

MAMMARY CARCINOMA IN A CROSS BRED COW - A CASE REPORT

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SUMMARY

The occurrence of mammary gland tumors in cattle is rarely reported and its histological classification is yet to be categorized. In this study, a case of a rare mammary tumor in a Holstein Friesian cross bred cow characterized as comedocarcinoma with features of aggregates of neoplastic epithelial cells surrounding the areas of necrosis is reported.

Key words: Mammary tumor, cow, comedocarcinoma

Although papillomas of the teat canal and multiple polyps of the cistern have been found commonly in cow (Renk, 1955); the incidence of mammary gland tumors is a rare clinical condition when compared to dogs and cats (Murphy, 1992). Ford *et al.* (1989) reported only 41 cases of mammary gland neoplasia in cattle since 1902. In this study, a case of bovine mammary gland carcinoma is reported.

A nine year old Holstein Friesian cross bred cow was presented to the Veterinary Hospital (Kunigal, district Tumkur, Karnataka) with a history of a lump on the dorsocaudal aspect of right rear mammary gland which was found increasing in its size since six months, alongwith decrease in the body condition and milk yield. On palpation, the mass was found to be hard and firm. Fine needle aspiration cytology revealed the presence of neoplastic epithelial cells occurring individually or in clusters of variable numbers. The cells were either round or oval shaped with spherical, oval or irregular mostly eccentrically placed nuclei. The cells showed moderate to marked pleomorphism and anisokaryosis. The nuclei were moderately or intensely stained with coarse chromatin and had prominent single or multiple nucleoli. As the animal was still productive and fit for surgery, it was decided for surgical excision of the tumor mass.

Animal was placed on left lateral recumbency and the surgery was done under local anaesthesia. The excised tumor mass was collected in 10% neutral buffered formalin and processed by routine paraffin embedding technique. Sections of 5 μ thick were taken and stained with Haematoxylin and Eosin (Luna, 1968). Post operatively animal was maintained on antibiotic (Strepto-penicillin 5g, SID, I/M) for five days alongwith meloxicam for three days in recommended doses along with regular surgical wound dressing. There was a sharp demarcation between the tumor mass and normal mammary tissue. Grossly the tumor mass was reddish in colour, hard, well circumscribed, firm consistency and measured 15 cm. Cut sections of the tumor samples appeared white to gray in color without any fluid oozing from it (Fig. 1).

Histologically, the tumor was identified as comedocarcinoma which was characterized by islands of neoplastic cells with central necrotic areas. The areas of necrosis showed the presence of amorphous eosinophilic material admixed with cell debris, neutrophils and macrophages. Neoplastic cells surrounding the central necrosis were compactly arranged in the form of solid sheath surrounded by connective stroma (Fig. 2). The neoplastic cells were polygonal in shape with vesicular nucleus with coarse

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Fig 1. Gross photograph of the cut section of hard, firm, well circumscribed tumor mass appearing white to gray in color.

chromatin. There were also the presence of mitotic and apoptotic cells. There was absence of invasion of neoplastic cells into either stroma or vasculature along with areas of fibrosis with marked mononuclear cells infiltration and tumor giant cells. Some areas of necrosis revealed calcification showing its chronicity.

The case was followed up post surgically for a period of seven months, on which the animal did not show recurrence of the tumor or any clinical abnormality. Mammary gland tumors in cow are rare compared to dogs which account for more than 50% of the neoplastic conditions. Robbins and Cotran (1979) attributed the role of hyperestrogenism in the genesis of human breast cancer. The low rate of mammary carcinoma in cattle may be partially due to the high rate of pregnancy as pregnancy shortens exposure to estrogen. Low incidence of mammary tumor in cow may be attributed to constant lactation as also reported by Anderson and Jarrett (1966) in women that lactation protects them against mammary neoplasia.

The histological appearance of comedocarcinoma in bovine is not recorded previously as well as classification of bovine mammary gland tumors is not well established. The present case was recorded as comedocarcinoma based on the classification given by Goldschmidt *et al.* (2011) who categorized it under malignant epithelial neoplasm characterized by solid aggregates of neoplastic cells surrounding the areas of

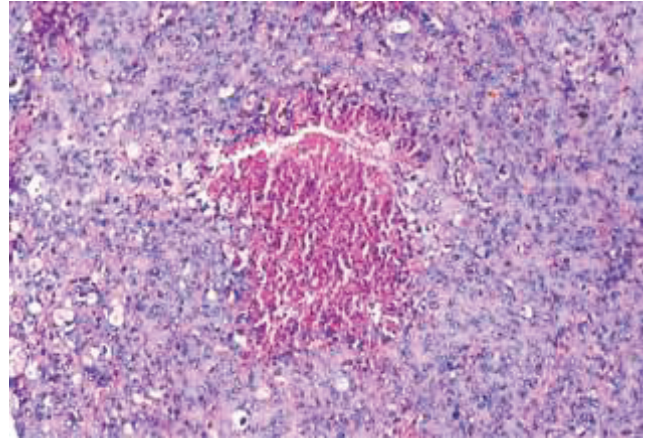


Fig 2. Section of tumour showing compactly arranged neoplastic cells surrounding central necrotic area containing amorphous eosinophilic material admixed with cell debris. (H. & E. x 100)

necrosis. In the present study, there was no infiltration of neoplastic cells into surrounding tissue and vasculature and it is difficult to reason out the absence of invasion or metastasis inspite of malignant histological features of the tumour as there are only very few case reports.

The present case did not reveal any clinical abnormality post surgically in spite of malignant feature seen histologically. However, the risk factors and the biological behavior of bovine mammary carcinoma are virtually unknown due to their rare occurrences.

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