiation (Jubb *et al*., 1993). Treatment options for ocular squamous cell carcinoma include radiotherapy, cryosurgery, hyperthermia, and surgical excision (Sozmen *et al*., 2017). Generally, surgical excision is the recommended method in cases of ocular squamous cell carcinoma

Case History and Observations

A case report of 5-year-old jersey cow weighing 350kgs brought to the Department of Veterinary Clinical Complex, College of Veterinary Science, Garividi. Its medical history and clinical findings indicated that there was a fast-growing tumour mass with a quite haemorrhagic surface and cauliflower-like appearance that had begun as a swelling in the right eye one month ago. It has originated from the third eyelid of right eye and extended to complete eyelid which was pressing the eye ball (Fig. 1). After a clinical examination, the decision was made to surgically remove the tumour mass originating from the right third eye lid.

Treatment

The animal was of normal appearance, without any pre-existing medical conditions. After a clinical examination, the decision was made to surgically remove the tumour mass originating from the left third eye lid . The animal was intramuscularly (IM) administered 0.1 mg/kg Xylazine for sedation, and a 2% lignocaine 20ml for Peterson nerve block and 5ml of 2% of lignocaine was infiltrated to the tumour mass. Following the anaesthesia, care was taken to avoid damage to the globe. Tumour tissue was held up by using Alli`s Tissue forceps and the ligation was made at the bottom of vasculature for the nictitating membrane with catgut 1.0. Tumour mass was removed from the healthy tissues. In the postoperative period, the animal was administered inj. Melonex-12ml intramuscularly, inj. Ceftriaxone - 4gm intramuscularly. Histopathological findings revealed nests of neoplastic squamous epithelial cells (Fig. 3).

Results

In this study, the affected eye showed a large cauliflower like neoplasm on the right third eyelid and diagnosed with ocular squamous cell carcinoma as a result of histopathological examination. Microscopically, neoplastic cells showed enlarged and prominent nuclei. Mitotic figures were numerous.

Discussion

Ocular squamous cell carcinoma is documented to manifest in the bulbar conjunctiva and cornea in cattle, with a distribution ratio of 75% (90% limbus, 10% cornea). Additionally, it occurs in the conjunctiva of the eyelids and the third eyelid, constituting 25% of cases (Yakan *et al*., 2017). The occurrence of ocular squamous cell carcinoma in cattle holds economic significance due to its association with weight loss, reduced yield, and an increase in treatment costs. The emergence of squamous cell carcinoma is linked to various factors, such as prolonged exposure to ultraviolet light, absence of pigment in the epidermis where tumors develop, and the absence of hair or a notably sparse hair coat at the affected site (Meuten *et al*., 2020). Therefore, early diagnosis of ocular squamous cell carcinoma essential, to prevent distant metastasis and development of clinical manifestations. It is crucial to address squamous cell carcinoma (SQCC) in order to prevent distant metastasis and the emergence of clinical symptoms. The animal showed uneventful recovery no recurrence till date.

Fig. 1: Tumour mass originating from the right third eye lid

Fig.2: Post operative appearance after removal of Tumor mass

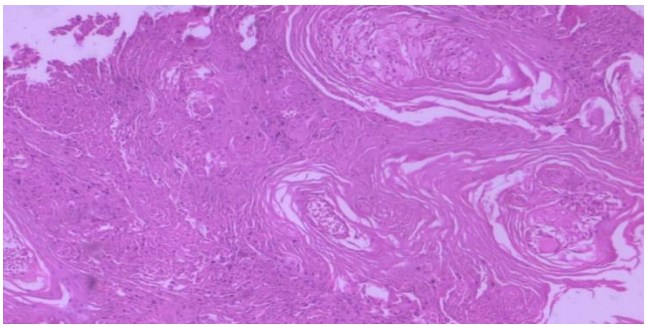

Fig. 3: Microscopic slide image showing nests of neoplastic squamous cells (epithelial pearls) suggestive of well differentiated squamous cell carcinoma (H&E X100)

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