

SURGICAL MANAGEMENT OF MAMMARY GLAND TUMOUR IN A LABRADOR DOG: A CASE REPORT

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A twelve years old Labrador female dog was reported with the symptoms of reduced appetite and water intake, occasional vomiting and growth in the mammary gland which was enlarging day by day since two and a half months. The dog was not responding to the medicinal treatment. Clinical examination discerned dyspnoea, compression of lungs on either side along with large growth observed in right posterior abdominal mammary gland. By following necessary aseptic precaution under dissociative anaesthesia, surgical procedure was done to excise out the large growth mass weighing 800 g.. Surgical wound was repaired in a standard regular manner. The histopathological analysis revealed multiplication of benign mesenchymal cells derived from fibrous connective tissue along with presence of immature proliferative alveolar epithelial cells indicating fibroma of mammary gland. The recovery marked the successful surgical intervention.

Keywords: Dog, Mammary tumour, Histopathology, Fibroma.

Mammary tumour may arise from glandular epithelium or non-epithelial neoplasm may also arise in the mammary region. The breeds of dog those get commonly affected with this condition are Dachshunds, Labrador retriever, Cocker spaniels, Poodles, German Shepherds, mixed breed of dogs (Murphy, 2008). In most of the cases it occurs in malignant condition. In few cases, dogs are identified with advanced metastasis (Shahzamani *et al.*, 2013). The reason of mammary gland neoplasia may be multifactorial; however, majority are sex hormone-dependent. It has been noticed that the dogs with ovario-hysterectomy before second oestrus prevent the occurrence of mammary tumour, but after establishment of a malignant mammary carcinoma ovariectomy cannot prevent the tumour progression (Schneider, 1970). The tumours may occur in a single form or in multiple forms and it may affect one or more glands. Out of the five sets of glands, the last two i.e. 4th and 5th ones are most frequently affected. The consistency of the tumours can be hard or soft, circumscribed lumps or diffuse swellings. Tumours may get attached to sub lying tissues or may be movable, may be covered by intact skin or ulcerated. The

fruitful treatments include surgical excision, but surgical procedure to be approached differs from patient to patient as per the severity of the condition (Allen and Mahaffey, 1989). The present case report is about a successful surgical management of mammary tumour in a Labrador dog.

Materials and Methods

A twelve years old Labrador female dog weighing 32 kg was presented to the Veterinary Clinical complex, C.V.Sc.&A.H., OUAT, Bhubaneswar with the history of reduced feed and water intake, occasional vomiting and growth on abdomen since one year. On clinical examination, it was observed that the dog was having normal body temperature (102⁰F), dyspnoea and compression of lungs on either side with an enlarged growth observed in 5th mammary gland of right side. The history revealed gradual growth in size of tumour for last one year. On physical, haematological, radiological examination and by doing differential diagnosis, it was diagnosed as mammary tumour. Hence surgical excision was planned.

The bitch was administered with cocktail mixture of atropine sulphate @ 0.04

mg/kg body weight xylazine hydrochloride @ 1 mg/kg body weight and ketamine hydrochloride @ 5 mg/kg body weight intramuscularly. The affected ventral region of the abdomen was prepared for surgery by following all aseptic precautions. Around the tumour mass, an elliptical incision was given followed by complete excision of the tumorous tissue mass from the base level (Fig. 1). The blood vessels were ligated using chromic catgut and the operated site was cauterized with electro-cautery. The removed tumour mass was then weighted and noted down to be 800 g. (Fig. 2). The tissue sample from the tumour was then collected in 10% buffered neutral formalin for histo-

pathological examination. The incised skin was closed in standard routine manner. In the postoperative therapy schedule, the dog was administered with Ceftriaxone injection @ 20mg/kg Bwt. and Meloxicam @ 0.2 mg/kg Bwt. I/M twice daily for 5 days. The wound was dressed with povidone solution till complete healing. The skin sutures were removed on 10th day of operation. The dog did not discern any recurrence for six months of the operation. The histopathological analysis of the tumour expressed proliferation of mesenchymal connective tissue cells along with alveolar epithelial cells establishing Fibroma of mammary gland.



Fig.1 Exision of tumor mass



Fig. 2 Excised tumor mass

Results and Discussion

In the present case the bitch was 12 years old. The caudal 4th and 5th mammary glands are more commonly involved than that of cranial glands, but location does not appear to affect prognosis. In the reported case, it was affected in 5th right mammary gland. Female dogs which are not spayed or spayed later than first heat cycle are more likely to develop mammary tumors. Dogs spayed before their first heat has 0.5 percent of this risk, and spayed after one heat cycle have 8 percent of the risk as also reported by Klopfleisch *et al.*, 2010. The reported case was unsprayed bitch while presented. In the

present case, the tumour had been growing since one year. Mammary tumors are treated surgically. Removal of the tumor alone (lumpectomy), simple mastectomy (removal of the affected gland only), modified radical mastectomy (removal of the affected gland and those that share lymphatic drainage and associated lymph nodes), and radical mastectomy (removal of the entire mammary chain and associated lymph nodes) all have their proponents; because some authors, Ali *et al.*, 2016 and Garden *et al.*, 2018 have reported that in dogs, the more involved procedures have not prolonged survival compared with others.. In the reported case

simple mastectomy was done since there was no involvement of deeper and surrounding tissues.

In the reported case, histopathology of the tumour tissue revealed aggregations of epithelial cells in masses. Taking both the neoplastic nature of the alveolar epithelial cells as well as the moderate proliferative behaviour of the inter lobular interstitial collagenous tissue; it can be considered that the mammary tumour has revealed a benign type. Due to the benign nature and absence of metastasis, after complete excision of the tumour mass through surgical intervention, the dog was recovered slowly. There was absence of recurrence for six months of post-operation.

References

- Allen, S.W. and Mahaffey, E.A. (1989). Canine mammary neoplasia: prognostic indicators and response to surgical therapy. *J. Amer. Vet. Med. Assoc.*, **25**(5): 540-546.
- Ali, M.R., Ibrahim, M., Ali, H.R., Selim, S.A. and Sayed, M.A.E. (2016). Treatment of natural mammary gland tumors in canines and felines using gold nanorods-assisted plasmonic photothermal therapy to induce tumor apoptosis. *Internat. J. Nanomedicine*, **11**: 4849-4863.
- Garden, O., Volk, S.W., Mason, N.J. and Perry, J.A. (2018). Companion animals in comparative oncology: One Medicine in action. *The Veterinary Journal*, **240**: 6-13.
- Klopfleisch, R., Euler, H.V., Sarli, G., Pinho, S.S. and Gärtner, F. (2010). Molecular Carcinogenesis of Canine Mammary Tumors: News From an Old Disease. *Veterinary Pathology*, **48**(1): 98-116.
- Murphy, S. (2008). Mammary tumors in dogs and cats. *In Practice*, **30**(6): 334-339.
- Schneider, R. (1970). Comparison of age, sex and incidence rates in human and canine breast cancer. *Cancer*, **26**: 419-426.
- Shahzamani, P., Takhtfooladi, M.A. and Daneshi, M.H. (2013). Phyllodes tumor of mammary gland in a dog: case report. *Global Veterinaria*, **10**(2): 239-242.