Surgical Management of Mammary Gland Tumor in Dog: A Case Report

A Report Submitted by

Mst. Rima Rahaman

Roll No – 17/10

Intern ID – 08

Registration No – 01828

Session: 2016-2017

A clinical report submitted in partial satisfaction of the requirements for the degree of Doctor of Veterinary Medicine

Faculty of Veterinary Medicine

Chattogram Veterinary and Animal Sciences University

Khulshi, Chattogram -4225

Surgical Management of Mammary Gland Tumor in Dog: A Case Report

Approved by:

Dr. Kh. Nurul Islam

Professor

Department of Anatomy and Histology

Faculty of Veterinary Medicine

Faculty of Veterinary Medicine

Chattogram Veterinary and Animal Sciences University
Khulshi, Chattogram – 4225, Bangladesh

Table of contents

List of figures

ABSTRACT

The Teaching and Training Pet Hospital and Research Center, CVASU received a 6-year-old female local breed of dog was reported by symptoms of inappetence, decreased water intake, sporadic vomiting, non-responsiveness to medication, and growth that had been accelerating day by day for the previous one months. Upon clinical examination, dyspnea, and enlargement of the caudal abdominal region were found. For surgical correction, an animal was given a premedicated with a combination of Xylazine hydrochloride (1 mg/kg B. W. IM) and atropine sulfate (0.04 mg/kg B. W.). Surgery was used to remove a huge tumor that weighed 2.5 kg. After surgery, post-operative care was given. Vicryl 2-0 absorbable sutures were used to close muscles and subcutaneous tissue in a simple continuous manner. Skin was closed with the simple interrupted suture. Histopathological examination revealed, fibrosarcoma of the mammary gland. Follow-up was advised after 10 days. The operation was successful, with a smooth recovery.

Keywords: Anesthetics, Female dog, Histopathology , Mammary gland tumor.

CHAPTER 1: INTRODUCTION

The cells that make up breast tissue reproduce abnormally, which leads to the development of a mammary tumor. The precise reasons why breast cancers form in dogs are not entirely known. It is widely understood that exposure to certain hormones, including progesterone, increases the risk of canine mammary cancer. This is due to the fact that progesterone increases growth factors, which are chemicals that activate particular bodily functions.

Dogs who are spayed or neutered before going into heat have a 0.5% chance of developing mammary tumors. **Approximately 50% of them are malignant.**

Whether a dog has undergone an ovariohysterectomy or is intact affects the likelihood of developing malignant tumors (has been spayed). Only 0.5% of dogs who are spayed before their first heat, usually known as estrus, will develop mammary tumors. However, this rapidly rises to a risk of 8% and 26%, respectively, after the first or second heat. Age also seems to be a factor; as a dog reaches seven years of age, the risk of tumor growth considerably rises and continues to rise until 11–13 years of age. Breed plays a role in this elevated risk, suggesting a genetic component. These tumors can develop in one or more glands and can be single or multiple tumors. The most frequently impacted gland sets are the fourth and fifth, and tumors might manifest as hard or soft, distinct lumps or diffuse swellings. Tumors might be skin-covered or ulcerated, movable or anchored to the underlying tissues. The most popular treatment involved surgical excision.

CHAPTER 2: CASE PRESENTATION

A six years local breed was brought into the TTPHRC with a one-month history of loss of condition and growth on the abdomen, reduced water intake, occasional vomiting, and non-responsiveness to medication (Fig. 1,1).

Fig 1.1: A 6 year local dog

Upon clinical examination, the patient had a temperature of 101.9°F, dyspnea, and consolidation of the lungs on either side of the chest, as well as a significant enlargement in the caudal abdominal region.

The past one months have seen a tumor's size gradually grow, according to the history. Malignant mammary tumor was the case's official diagnosis, and surgery to remove it was scheduled.

