



CASE REPORT

Surgical Treatment of Mammary Gland Tumor in A 6 Year Old Pekingese Bitch in Gwagwalada, Abuja – A Case Report

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INTRODUCTION

Mammary tumours are common in dogs that have not been spayed and surgical removal is a common procedure involved in their treatment. Mammary tumors can be small, simple nodules or large aggressive, metastatic growths (Foster and Smith, 2009). When the tumor is localised, it is known as benign but when it has the tendency to spread invasively into surrounding tissues and also to be spread by the lymph systems to other parts of the body it is termed malignant. Malignancies are generally diseases of older dogs so owners should be diligent in their observation and handling of such pets. Female dogs that have been spayed before their first heat cycle rarely acquire such cancer. Mammary tumors are common in unspayed middle – aged female dogs (those between 5 – 10 years of age) although they can on rare occasion be found in dogs as young as 2 years (Rutteman et al., 2001). Statistics shows that if a female dog is spayed after her first heat cycle but before her second cycle, her potential to develop mammary tumors is slightly greater than the dog that was spayed prior to heat cycle (Pet Centre, 2009). Mammary neoplasia are usually easy to detect by gently palpating the mammary glands. They present as a solid mass or as multiple swellings (Ettinger, 1989)). Although breast cancer can and does occur in all of the glands, it usually occurs most frequently in the 4th and 5th (Foster and Smith, 2009). Benign growths are often smooth, small and slow growing. Signs of malignancy include rapid growth, irregular shape and firm attachment to the skin or underlying tissue, bleeding and ulceration (Foster and Smith, 2009). It is very difficult to determine the type of tumor based on physical inspection. A biopsy or tumor removal and analysis are almost always needed to determine if the tumor is benign or malignant and to determine what type it is (Bonagura, 1995). Tumors which are more aggressive may metastasize and spread to the surrounding lymph nodes or to the lungs. The 1st, 2nd and 3rd mammary glands drain and spread their tumor cells forward to axillary lymph nodes while cells from 3rd, 4th, and 5th spread to the inguinal ones. A chest X – ray and physical inspection of the lymph nodes will often help in confirming this (Ettinger, 1989). Surgical removal is recommended as the best treatment for mammary tumor unless if the patient is too old. If surgery is done early in the course of this disease the cancer can be totally eliminated in over 50% of the cases having a malignant form of cancer (Kitchel and Loar, 1997). Chemotherapy and radiation therapy can also be used although their effectiveness has not been very successful in dogs and has not been thoroughly researched upon (Rutteman et al., 2001).

CASE HISTORY

A six year old Pekingese cross bitch was presented to the Veterinary Teaching Hospital, University of Abuja on 12th of March, 2008 with history of a protrusion of a solid mass between the 4th and 5th nipple of the mammary gland. The owner specifically requested for the surgical removal of the mass on the mammary gland. The dog appeared healthy and history indicated that it was up to date with her routine vaccinations. The dog's appetite was normal and the dog very active.

On physical examination, the parameters were recorded; temperature – 39.1°C, pulse – 179/min, respiratory rate – 26/min and weight – 44kg.

Table I: Haematology Result

Parameters	Results
Packed cell volume	48%
Red blood cell count	6.58 x 10 ⁶ /ml
White blood cell count	11.8 x 10 ⁹ /L
H b	15.2g/dL
Platelets	485 x10 ⁹ /L
Neutrophil	70
Lymphocytes	14
Monocytes	00
Eosinophil	16
Basophil	00

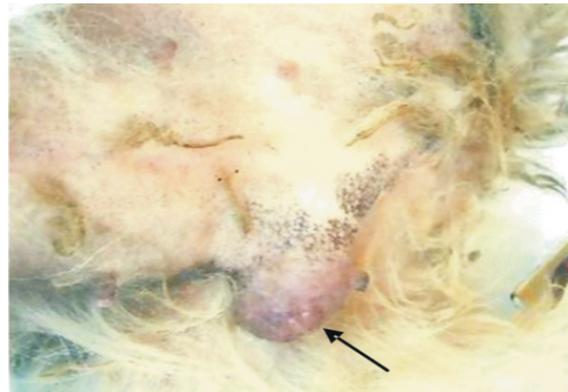
*No malignant cells were observed in the blood.

