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List of abbreviations

Abbreviation	Elaboration
%	Percentage
et al.	And others
kg	Kilogram
wt.	Weight
mg	Miligram
cm	Centimeter
˚	Degree
F	Fahrenheit
mins	Minutes
Ltd	Limited
I/M	Intramuscular
I/V	Intravenous
S/C	Subcuteneous
Inj.	Inject

ABSTRACT

The cells that make up mammary tissue multiply abnormally, which leads to the development of mammary tumors. This problem are most commonly seen in non-spayed female cat. This case report was documented on mammary gland tumor in a cat. The age of cat was 7 years old with 3.5 kg bodyweight. That cat was free of spaying. Amoxicillin with clavulanic acid, prednisolone, povidone iodine were given previously as a medicinal treatment. The location of the tumor was below the nipple, epithelial tissue of gland. Cytology was done by Giemsa stain for confirmation of the disease. Round to cuboidal cluster of cells, less amount of cytoplasm with prominent nucleoli were recorded. The tumorous mass was removed through mastectomy. Antibiotic, pain killer, anti-histamine were given after surgery to prevent infection, irritation and pain. No complications were found after 10 days of surgery.

Keywords: Body weight, Giemsa stain, Mastectomy, Spaying, Tumor .

CHAPTER-I

INTRODUCTION

Feline mammary gland tumor generally defines unusual clump of cells in mammary gland. This type of tumor commonly seen in Siamese cats and Japanese breeds (ITO et al., 1996). After cutaneous tumors and lymphoma, mammary tumors are the third most common cancer in cat (Paniago et al., 2010). The source of mammary tumor is not known but hormones can help to produce tumor (Kutzler, 2022). Female dogs and cats have high possibility to happen mammary cancer respectively 52% and 17% (Moulton, 1990); (W. Misdorp et al., 1999) and (Magalhães et al., 2012).

In premature stage, clinical symptom rarely found (Soedjono et al., 2009). About 12% mammary gland neoplasia occur in cat among neoplasia in feline. About 80% of mammary tumors are adenocarcinoma type and it can be metastasized in lymphoid tissue , lung, liver (Hughes & Dobson, 2012). Some factors are related to tumor such as age, status, nutrition, inbreeding behaviour, fatty body, vaccination, genetic, hormonal level, viral infection , carcinogenic agent ,medicine (Polton, 2009) and (Hambal et al., 2018). Mammary gland tumor are generally seen in aged non -spayed female cat (Kutzler, 2022). According to (Mann, 2020), there have 0% chance to develop mammary tumor if the cat spayed before first heat cycle. The rate can be increase at 7% after first estrous cycle and 25% after 2nd estrus cycle. Spaying of cats before 6 months of age can reduce the prevalence of mammary gland tumor 91 % and the percentage slightly low if the cat is spayed prior to 1 year (Overley et al., 2005). Presence of estrogen receptor about 10% in cat mammary tumor has little impact on survival time at the time of spaying (Morrison, 2002). One study found that cats with tumors less than 3 cm on avg. lived for 21 months ,while cats with tumors over 3 cm on avg. lived for 12 months (Viste et al., 2002). Cats with larger tumor have highly chance of malignancy (Kutzler, 2022). In histological examination, the features of tumor cell consists of large, pleomorphic, multi-nucleated giant cell, acidophilic cytoplasm with dispersed nuclear chromatin (Della Salda et al., 1993).

Also plasma cell, lymphocyte, neutrophil, eosinophil, macrophage, mast cell are found with the tumor cell and in stroma (Meuten, 2020). Generally chemotherapy is

used to stop unwanted approach but chemotherapy with or without herbal medicine could not suppress the tumor cell growth that's why mastectomy is the best option for mammary gland tumor (Hambal et al., 2018). In this case Doxorubicin might be used because of better effect (Moore, 2006). The objectives of this case report were surgically removal of the tumor (Mastectomy) and management.

