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Clinical Article

MALIGNANT MELANOMA IN INDIGENOUS CATTLE-A CASE REPORT

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SUMMARY

A case of indigenous cattle with a growth in the oral cavity is reported which on histopathological examination was found to be a malignant melanoma. The melanoma was epitheloid and spindle cell type characterized by the presence of both epitheloid cells in carcinoma like tissue pattern and bipolar spindle cells of varying sizes showing invasion of neoplastic melanocytes into vasculature. The tumor mass was surgically excised and the animal was found to be clinically normal post surgically despite showing malignant characters histopathologically.

Key words: Malignant melanoma, cattle

Melanomas are known to occur in all domestic animals but their occurrence is more frequent in dogs and in gray or white horses. The incidence of melanoma is rare in cattle accounting for 5 to 6% of all tumors (Miller *et al.,* 1995; Godoy *et al.,* 2003) and occurs most commonly in the skin. Melanomas originate from neuroectodermal melanoblasts, which migrate during developmental stage into the epidermal-dermal junction of the skin, follicles; and dermis (Pulley and Stannard, 1990). Some melanocytic tumors are congenital (Yeruhan *et al.,* 1999) or occur in cattle younger than two years of age especially those of red, gray or black skin (Miller *et al.,* 1995). The tumors may also be found on the jaw (Head *et al.,* 2002), maxilla (Misdorp, 2002), trunk and limbs (Miller *et al.,* 1995) and less frequently in the inter-digital regions (Godoy *et al.,* 2003) and in the eyes (Misdorp, 2002). The present study reports a rare case of malignant melanoma in cattle with respect to its clinical and histological appearance.

The present case was reported to a Veterinary hospital, [Kunigal (Tq), Tumkur (Dist), Karnataka (State), India] with a history of a hard mass growing in the oral cavity since five months in a male non descript breed bullock of six years of age with deformity of the face. The animal was operated under local anesthesia with 2% lignocaine in its right lateral recumbency. The neoplastic growth was extirpated and small melanin accretions in the cutis were carefully removed. The oral mucosa was sutured using polypropelene suture (1-0). The animal was maintained on strepto-penicillin (2.5g, I/M) for five days and on melaxicam (0.3mg/kg I/M) for two days. The tumor tissue was collected in 10% buffered formalin, processed and sections of 5 µ thickness were stained using routine Haemotoxylin and Eosin staining (Luna, 1968).

On clinical observation the animal had normal appetite. The tumor mass was located at the mucogingival junction, involving the edge of alveolar and labial mucosa of the left anterior side of the oral mucosa (Fig. 1). Tumor was ovoid and regular in appearance measuring about 6 x 4cm in dimension. The mass was hard in consistency, black colour and the cut section revealed complete solid appearance with oozing out of black coloured fluid.

Histologically it was classified as malignant melanoma, epitheloid and spindle cell type with predominant epitheloid component. This was characterized by the presence of both epitheloid cells in carcinoma like tissue pattern and bipolar spindle cells of varying sizes. The tumor cells were closely packed giving lobular or trabecular pattern. The neoplastic melanocytes invaded the dermal tissue causing muscle destruction (Fig. 2). The

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Fig 1. Gross photograph of the tumor in the mucogingival junction and labial mucosa of the oral cavity appearing oval, regular and black in color.

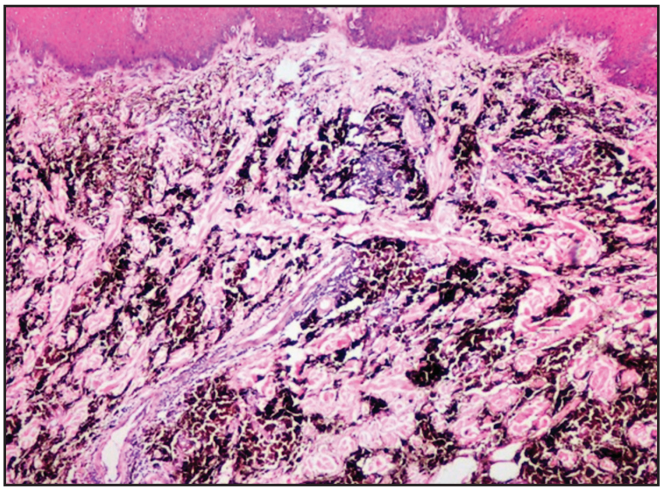

Fig 2. Section of malignant melanoma showing neoplastic melanocytes in epitheloid pattern invading dermis with destruction of collagen fibers and peri vascular mononuclear infiltration. (H.&E. X40)

neoplastic cells were also invaded into vessel wall with formation of tumour emboli.

The neoplastic cells appeared either round to polyhedral or fusiform with round to oval nuclei containing 1-2 prominent nucleoli and delicate chromatin. The cells also comprised abundant granular black pigment in the cytoplasm which obscured the cellular details. There were also strikingly large, polyhedral or round, pigment-containing melanophores scattered in the connective tissue stroma. Varying degree of mitotic activity and mononuclear perivascular infiltration was also observed.

Though the occurrence of melanoma is frequent in dogs, its occurrence in cattle is very rare. Nakhleh *et al.* (1990) observed malignant melanoma in two cases out of a total of 96 skin and subcutaneous tumors in cattle over a period of 12 years. Among cattle, highest incidence has been reported in younger animals aged less than 18 months (Cotchin, 1960) unlike that recorded in the present case which was six years old. Ashley (1978) found melanomas occurring as firm nodular masses usually located dermoepidermally or subcutaneously with hyper pigmentation similar to the findings of the present study.

Post surgical follow up for five months in the present case did not reveal any clinical complication which was in accordance with the findings of Cotchin (1960). Though the present case did not reveal clinical complication on surgical excision, its clinical behaviour with respect to its histological appearance needs study on a large number of cases with a longer follow up period.

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