

Surgical Management of Lipoma in a Dog



Submitted by

Md. Naim Uddin

Roll No: 17/105

Reg. No: 01865

Intern ID: 78

Session: 2016-17

A case report submitted in partial satisfaction of the requirements for the degree of
Doctor of Veterinary Medicine (DVM)

Faculty of Veterinary Medicine

Chattogram Veterinary and Animal Sciences University

Khulshi, Chattogram-4225, Bangladesh.

November, 2023

Surgical Management of Lipoma in a Dog



Approved by

.....

Dr. Md Ahaduzzaman

Associate Professor

Department of Medicine and Surgery

Faculty of Veterinary Medicine

Chattogram Veterinary and Animal Sciences University

Khulshi, Chattogram-4225, Bangladesh

November, 2023

Table of Contents

List of Figures	ii
List of abbreviations	ii
Abstract	1
Chapter 1. Introduction	2
Chapter 2. Case Presentation	3
2.1 Clinical Observation	3
2.2 Anesthesia.....	3
2.3 Pre-surgical approach	3
2.4 Surgical Management	3
2.5 Post-operative Care.....	4
Chapter 3. Results	5
Chapter 4. Discussion	8
Chapter 5. Conclusion	9
Chapter 6. References	10
Acknowledgement	13
Biography	14

List of Figures

Serial	Figure caption	Page
Figure 1	Burst out of tumorous growth	5
Figure 2	Preparation of surgical site	5
Figure 3	Incision around tumorous growth	6
Figure 4	Complete excision of tissue	6
Figure 5	Immediate after skin suture	6
Figure 6	Subcutaneous lipoma	7
Figure 7	Cytology immediate before surgery	7

List of abbreviations

Abbreviations	Elaboration
TTPHRC	Teaching and Training Pet Hospital and Research Center
FNAC	Fine needle aspiration cytology
NSAID	Non-steroidal anti-inflammatory drugs
CVASU	Chattogram Veterinary and Animal Sciences University
FVM	Faculty of Veterinary Medicine

Abstract

A 6-year-old female local dog weighing 17.55 kg arrived to TTPHRC with a three-month history of a hard lump that was irregularly shaped and gradually growing larger on the right fore limb at the level of the knee joint. Clinical examination and fine needle aspiration cytology (FNAC) confirmed the mass as a tumor. Subsequent X-ray examination supported the diagnosis, leading to the decision to perform complete surgical excision. The dog was given Xylazine hydrochloride as a premedication, and ketamine hydrochloride and diazepam were used to induce general anesthesia. To ensure aseptic conditions, the surgical site was carefully prepared. A curved incision was made around the base of the tumor mass, and hemostasis was achieved. The tumor mass was excised completely. Post-operatively, the dog was prescribed antibiotics (Ceftriaxone), NSAID (Meloxicam), and antihistamines (Diphenhydramine Hydrochloride). Additionally, povidone iodine ointment was provided for dressing purposes. The dog recovered successfully without complications during the follow-up period. This case highlights the importance of accurate diagnosis, meticulous surgical techniques, and post-operative care in the successful management of tumor masses in dogs.

Keywords: Local dog, Lipoma, Cytology, Surgical management.

Chapter 1. Introduction

Mature fat cells form the benign fatty tumors known as lipomas. These tumors are frequently found in dogs, sporadically found in cats and horses, and infrequently seen in other household animals (Aiello 1998). Male or female adult dogs who are obese are more likely to develop lipomas, which are benign fatty tumors of mesenchymal origin made up of mature fat cells called adipocytes (Goldschmidt and Hendrick, 2002). Though exact etiology is unknown (Ludwig et al., 2017), the proposed factors are hereditary, hormonal, congenital and trauma (Rapidis, 1982).

