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## **SQUAMOUS CELL CARCINOMA IN ZEBU CATTLE – A REPORT OF TWO CASES**

**\*Vara Prasad W.L.N.V., Murthy R.V.S., Nasreen A, Naik S.H., Sujatha K. and Srilatha Ch**

*Department of Veterinary Pathology, C.V.Sc, Tirupati – 517 502*

*\*Author for Correspondence*

### **ABSTRACT**

Two cases of Squamous cell carcinoma are recorded in zebu cattle of Tirupati, Andhra Pradesh. Lesions showed different clinical aspects Papule and cauliflower like growths placed at level of nictinating membrane of eye and interdigital spaces of hind limb respectively. Cytology and histopathological examination revealed well and poorly differentiated squamous cell carcinomas respectively.

**Keywords:** *Interdigital Spaces, Nictinating Membrane, Zebu Cattle*

### **INTRODUCTION**

Squamous cell carcinoma (SQCC) is the most common type of skin cancer in cattle (Moulton, 1978). It is locally invasive, and occasionally metastasise in most domestic species. Sunlight is probably the most important carcinogenic stimulant for these tumors and accounts for the prevalence of squamous cell carcinoma on the eyelid and conjunctiva of cattle and horses, the ear pinna of cats and sheep, and the vulva of cattle, goats, and recently sheared sheep (Ginn *et al.*, 2007 and Gharagozlou *et al.*, 2007). Ocular squamous cell carcinoma is the most common neoplasm of the eye in cattle (Gharagozlou *et al.*, 2007). In addition, in cattle the etiology has been linked to a number of viral agents, especially bovine papillomavirus (BPV) (Rutten *et al.*, 1992). The tumor typically appears as a papule or nodule or cauliflower like growth, with varying degrees of hyperkeratosis and ulceration. Cutaneous Squamous Cell Carcinoma is usually easily treatable, it has the potential to recur locally and even metastasize, then leading to significant morbidity and mortality. Therefore, it is important to identify those tumors that are more aggressive and require closer follow-up and possible adjunctive treatments such as micrographic surgery, lymphadenectomy.

### **MATERIALS AND METHODS**

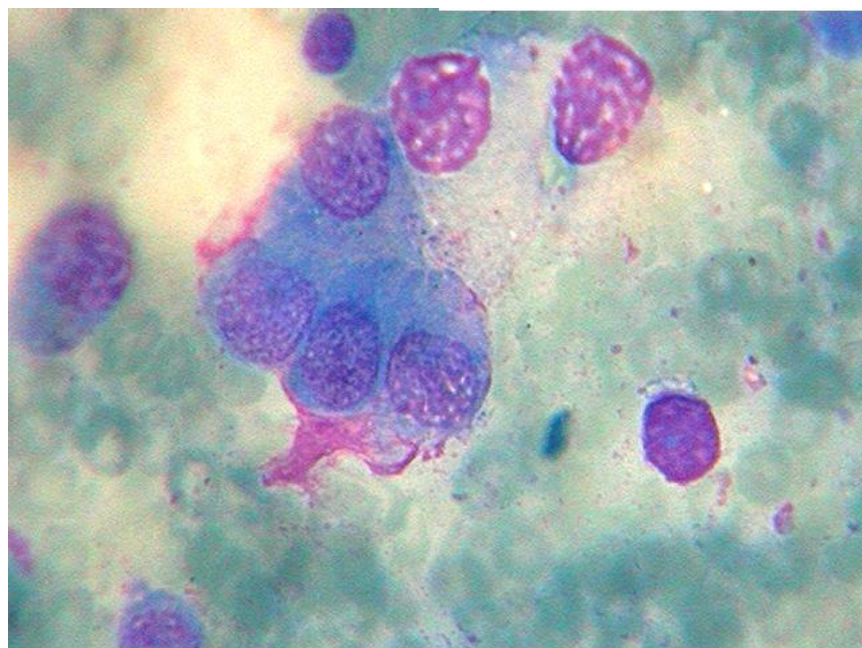
Two cases of Squamous cell carcinoma are recorded in zebu cattle of Tirupati, Andhra Pradesh. Two tumor masses one from eyelid and another from interdigital spaces (rare location) of cattle were excised and presented for histological examination. Impression smears from excised masses were collected and stained with leishmans for cytological evaluation. A small portion of excised tumor mass was fixed in 10% neutral buffered formalin and processed by standard procedure for paraffin embedding and serial sections of about 5  $\mu$  size were cut and were stained with hematoxylin and eosin (H&E) dyes.