2.1: Restraining and Anesthesia: To restrain the dog, both physical and chemical methods were utilized. The dog was restrained using lateral recumbancy. The dog was premedicated with a combination of Xylazine hydrochloride (1 mg/kg B. W. IM) and atropine sulphate (0.04 mg/kg B. W.). After that, the dog was prepared for aseptic surgery. The animal was maintained during surgery with a mixture of injections of injected ketamine hydrochloride at 10 mg/kg body weight and injections of injected diazepam at 10 mg/kg body weight. The ventral abdominal region was prepared for operation with the use of all aseptic precautions. The targeted incision site was shaved and soaked with the tincture iodine (Fig. 1.2).

Fig 1.2: Incision site was shaved and soaked with the tincture iodine

2.2: Surgical Technique: A draper was draped across the area where the surgery would be performed. The tumorous tissue was removed from the mass's base by making a circular incision around it and using a Babcock forcep (Fig.1.3 & 1.4). Removed large growth of 2.5kg weight tumor (Fig.1.5). Vessels ligated with chromic catgut. Vicryl 2-0 absorbable sutures were used in a routine, uncomplicated continuous manner to close the muscles and subcutaneous fascia. The skin incision was closed in routine manner with simple interrupted suture (Fig.1.6). A Povidon Iodine Ointment was applied over the sutured line (Fig.1.7). And then white micropore tape placed on the suture line (Fig.1.8). On histopathological examination, there was found fibrosarcoma in mammary gland.

Fig1.3: Circular Incision within the tumor

Fig1.4: Used Babcock forceps

Fig1.5: Remove large tumor about 2.5kg

Fig1.6: Skin was closed wth the simple interrupted suture

Fig1.7: Over the suture line Povidone Iodine ointment applied

Fig1.8: Micropore tape placed in the suture line

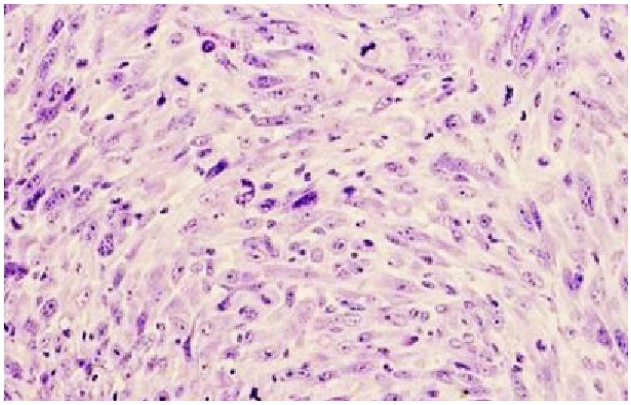

Fig 1.9: Fibrosarcoma of mammary gland

2.3: Post-Operative Care: After surgery; antibiotics, anti-histamine, anti-inflammatory and Multi-vitamin were given. Antibiotic Ceftriaxone (Trizon Vet) 25mg/kg body weight was injected intramuscularly and anti-histamine (Phenadryl Vet) 2mg/kg body weight was injected intramuscularly daily for 7 days. Anti-inflammatory (Melvet) 0.5mg/kg body weight was injected subcutaneously daily for 3 days. Multi- vitamin (V-Plex Vet) 2ml was injected intramuscularly daily for 7 days. Betadine solution was used to apply an antiseptic dressing to the wound until it had fully healed and the skin sutures were removed on the 12th postoperative day. After the operation, the animal did not show any recurrence for 2 month.

CHAPTER 3: DISCUSSION

The prevalence of mammary neoplasia varies greatly between animals. With an incidence that is around three times that of women, dogs are by far the most frequently affected domestic species. Dogs with intact bitches are more likely to develop mammary tumors; bitches with intact bitches typically develop 50% of all cancers. Male dogs rarely develop mammary cancers.In dogs, there are five pairs of mammary glands, numbered one through five from the front to the back. Although any gland may be impacted, the fourth and fifth mammary glands account for the majority (more than 65%) of mammary tumor development. Female dogs that are either intact or spayed after the age of two are more likely to develop mammary tumors. In bitches with mammary neoplasms, Dozza and Culuzzi (1963) discovered elevated urine estrogen levels. According to Schneider et al. (1969), the probability of a dog getting a mammary tumor is 0.5% if spayed prior to their first heat (about 6 months of age), 8% following their first heat, and 26% following their second heat. Spaying does not prevent the growth of mammary tumors in animals older than two years of age (Sleeckx et.al 2011). The caudal mammary glands are more frequently impacted than the cranial glands, according to Else and Hannat (1979), which was also seen in the current case. Overiohysterectomy at a young age dramatically reduced the risk of mammary gland cancers in dogs (Sorenmoet al.2000).