These are the most prevalent soft tissue tumors, and a thin capsule typically encloses them (Hoseini et al., 2010) and may be located in any deep or superficial bodily location (Hakim et al., 1994). The progression of lipoma occurs gradually and without discomfort (Malik et al., 2020). Histopathology, sophisticated imaging, and surgical results can be used to distinguish lipomas from liposarcomas and infiltrative lipomas. Lipomas are less dangerous than their malignant equivalent, liposarcoma (Crowley et al., 2020), and are primarily limited to their main location (Kumar et al., 2017). It is estimated that 16% of dogs have lipomas (Randall et al., 1998).

The incidence of lipoma in female dogs is higher than that of male dogs (33.3%), and it is more common in older female dogs (Simkus et al., 2015).

This present case report describes a case of surgical management of lipoma of a rescued dog at the right fore limb at the level of the knee joint at TTPHRC.

Chapter 2. Case Presentation

2.1 Clinical Observation

One 6 years old female local dog was bought to TTPHRC, extension of CVASU, Purbachal, Dhaka, with a history of large irregular shaped hard mass like outgrowth hanging at right fore limb at the level of elbow joint. It was gradually enlarging since five months which already burst. The animal was bright and alert during physical examination with normal temperature, pulse and respiratory rate. On palpation, the mass was fluctuant with soft tissue consistency and pain was only noticed when pressure given on growth site. Fine needle aspiration cytology was done to confirm it as tumor mass. X-ray was done which revealed it as a tumor mass (no bony structure or fracture). Complete surgical excision was decided as treatment.

2.2 Anesthesia

The dog was premedicated with Xylazine HCl @1mg/kg body weight intramuscularly. The general anesthesia was induced and maintained by the combination of Ketamine hydrochloride @ 8mg/kg and Diazepam @ 0.5mg/kg body weight at a ratio of 2:1 intravenously.

2.3 Pre-surgical approach

The dog was restrained at lateral recumbence keeping the affected side upward. The surgical site was prepared by using Savlon three times, povidone iodine three times, and lastly with 70% alcohol three times. In addition, an aperture drape was used to expose the surgical site for aseptic surgery. Dextrose saline was administered intravenously at a rate of 10 ml/kg/hour.

2.4 Surgical Management

A curved incision was given around the base of the tumorous growth. Bleeding was checked by using artery forceps. The tumor mass was then excised completely with deep tissue around the mass to avoid future recurrence.

Double suture was given in deep subcutaneous tissue along with muscle and subcutaneous fascia to close dead space between subcutaneous tissue and muscle using absorbable suture material Vicryl 2-0 by simple continuous suture. Subcutaneous tissue was sutured by subcutaneous suture

using Vicryl 2-0. Then skin wound was closed by interrupted suture (horizontal mattress) using Silk. The excised tumor mass was sectioned for any foreign material and nothing found.

2.5 Post-operative Care

For post-operative care the dog was prescribed with antibiotic injection ceftriaxone @ 50mg/kg body weight for 7 days, non-steroidal anti-inflammatory drug meloxicam @ 0.3mg/kg body weight for 3 days, antihistaminic drug pheniramine maleate @ 1.5mg/kg body weight for 5 days, Vitamin-C 15mg/kg body weight for 7 days and a povidone iodine ointment for dressing.

Chapter 3. Results

The dog was fully recovered from anesthesia within 50 minutes without any complications. The dog was taken to its shelter. The owner was advised to take proper care of the dog, including not allowing the dog to bite or scratch the operative site, and was told to administer the drug as prescribed on a regular basis. No complications were noticed during the follow-up period. The wound site was healed completely within 20 days of surgery.