### **RESULTS AND DISCUSSION**

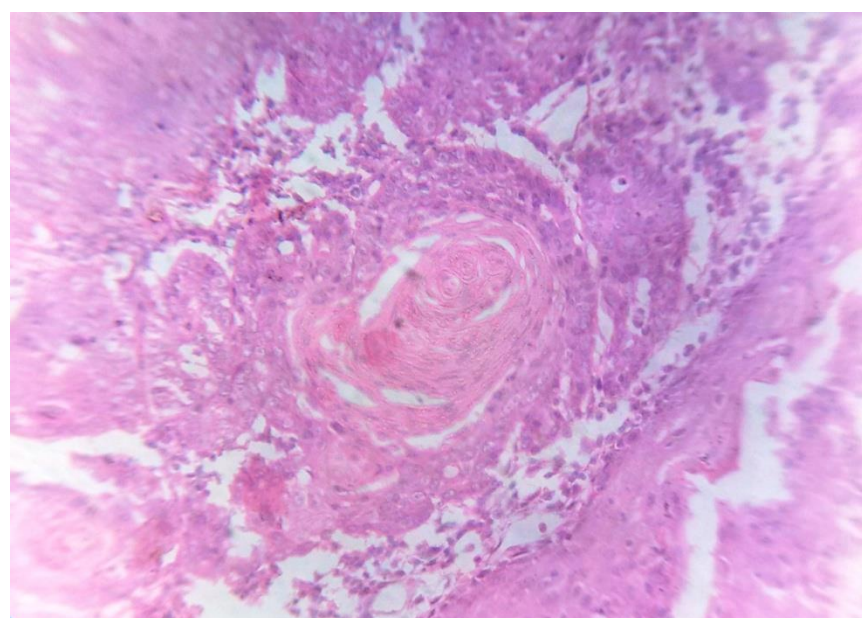
Grossly two tumor masses were presented as papule and cauliflower like growths placed at level of nictinating membrane of eye and interdigital spaces respectively. Tumor masses had shown varying degrees of hyperkeratosis and ulceration. On cut section tumor mass revealed whitish to pink color. Cytological smears of tumor mass from eyes showed malignant squamous cells (Figure 1). Cytology of interdigital tumor mass showed eosinophills and neutrophills which may be due to secondary inflammation and necrosis. Histology of tumor mass from eyelid revealed well differentiated SQCC (Figure 2) with proliferation of atypical keratinocytes and with areas of detachment from the overlying epidermis. These anastomosing growths of cords and nests are composed of cells that have a glassy eosinophilic cytoplasm and enlarged nuclei. Mitotic figures, keratin pearls, and dyskeratotic keratinocytes are variably present. On higher power, intercellular bridges are seen. Histology of tumor mass from

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interdigital spaces revealed poorly differentiated non keratinizing SQCC (Figure 3) with high nuclear cytoplasmic ratio, hyperchromatic enlarged nuclei and anaplastic nature (Figure 4). Secondary changes, such as necrosis, ulceration, haemorrhage and infiltration of inflammatory cells in the stroma of tumour were seen. Abundant eosinophils with numerous uniform spherical granules and bilobed nucleus and areas of stromal fibrosis were also seen. Based on gross, cytology and histopathological examination, tumor masses were confirmed as well and poorly differentiated squamous cell carcinomas. Similar findings were reported by Gharagozlou *et al.*, (2007) in cattle.