CHAPTER-II

MATERIALS AND METHODS

2.1 Case History

A 7 years old female non spayed cat weighing 3.5 kg was admitted to the Teaching and Training Pet Hospital and Research Center, Purbachal, Dhaka. The owner reported that swollen part observed in abdomen 3-4 months ago. There was a perforation on that swollen part and sometimes fluid excrete from it. Day by day swollen part was increase. There was no record of deworming. After physical examination, temperature was 101.2˚F, the swollen part was resembled as solid mass, firm like structure, redness, ulcerated on the abdomen.

2.2 Diagnosis

After palpation on the swollen part on mammary gland felt like masses underneath the skin around mammary area. The mass was red, ulcerated and had pain on palpation. The size of the solid mass about 3.5 cm. For accurate diagnostic purpose, tumorous mass was sent for the cytological examination which was performed in Teaching and Training Pet hospital and Research Center, Dhaka. Giemsa stain was used for preparing a slide. After that, the diagnosiswas confirmed and it was mammary gland tumor.

2.3 Procedure of cytological examination

A piece of tissue sample was taken then impression smear on clean slide. Dried the slide then 100% methanol was added in that slide for fixation and was waited for 5 min. After 5 mins , Giemsa stain was added and again waited for 10-15 mins. Then rinsed with water and dried. The slide was seen under the Microscope at 100x magnification. The features of the tumor cells were uniform neoplastic cells in a cluster form, pleomorphic cells, scant cytoplasm, prominent nucleolus.

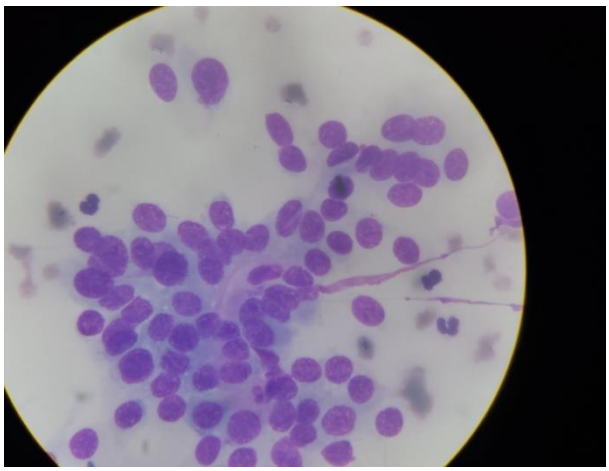

Figure 1: Cytology of mammary gland tumor

2.4 Restraining and Anesthesia

Before the surgery physical and chemical method were performed to control the cat. Diazepam (Inj. Sedil®, Square Pharmaceuticals Ltd., Bangladesh) 0.2 mg/kg body wt. intravenous was used as a sedative and depress the CNS and Ketamine 8mg/kg body wt. (Inj. Ketalar®, Popular Pharmaceuticals, Bangladesh) was injected intravenously as a general anesthetic. Maintenance after 20-25 mins at half dose. Ringers lactate solution 10ml/kg/hour as a fluid therapy was given intravenously. The operative site was shaved and scrubbed with 70% ethanol and povidone iodine.

2.5 Surgery procedure

The cat was lied down on its lateral recumbency. A sterile surgical drape was placed over the cat only surgical part was exposed. Elliptical incision around the tumor was performed in surgery. Incised the subcutaneous tissue and lifted the cranial edge of flap. During the surgery heart rate, respiration rate was closely monitored. The blood vessel was ligated with the help of artery forceps. After removal of tumor suture pattern had done. The subcutaneous and skin was sutured by VICRYL®. Simple continuous suture was applied in subcutaneous tissue and simple interrupted suture on skin. After completion of surgery povidone iodine cream rubbed at the operative area then applied sterile gauze and bandage.