Fig. 1: Burst out of tumorous growth



Fig. 2: Preparation of surgical site



Fig. 3: Incision around tumorous

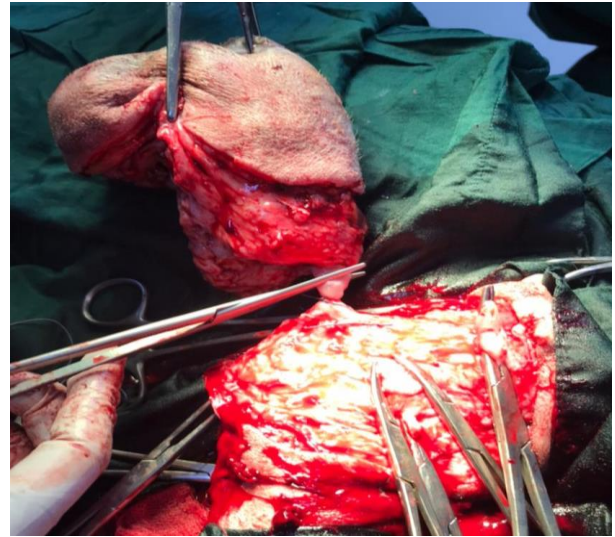


Fig. 4: Complete excision of tissues



Fig. 5: Immediate after skin suture

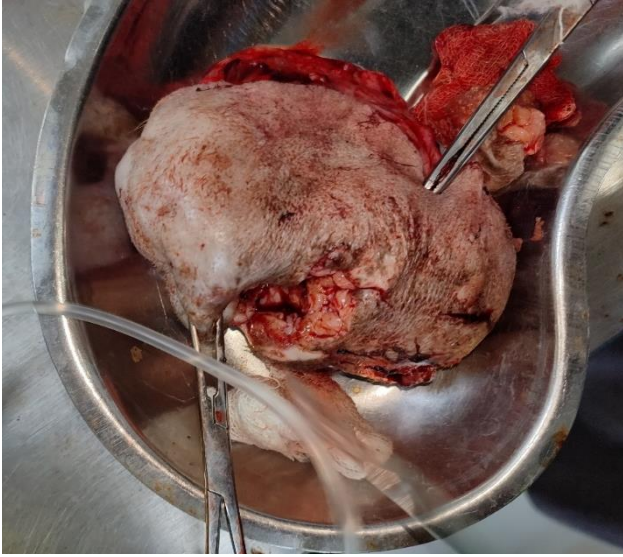


Fig. 6: Subcutaneous lipoma

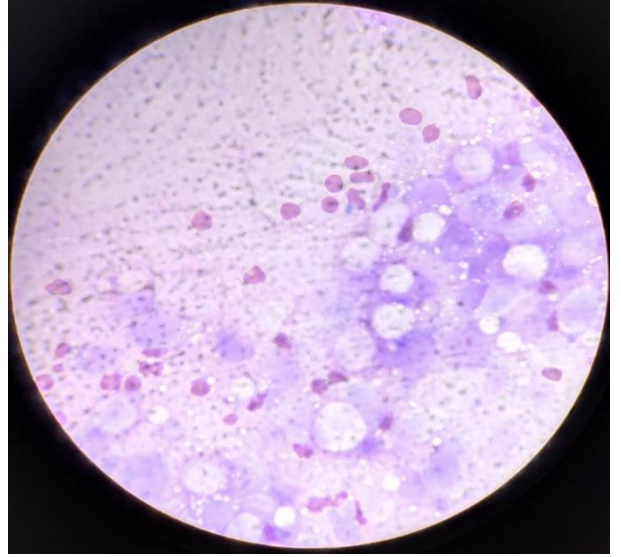


Fig. 7: Cytology immediate before surgery

Chapter 4. Discussion

The most common benign tumor of mature fat cells with a mesenchymal origin is lipomatosis. In humans and dogs, it is commonly observed, but in other species, it is rather uncommon (LT, P.1990). According to Moulton and James Edward, (1961) Canines that are older and overweight are more likely to have lipomas, and as canines age, their chances of developing neoplasms rise which support this case. Because of their widespread prevalence, lipomas are known as universal tumors (Dehghani et al., 2019). They may occur anywhere in the body, but commonly in the subcutis of the chest, abdomen, legs, and axillae. They may appear in the orbital region, (Williams and Haggett, 2006) perineal region (Besalti et al., 2004), thigh region (Thomson et al., 1999), and in the body cavity (Mayhew & Brochman, 2002). The most prevalent location for lipomas is the proximal extremities of the limb or trunk stated by Goldschmidt and Hendrick, (2002) support in this case where lipoma was found above the elbow joint. The gross typical signs of lipoma such as a single, grossly encapsulated mass with many lobulations of oily, yellow adipose tissue as Goldschmidt and Hendrick, (2002) mentioned were absent here due to the longevity of this particular case. Lipomas might not cause immediate issues, but when they get bigger, they can interfere with the body's normal functioning and frequently give owners a great deal of anxiety (Saha et al., 2020) the present case was enlargement and bursting out of lipoma seems to be complicated. In this case X-ray was used to diagnose the tumor which was supported by Buzato et al. (2022) who also used this technique to diagnose the same type of case but we used fine needle aspiration cytology to confirm this diagnosis which was dissimilar with this author but justified by Huppel et al. (2016). Sasikala et al. (2020) used histopathology for the confirmatory diagnosis of this case which was not present in this study. The prognosis is good and the rate of complications from surgical excision is low if a prompt decision is made as shown by Weiss and Goldblum, (2001). In the current investigation, surgical excision was carried out successfully and with ease. Despite the size and complexity of the tumor by eruption, there were no postoperative problems observed. The reason for non-recurrence in the present case might be due to its quick diagnosis and complete excision as suggested by Krank et al. (1985). Huppel et al. (2016) suggested Antibiotics, Anti-histaminic, and NSAIDs as postoperative care which followed accurately in the presented case and the outcome was good. Surgery-related postoperative consequences include