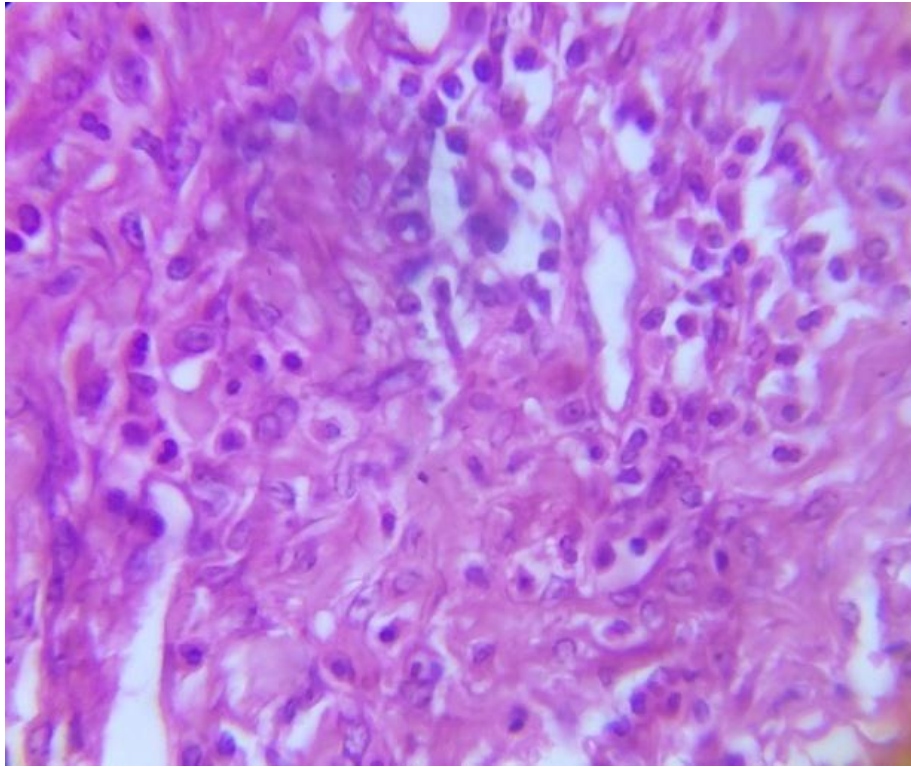


**Figure 1: Cytology of Tumor Mass from Nictitating Membrane Neoplastic Squamous Cell**

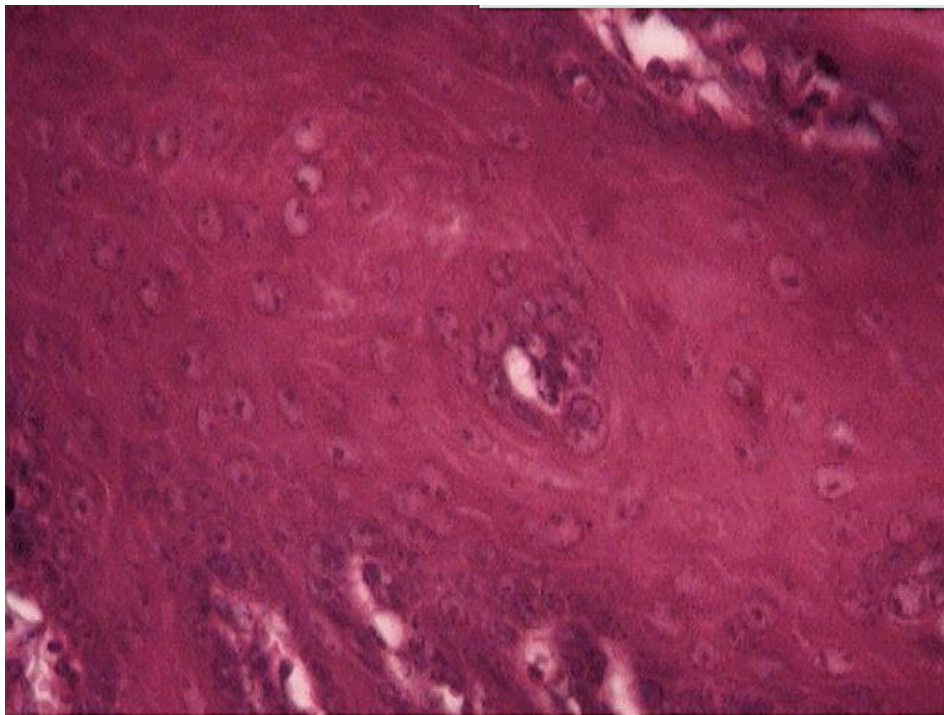


**Figure 2: Tumor Mass from Nictitating Membrane, Centrally Placed Keratin Pearl Surrounded by Neoplastic Squamous Cells. Well Differentiated Squamous Cell Carcinoma**

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**Figure 3: Tumor Mass from Interdigital Space, Poorly Differentiated Non Keratinizing SQCC with High Nuclear Cytoplasmic Ratio, Hyperchromatic Enlarged Nuclei**



**Figure 4: Tumor Mass from Interdigital Space, Poorly Differentiated Non Keratinizing SQCC with Anaplastic Nature**

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**REFERENCES**

**Gharagozlou MJ, Hekmati P and Ashrafihelan J (2007).** A clinical and histopathological study of ocular neoplasms in dairy cattle. *Veterinary Archives* **77** 409-426.

**Ginn PE, Mansell JEKL and Rakich PM (2007).** Skin and appendages. In: Jubb, K.V.F., Kennedy, P.C. and Palmer, *Pathology of the Domestic Animals*, 5th edition, **1**, (W.B. Saunders Co., Philadelphia, Pennsylvania) 751-753.

**Moulton JE (1978).** *Tumors in Domestic Animals* 2<sup>nd</sup> edition 339, (University of California Press, Berkeley and Los Angeles, California).

**Rutten VP, Klein WR, De Jong MA, Quint W, Den Otter W, Ruitenberg EJ and Melchers WJ (1992).** Search for Bovine Papilloma Virus DNA In Bovine Ocular Squamous Cell Carcinomas (BOSCC) And BOSCC-Derived Cell Lines. *American Journal of Veterinary Research* **53** 1477-1481.