SURGICAL MANAGEMENT OF MELANOCYTOMAS IN BUFFALOES

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ABSTRACT

Two buffaloes of different ages were presented to the clinics with a history of black, hard, painless growths on the right fore limb interfering with its locomotion in one and at perineal region interfering with its urination in the other respectively with progressive increase in size over a period of 5 months. Based on the findings of clinical examination, the condition was tentatively diagnosed as melanocytoma and was excised surgically. The clinical findings, surgical management and outcome of the cases were discussed.

Keywords: *Bubalus bubalis*, buffalo, melanocytoma, melanoma, malignant, perineum, pleomorphism

INTRODUCTION

Melanomas are cataclysmic neoplasms, which are frequently seen in both man and animals. As there is no consensus in the terminology used for melanocytic tumors in human and veterinary practices, all malignant melanocytic tumors are usually called with the term melanoma, while the benign forms with melanocytoma (Smith *et al*., 2002). Irrespective of the etiology, the biology of melanoma in all the species is similar and it recurs frequently and metastasizes to regional lymph nodes. These melanomas are frequently seen in dogs and horses (Sharma *et al*., 2010) and less frequent in cattle (Crowel *et al*., 1973; Moulton, 1978). In this paper surgical management of melanocytoma and its clinical outcome in two buffaloes was discussed.

CASE HISTORY AND CLINICAL OBSERVATIONS

Two buffaloes were presented to clinics with a history of black coloured growth, developing gradually over a period of 5 months. First buffalo, which was in second lactation, had swelling at the cranial aspect of fetlock region in right fore limb (Figure 1), which grew progressively to a size of football and was interfering with the normal locomotion of the animal. The growth was hard in consistency and the animal did not exhibit any pain on palpation. During progression, the tumor was touching the ground, leading to ulceration and

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bleeding. Second buffalo, which was in its third lactation, had a swelling at the perineal region (Figure 2) dorsal to the upper vulval commisure obliterating the anal opening and pressing the vulval lips ventrally. Urination and defecation were found to be painful. This animal was going down in condition and the milk yield was also remarkably decreased. Hematological and biochemical parameters were within the normal range in both the animals. Based upon the findings of clinical examination, the condition was diagnosed tentatively as melanocytic tumor.

TREATMENT AND DISCUSSION

After thorough clinical examination in the first animal, authors decided for surgical excision of tumor. The animal was prepared for aseptic surgery and was sedated with Xylazine hydrochloride at the dose rate of 0.03 mg/Kg body weight. Surgery was performed under intravenous regional anesthesia using 2% Lignocaine Hydrochloride. Percutaneous ligation of dilated blood vessels supplying the tumor was done and the mass was excised carefully. Capillary bleeding was arrested by electrocautery and the skin edges were sutured as per the standard procedure. Following surgery antiseptic dressing was carried out regularly with well padded pressure bandage for two weeks. In the second animal the base of the tumor mass along with the anal and vaginal openings were identified. As the tumor mass was interfering with urination and defection, it was decided to correct surgically. Animal was sedated with Xylazine hydrochloride at the dose rate of 0.03 mg/Kg body weight and regional analgesia was brought about by caudal epidural analgesia using 2% Lignocaine Hydrochloride. Careful resection of the mass was carried out avoiding damage to the vulval lips and rectal mucous membrane. Inspite of careful resection of the tumor mass, there was a tear in the rectum just cranial to the anus, which was sutured. Postoperatively, both the animals were given Streptopencillin at dose rate of 500 mg/50 kg body weight intramuscular injection once daily for 7 days and Meloxicam at the dose rate of 0.2 mg/kg body weight subcutaneous injection once daily for 3 days. Feed was with held in the second case up to 48 h post surgery and the animals was given crystalloid solutions till when it resumed regular feeding. This was to make the rectum empty in order to hasten the serosal healing of the area of proctorraphy. Both the animals recovered successfully without any postoperative complications by 12th postoperative day. There were no visible signs of recurrence in both the animals for the following period of 6 months. The tumor of the fetlock was nearly spherical in outline and had a smooth surface; while that at the perineal integument was irregular in outline and possessed a rough surface. Both were solid structures and their cut sections stained the scalpels black. The tumors weighed 2.654 kg in the first case and 5.312 kg in the second case. Pieces of tissues were preserved in neutral buffered formalin and the same were subjected for routine histopathology.

Melanomas develop from neuroectodermal melanoblasts that are migrated to the junction of epidermis and dermis of skin, follicles and dermis during their developmental period (Pulley and Standard, 1990). These neoplasms are commonly seen in dogs and grey horses whereas their incidence in bovines is limited to 5 to 6% of all neoplasms (Miller *et al*., 1995). Melanocytic tumors are frequently seen in grey cattle when compared to white cattle. However there are few report of melanomas in buffaloes. In the present study,