anesthesia risks, delayed wound healing, seroma accumulation, and nerve injury as Lamagna, (2012) mentioned was not observed in this case. The precise causes of lipoma and the potential risk factors covered in this study, however, are poorly and sparsely described in the published literature.

Chapter 5. Conclusion

Treatment for fore limbs lipoma was effective. Before surgery, a physical examination was used to make the diagnosis, which was then verified by fine needle aspiration cytology. Adjuvant therapy was not necessary, and the surgical procedure to remove it was simple. There were no postoperative problems.

Chapter 6. References

- Crowley, J. D., Hosgood, G., Crawford, N. V., & Richardson, J. L. (2020). Computed tomographic findings, surgical management and postoperative outcomes of large intermuscular lipomas in the hindlimb of 11 dogs. *Australian veterinary journal*, 98(4), 135-139.
- Dehghani N, Razmara F, Padeganeh T and Mahmoudi X, 2019. Oral lipoma: case report and review of literature. *Clin Case Rep*, 7(4): 809-815,doi: 10.1002/ccr3.2099
- Goldschmidt, M. H. (2002). Tumors of the skin and soft tissues. *Tumors in domestic animals*, 45-117.
- Hakim, E., Kolander, Y., Meller, Y., Moses, M., & Sagi, A. (1994). Gigantic lipomas. *Plastic and reconstructive surgery*, 94(2), 369-371.
- Hoseini, A. T., Razavi, S. M., & Khabazian, A. (2010). Lipoma in oral mucosa: two case reports. *Dental research journal*, 7(1), 41.
- Huppes, R. R., Dal Pietro, N., Wittmaack, M. C., Sembenelli, G., Bueno, C. M., Pazzini, J. M., & Castro, J. L. C. (2016). Intermuscular lipoma in dogs. *Acta Scientiae Veterinariae*, 44, 1-7.
- Kramek, B. A., Spackman, J. A., & Hayden, D. W. (1985). Infiltrative lipoma in three dogs. *Journal of the American Veterinary Medical Association*, 186(1), 81-82.
- Lamagna, B., Greco, A., Guardascione, A., Navas, L., Ragozzino, M., Paciello, O., ... & Meomartino, L. (2012). Canine lipomas treated with steroid injections: clinical findings. *PloS one*, 7(11), 50234.
- LT, P. (1990). Tumors of the skin and soft tissues. *Tumors in domestic animals*.
- Ludwig, E. K., Byron, C. R., Lahmers, K. K., & Santos, M. P. (2017). Frontal and caudal maxillary sinus lipoma in a horse. *The Canadian Veterinary Journal*, 58(5), 503.
- Malik, V., Singh, A., & Pandey, R. P. (2020). Surgical management of a deeply located retrobulbar lipoma in a buffalo. *Buffalo Bulletin*, 39(1), 103-108.
- Manual, M. V. (1998). Merck & Co. Inc. Kenilworth, NJ, USA, p.21

