



ISSN (E): 2277-7695  
ISSN (P): 2349-8242  
NAAS Rating: 5.23  
TPI 2023; SP-12(6): 437-439  
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[www.thepharmajournal.com](http://www.thepharmajournal.com)  
Received: 20-03-2023  
Accepted: 21-04-2023

**Jithil VR**  
MVSc, Indian Veterinary  
Research Institute, Uttar  
Pradesh, India

**Amrutha VS**  
Junior Consultant, Private  
veterinary Clinic, Palakkad,  
Kerala, India

## Surgical approaches to feline mammary tumour, their treatment and management: A case report

**Jithil VR and Amrutha VS**

### Abstract

Mammary tumour is one of the most common tumours in the cats. In this case study, a 14 year old domestic queen cat is presented with anorexia, occasional vomiting and abnormal growth on the abdominal region. The aetiology of Feline mammary tumour is not clearly understood but the main risk factors are age, breed, reproductive status and early exposure to hormones such as progesterone and oestrogen. In this case, age and reproductive status may be the predisposing factor. Among all the treatment surgical excision is the most acceptable. Under general anaesthesia excised the tumour mass with a diameter of 3cm. All the aseptic measures had taken and provided the post-operative care.

**Keywords:** Feline mammary tumour, general anaesthesia, surgery, post-operative care

### 1. Introduction

Mammary tumours are considered as the third most common type of feline tumour after skin tumours and haematopoietic tumours [1]. The mammary tumours represent 17% of tumours affecting the female cats [2] and about 85-95% among these tumours are malignant [3]. The risk factors associated with mammary tumour are age, breed, reproductive status and exposure to progesterone and estrogen. Feline mammary tumours are highly infiltrative and frequently associated with lymph node metastases at the time of the initial diagnosis [4]. The risk of mammary tumour increases with age and more frequent in middle to old aged cats [5]. The incidence of mammary tumour in cats can be reduced by 91% in cats spayed before six months of age and by 86% in cats spayed before 12 months of age [1]. Among the entire cat breeds domestic short hair breed is more affected. Also Siamese cat and Japanese breed is more susceptible to mammary tumour [6]. Another factor which increase the risk of mammary tumour is obesity [7]. Hormones also have a significant role in predisposition to mammary tumours. Early exposure to progesterone and estrogen may increase the risk [1]. Malignant mammary tumour is generally characterized by a nodular mass in one or more mammary gland. Usually they may be subcutaneous nodules or mass [8]. Nodules may be well defined, discrete, firm or mobile or attached to skin or underlying tissues. Also some may be inflamed, hot, cystic, infected or ulcerated [2, 8]. Metastases can be observed in most of the malignant mammary tumour and they may be regional or distant [9]. Treatment for feline mammary tumour depends on the condition such as surgery, chemotherapy, radiation therapy or combination therapy. Supportive therapy is also essential since the animal is immune compromised. Most widely accepted therapy is surgery but sometimes it may not completely cure the animal since the chance of metastasis is more common [10]. Antineoplastic drugs such as doxorubicin, carboplatin, cyclophosphamide, vincristine, methotrexate and mitoxantrone can be used alone or in adjuvant therapy [8]. In humans tamoxifen is widely used to treat mammary tumours as a hormonal therapy but it has minimal effect in cats since feline mammary tumours lack oestrogen receptors [2, 8].

### 2. History and Clinical Observation.

A 14 year old domestic female cat weighing 3.5Kg presented to a Private Veterinary Clinic at Palakkad, Kerala with a history of anorexia, reduced water intake, lethargy, occasional vomiting and complained about an abnormal enlargement on the abdominal region. According to the owner the growth on the abdominal region observed 3 months above and gradually increased the size. The cat was depressed and continuously licking the growth. On Clinical examination rectal temperature was 101.4F and mucus membrane was pale pink. A hard mass could be observed on the abdominal region. According to the history and clinical signs the case is diagnosed as feline malignant tumour and decided to do surgery and planned accordingly.

**Corresponding Author:**  
**Jithil VR**  
MVSc, Indian Veterinary  
Research Institute, Uttar  
Pradesh, India

## Treatment and Discussion

General anaesthesia was induced by administering Ketamine hydrochloride at 20mg/Kg body weight intramuscularly. The cat was anaesthetised after 15 minutes and transferred to operation theatre. As an anaesthetic adjunct and muscle relaxant, given Diazepam at a dose rate of 0.25mg/Kg bodyweight intravenously. All the limbs of the cat were secured by using ropes made of surgical gauze. The tongue was pulled out to the side using tongue forceps and mouth was closed.

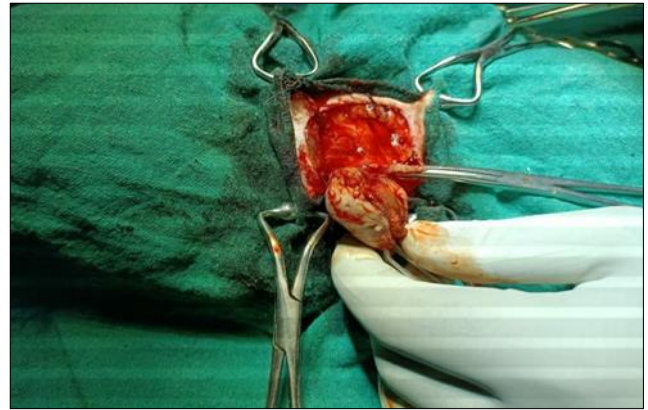
The operative site was clipped and shaved. Disinfected the surgical site by Povidone Iodine and draped with surgical cloth. The anaesthesia is maintained by intravenous administration of combination of ketamine at 20mg/Kg body weight and diazepam at 0.25mg/Kg body weight at 1:1 ratio. Since the tumour extended subcutaneously, made a circular incision around the tumour mass and with the help of forceps and scissors excised the tumour tissue from the subcutaneous region. Using synthetic absorbable suture material, Polyglactin 910, 1-0 ligated the blood vessels and washed with normal saline. The subcutaneous incision was closed with Polyglactin 910, 1-0 by simple continuous sutures and skin incision closed with silk thread by simple interrupted sutures. The diameter of the excised tumour mass was about 3cm.

As a post operative care, the cat was given a broad spectrum antibiotic, ceftriaxone intramuscularly at a dose rate of 20 mg/Kg body weight at 12 Hr interval for 7 days and meloxicam intramuscularly at a dose rate of 0.5mg/Kg body weight. Fluid therapy was continued for 5 days. Dressing of the wound was done with antiseptic cream up to the healing of wound. The suture was removed after 14 days.

In female cats, 17% of malignant tumours are mammary tumours [2]. The aetiology of feline mammary tumour is poorly understood. In this case the major contributing factor was the age and reproductive status of the cat. The queen cat was 14 yrs old and not used for breeding since last 8 years. Ovariohysterectomy was not performed in this female cat. These all factors may predispose to the mammary tumour in this case. Most of the malignant mammary tumours are invasive in nature and these type of tumors metastases. The treatment of choice for tumor without signs of distant metastases is radical mastectomy of the affected side, regardless of tumor size [11]. Surgical excision of mammary tumour remains the most widely accepted treatment option for feline mammary tumour, however it is usually not curative due to the ability of these tumours to invade surround and distant tissues.



**Fig 1:** Tumour growth on abdomen



**Fig 2:** Excision of Tumour mass



**Fig 3:** Tumour mass with a diameter of 3 cm.

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