Figure 2: Mass of tumor

Figure 3: Elliptical incision around tumor

Figure 4: After completion of skin suturing

2.6 Post operative care

Amoxicillin Trihydrate (Inj.Moxin®, Opsonin Pharma Ltd, Bangladesh) was administrated in intramuscular for 5 days 12-24 hours interval. Diphenhydramine Hydrochloride 2mg/kg Body wt. (PhenadrylVet®, ACME Laboratories Ltd) was administrated as a anti histaminic drug i/m bid for 3 days. Meloxicam (Inj. Melvet®, ACME Laboratories Ltd, Bangladesh) was injected S/C once for 3 days as an anti-inflammatory drug. Activities of that cat such as jumping, running must have been restricted for a week.

CHAPTER-III

RESULT AND DISCUSSION

3.1 Result

After 10 days of surgery, the cat was physically checked up and further no complication was found. Repaired the wound slowly. Advised the owner to do blood test, urin test of her cat. And also advised to do spaying the cat after 3 months of surgery.

3.2 Discussion

Mammary tumor of dog and cat have many resemblance features in breast neoplasm of women (Baba & Câtoi, 2007). Mammary cancer is the frequent problem for dogs and cats and it has similarities with human breast cancer that's why the treatment process are applied in animal from human breast cancer treatment (Nordin et al., 2017). Tumor are often seen in pet animal because sharing same environment, risk factor with human (Zappulli et al., 2005). Also have similarities on clinical, molecular, histopathological characteristics between animal and human mammary cancer (Gupta et al., 2012) and (Rutteman, 1990). That's why animal model is used for treatment protocol before clinical trial (Nordin et al., 2017).

Most common carcinoma in cat is tubulo-papillary carcinoma (Seixas et al., 2011); (Munson & Moresco, 2007) ; (M. Misdorp, 2002) and (Mayr et al., 1990). This disease can be happened with the increasing of age such as over 8 years old (Hambal et al., 2018). Ductal and lobular hyperplastic lesions are seen at periphery neoplastic mammary nodule about 56.26% cases of cat and also reported that benign hyperplasia is a precancerous stage (Baba & Câtoi, 2007). According to a study neoplasia (benign/malignancy) is increasing both in dog and cat significantly due to environmental pollution, viral, parasitic infestation, age and cancer producing agents in recent years (Munson & Moresco, 2007) and (M. Misdorp, 2002). If the tumor size is more than 3 cm it has chance to metastasize all over the body. Lymph-nodes are attached with mammary gland. Tumor cells are easily spreaded by lymphatic vessel.

Lymphatic route with inguinal and axillar lymphnode and lymph vessel in thoracic cavity can develop neoplasia in lung, organ of abdominal cavity (Baba & Câtoi, 2007). Depending on tumor size, progression of Lung neoplasm can be identified 65-90% by radiograph (Tiemessen, 1989). Nature of Tumor in mammary gland is benign or malignant can be identified by DNA analysis and cytological examination (Hellmen et al., 1988) and (Hellmén & Lindgren, 1989).Biochemical test, Hematological test ,situation of patient, existence of metastases are major before surgery (Baba & Câtoi, 2007). Cytology through fine needle aspiration can differentiate between mastitis and neoplasia in mammary gland but cannot identified it is benign or malignant (Baba & Câtoi, 2007). Full excision of tumor should have needed as a biopsy followed by histopathogical evaluation and also if it was multiple tumor then microscopic examination of each tumor may be needed (Baba & Câtoi, 2007).In this study, there was no available information about blood profile, biochemical profile, radiograph, ultrasonography. In this case report, the actual cause of this disease was unknown. Only physical examination and cytological examination were done. Mastectomy was the final decision that was applied on surgery and the surgery was 100% successful.

CHAPTER-IV

CONCLUSION

Mammary gland tumor is the most frequent problem in cat . Most of the mammary tumor are malignant. This problem are mostly seen in aged female cat those are not spayed. Progesterone and estrogen hormone can increase this incident compare to spayed cat. This hormone can influence the mammary cell. Cats that are spayed before 6 months have low chance to get this disease. In severe cases, surgical intervention is needed.

LIMITATION

Ultrasonography, X-ray, blood profile were not done in this study. That's why the stage of tumor was not identified.

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