- Mayhew, P. D., & Brockman, D. J. (2002). Body cavity lipomas in six dogs. *Journal of small animal practice*, 43(4), 177-181.
- Moulton, J. E., & Moulton, J. E. (1961). *Tumors in domestic animals*. Univ of California Press.
- Randall, C., Fox, T., & Fox, L. E. (1998). Tumors of the skin and subcutis. *Cancer in Dogs and Cats, medical and surgical management*. Philadelphia: Lippincott Williams & Wilkins, 489-510.
- Rapidis, A. D. (1982). Lipoma of the oral cavity. *International journal of oral surgery*, 11(1), 30-35.
- Saha, C., Tarif, C., Mukherjee, P., Roy, S., & Mondal, S. (2020). Surgical correction and histological assessment of lipoma in dog: A case report. *Indian Journal of Animal Health*, 59(2), 215-219.
- Weiss, S. W., Goldblum, J. R., & Folpe, A. L. (2007). *Enzinger and Weiss's soft tissue tumors*. Elsevier Health Sciences.
- Buzato, B. A., da Silva, B. A. M., Martins, L. L., Neto, J. L. P., & Hilst, C. L. S. (2022). Lipoma Intra- abdominal em cao (Relato de Caso). *Revista de Ciência Veterinária e Saúde Pública*, 9(1), 021-031.
- Sasikala, M., Arulmozhi, A., Balasubramaniam, G. A., Kathirvel, S., & Vigneshwaran, S. (2020). Pathology of giant lipoma in a non-descript dog: A case report.

Acknowledgement

The author would not have been able to complete the task effectively if not for the Almighty “Allah”, the supreme ruler of the universe, to whom he expresses his heartfelt gratitude.

The author would like to express his gratitude to Associate Professor **Dr. Md Ahaduzzaman**, Department of Medicine and Surgery, Faculty of Veterinary Medicine, Chattogram Veterinary, and Animal Sciences University, for his intellectual supervision, invaluable guidance, and constant encouragement throughout the study period to complete this clinical report.

Also acknowledged and thanked by the author to Assistant Professor **Dr. Mohammad Bayazid Bostami** Department of Medicine and Surgery, TTPHRC, Purbachal, Dhaka, an extension and research wing of Chattogram Veterinary and Animal Sciences University, for total contribution of diagnostic and surgical procedure.

The author is grateful for the excellent internship program and research experience provided by Professor **Dr. Mohammad Lutfur Rahman**, Dean of FVM, and Professor **Dr. AKM Saifuddin**, Director, External Affairs.

The author also expresses gratitude to **Dr. Abdul Mannan**, Deputy Chief Veterinary Officer, TTPHRC, Purbachal, Dhaka, for permitting to take data.

The author would also want to express her gratitude for the wonderful assistance of her family, friends, and colleagues throughout the journey in order to complete this work.

.....
The Author

Biography

The author's name is **Md. Naim Uddin**, son of Md Abu Redwan and Shameem Ara Begum from Mirsarai Thana under the Chattogram district. The author is currently doing his undergraduation in Doctor of Veterinary Medicine (DVM) at Chittagong Veterinary and Animal Sciences University. Author completed my Secondary School Certificate Examination (S.S.C.) from Mirsarai Pilot High School in 2014 and my Higher Secondary School Certificate Examination (H.S.C.) from Govt. City College in 2016. He wants to work as a veterinarian for the rest of his life since he adores helping animals.