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

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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 nictitating 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, Nictitating 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 metastatise 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 μ 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 nictitating 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 eosinophils and neutrophils 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
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
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
REFERENCES