tumor mass was observed at skin of right fore limb at the cranial aspect of fetlock in one animal and at the perineum in another animal. Generally this type of tumor involves skin (Head, 1965) and that to at the areas of perineum, outer thorax (Pravettoni *et al*., 2003), base of the tail, head, udder, flank, prepuce and limbs (Sharma *et al*., 2010), Achilles tendon (Babic *et al*., 2009), brisket (Pazhanivel *et al*., 2003) and oral cavity (Brito *et al*., 2009) in bovines. The colour of the tumor mass was black in both the animals and hard in consistency which facilitated the authors to diagnose the condition tentatively as melanocytic tumor. In both the animals, the tumor mass was causing more physical damage than physiological damage to the animal, one interfering with locomotion and the other interfering with defecation and urination. Hence the authors decided for surgical excision of the tumors mass. Histopathology of the excised mass in both the cases showed melanocytes with deposition of brownish black melanin granules in the cytoplasm and the cells showed pleomorphism. Interestingly there are very few capillaries in the tissue section suggesting the benign nature of these tumors (Figure 3). Similar findings were also recorded by Babic *et al*., 2009; Brito *et al.* (2009) in cattle affected with melanomas. In addition to these observations, nuclear pleomorphism and increased number of nucleoli were also reported by few authors like Baba *et al.* (1983) and Pazhanivel *et al.* (2003). As there are no signs of systemic illness, metastasis and recurrence after surgery, these tumors were thought to be of benign type. This should have facilitated easy recovery in both the animals.

CONCLUSION

Melanocytic tumor which is a rare finding in buffaloes was successfully diagnosed and managed surgically. Moreover these type of tumors in domestic animals play as model for treatment and research purpose of the deadful melanomas in

Figure 1. Photograph showing a spherical tumor mass on the anterior aspect of right fore limb.

Figure 2. Photograph showing a large irregular tumor mass at the perineal integument.

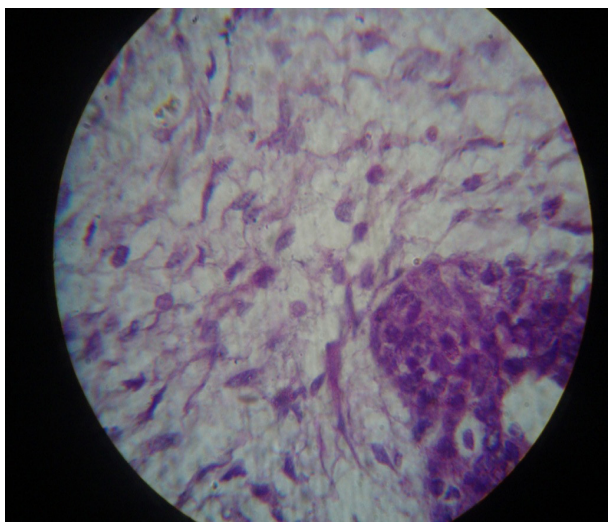

Figure 3. Photograph showing spindle shaped meloncytes with melanin pigmentation with a few mitotic figures in case-1 (H and E 10X)

humans.

REFERENCES

Baba, A.I., M. Gaboreanu, O. Rotaru and R. Kwieczinsky. 1983. Malignant melanomas in farm animals. *Morphol Embryol (Bucur)*, **29**(3): 191-194.

Babic, T., Z. Grabarevic, S. Vukovic, J. Kos and D. Maticic. 2009. Congenital melanoma in a 3-month old bull calf - A case report. *Vet Arhiv*, **79**: 315-320.

Brito, M.F., T.N. Franca, F.F. Jabour, J.N. Seixas, G.B. Andrade, L.I. Oliveira and P.V. Peixoto. 2009. Metastasizing oral melanoma in a cow. *Ciencia Rural*, **39**: 1248-1252.

Crowel, W.A., E.W. Chandler and D.J. Williams. 1973. Melanoma in cattle: Fine structure and a report of two cases. *Am. J. Vet. Res*., **35**: 1691.

Head, K.W. 1965. Some data concerning the distribution of skin tumours in domestic animals. p. 615-635. *In* Rook, A.J. and G.S. Walton (eds.) *Comparative Pathology and Physiology of the Skin*, Blackwell, Oxford, England.

MacEwen, E.G. 1990. Spontaneous tumors in dogs and cats. Models for the study of cancer biology and treatment. *Cancer metast. Rev*., **9**: 125-136.

Miller, M.A., A.D. Weaver, P.L. Stogsdill, J.R. Fischer, J.M. Kreegers, S.L. Nelson and J.R. Turk. 1995. Cutaneous Melanocytomas in 10 young cattle. *Vet. Pathol.*, **32**: 479-484.

Moulton, J.E. 1978. *Tumors in Domestic Animals*, 2nd ed. University of California Press. Barkeley, Los Angeles, London, England.

Pazhanivel, N., R.E. Napolean, B.M. Manohar and U. Ravi. 2003. A case of cutaneous melanoma in a bull. *Indian J. Anim. Res*., **37**: 151-152.

Pravettoni, D., M. Ordobazari and A. Beineke. 2003. Congenital melanoma in a heifer. *Dtsch Tierarztl Wochenschr*, **110**: 34-36

Pulley, L.T. and A. Stannard. 1990. Tumors of the skin and soft tissues. *In* Moulton, J.E. (ed.) *Tumors in Domestic Animals*, 3th ed. Berkeley, London.

Sharma, S., R.N. Chaudhary and K. Singh. 2010. Melanoma in a Hariana cow. *Haryana Vet*., **49**: 78.

Smith, S.H., M.H. Goldschmidt and P.M. Mcmanus. 2002. A comparative review of melanocytic neoplasms. *Vet. Pathol*., **39**: 651-678.