On palpation, the presence of a solid mass between the 4th and 5th nipple was evident. A biopsy of the tissue was taken for microscopic examination of the cells. It revealed low – grade (slow growing) tumor on assessment using tissue processing procedure

DIAGNOSIS AND TREATMENT

The mass of tissue was diagnosed as a tumor of the mammary gland. Grossly, it lies wholly in the gland and due to the result of the biopsy; the tumor was diagnosed as an adenoma. It was a benign fibro adenoma of the mammary gland. Surgery was recommended. Sterile techniques were employed in the course of the operation. The local anaesthesia used was lignocaine applied subcutaneously around the incision site. Atropine sulphate and xylazine were administered by intramuscular route and were used as premedicants at 0.02mg/kg and 1mg/kg body weight respectively. A time interval of 10 minutes was allowed after administering atropine before xylazine was given. The general anaesthesia used was pentobarbital sodium at 300mg/kg body weight via the intramuscular route.

An incision was made near the masses in the glands being careful not to incise any tumor tissue. Care was taken to remove all the mammary gland tissues of the 4th and 5th nipples and to leave enough normal tissue that closing the incision will not create excessive tension along the surgical closure. Blood vessels were ligated and the row of three mammary glands (3rd, 4th and 5th) was lifted away from the patient. After removal of the mammary glands (along with the tumor tissue) the incision was closed in layers from deep to superficial (the subcutaneous layer, the dermis and the epidermis). The goal was to comfortably close the incision with no tension being placed on the skin. We used chromic cat gut {2/0 (3.5 metric)} for subcutis and silk (5-0) for the skin suture. Simple continuous sutures were used to close the two incisions so as to decrease surgical and anaesthetic time. The bitch was given long acting antibiotics (oxytetracycline 20%) intramuscularly to protect against secondary bacterial infection. Also pain control medication (analgin at 3ml/dose) was administered through the intramuscular route for three days to reduce pain. The suture was removed after 10 days post operation. The dog recovered fully without any sign of the tumor or malignancy even one year after the surgery.



Arrow pointing at the mass



The removed mass of tissue

DISCUSSION

Surgical removal is usually the recommended treatment for mammary tumors in dogs. Upon finding the mass on the mammary gland of the dog, surgery was recommended. The surgery was carried out early enough after the owner's first observation of the appearance of the tissue mass. This is in accordance to Foster and Smith (2009) that if surgery is done early in the course of this disease can be totally eliminated in over 50% of the cases having malignant form of the cancer. During the surgery only the mass was removed because it was not very extensive. The mammary gland and the lymph nodes were left intact.

Surgical removal of some mammary glands in dogs should not be confused with mastectomy which is a term most applicable in humans which involve a radical removal of the whole mammary glands and the underlying muscles tissues which complicates recovery (Foster and Smith, 2009). In the bitch, however, all of the mammary tissue and the related lymphatics are outside of the

muscle layer so we only need to cut through the skin and the mammary tissue ((Rutteman *et al.*, 2001).

The result of the biopsy reveals a benign form of the mammary gland tumor called benign fibro adenoma. This is because the epithelial cells were well differentiated. This was consistent with the previously described features of benign mammary tumor (Jones *et al.*, 1997). The result of the haematological tests was a further indication that the tumor has not metastasized. Grossly, the tumor mass lied in a fibrous stroma under the skin of the mammary gland of the bitch. Mammary gland cancers in dogs are the easiest recorded preventable cancers. There is a direct and well documented link between the early spaying of female dogs and the reduction in the incidence of mammary cancer (Bonagura, 1995).

Early detection of the tumor mass goes a long way in helping in the treatment. If the tumor is detected early enough, it could be operated upon easily before it metastasizes to other organs (Foster and Smith, 2009). It will also be easier on the part of the bitch to have a small mass removed as contrasted with the removal of a large amount of tissue. In this case, the tissue has grown somewhat large though not yet malignant.

Mammary gland tumors in bitches which often is a common occurrence can be successfully treated by surgical operation as was in this case under. Early detection and diagnosis contribute significantly to prompt treatment and recovery. Spaying all non – breeding bitches early in life is recommended to check the incidence of mammary tumor in bitches.

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