Mammary tumor recurrence was reduced by the surgical procedure, according to Khare (2000).

Samples from surgically removed tumorous masses were kept for histopathology in 10% buffered formalin solution. The tumor's histopathology analysis revealed the growth of mesenchymal cells as well as a tubular epithelial type that is indicative of mammary gland fibrosarcoma.

CONCLUSION

Dogs with mammary gland tumors are currently treated by surgical excision, which is regarded as the most efficient way to achieve tumor control. As a preventive measure, ovarianhysterectomy can greatly lower the chance of getting CMTs when performed at a young age (after 3 months of age) (Hellmén, 2005).A well-balanced diet, avoiding obesity, and the use of hormones (especially progesterone or combination estrogen-progesterone medicines) are other factors that may lower the incidence of mammary gland tumor.

REFERENCES

Allen SW, M. E. (1989). Canine mammary neoplasia:. Journal of American Veterinary Medicine Association.

Dorn CR, S. R. (1976). Inbreeding and caninemammary cancer: a retrospective study. J Natl CancerInst 57, 545-548.

Dozzag, C. D. (1963;). Estrogeni Urinari in Cagne Affette da tumori della mammella. Atti Soc. Ital. Sci vet, 17:354-359.

Else RW, H. D. (1979). Some epidemiological aspects of mammary neoplasia in the bitch. Veterinary Record, 104:296-304.

Haben Fesseha. (September, 2020). Mammary Tumours in Dogs and its Treatment Option- A Review. Biomedical Journal of Scientific & Technical Research, Volume 30, 4, pp 23552-23561.

Kearley, D. M. (february 11, 2022). Mammary Gland Tumors in Dogs. PET MD.

Lacroix JV, H. H. (1952,). The Mammary Gland. In: Canine Surgery. American Veterinary Publications, Evanston, III ed. 504-521.

Novosad, D. C. (May 2003,). Principles of treatment for mammary gland tumors. Clinical Tecniques in small animal practise, Pages 107-109, vol18.

RE., H. (1974,). In Canine Surgery . American Veterinary Publications Inc, California, 107-138.

SE., A. (1998,). The Merck Veterinary Manual. , 1043-45.

W., M. (2002,). Tumors of the mammary gland. In: Meuten DJ, editor. Tumors in domesticanimals. 4th ed. Ames, , 575-606.

ACKNOWLEDGMENT

All glory belongs to the Almighty **ALLAH,** whose blessings made it possible for the author to complete this word.

The author expresses her wholehearted senses of gratification, a sincere appreciation to her respected teacher and supervisor **Dr. Kh. Nurul Islam** Professor, Department of Anatomy & Histology, Faculty of Veterinary Medicine, Chattogram Veterinary and Animal Sciences University, whose wise and academic counsel, well-timed suggestions, constructive criticism, constant encouragement, and unflagging support have helped the author from the start of intern studies to the completion of this report.

The author would like to express her sincere gratitude and gratefulness to **Dr. Mohammad Bayazid Bostami,** Assistant Professor, Teaching and Training Pet Hospital and Research Center.

BIOGRAPHY

My name is Mst. Rima Rahamanand I'm Md. MontezarRahman and Mst. SazedaPervin’schild. I graduated from Sherwood School & College, Bogurawith a Secondary School Certificate (SSC) in 2013 and from Sherwood School &College, Bogura with a Higher Secondary Certificate (HSC) in 2015. I registered at Chattogram Veterinary and Animal Sciences University (CVASU), Bangladesh, to pursue a Doctor of Veterinary Medicine (DVM) degree.