

## Mammary Fibroadenoma in a Rat and its surgical Management

Mohd. Shafiuza, M. Shiju Simon, B. C. Das, G. D. Rao\*, T. A. Kannan, and R. Suresh Kumar

Department of Veterinary Surgery and Radiology,  
Madras Veterinary College, Tamil Nadu Veterinary and Animal Sciences University, Chennai -7.

\* Corresponding author

### Introduction

The most common tumor in rats is benign mammary tumor and is seen in older females (occurrence is higher after 18 months). The majority of the mammary tumors (approximately 85–90%) are benign fibroadenoma (Percy and Barthold, 1993). Common locations are in the armpits, belly or groin areas. It can be quite squishy and flat or firm, sometimes even as hard as cartilage. It has usually distinct lumps just under the skin that can be moved around slightly with the fingers (Ducummon, 1995). Sex, age, genetics, endocrine, environment and diet play a role in the incidence of spontaneous mammary tumors (Percy and Barthold, 1993). The present case discusses the successful surgical excision of mammary tumor in a rat.

### Case History and Observation

A 3 year old female rat weighing 360 gms was presented to the Small Animal Surgery Out Patient Unit of Madras Veterinary College Teaching Hospital with the history of progressive swelling on the ventral abdomen since 6 months. Clinical examination revealed hard, circumscribed swelling extended from xyphoid to the inguinal region (Fig. 1). The rat appeared apparently healthy. Surgical correction was resorted too.

### Treatment and Discussion

In rats preanaesthetic fasting is not necessary since vomiting does not occur. Free access to food and water should be provided just prior to anaesthesia. It was anaesthetised using ketamine hydrochloride @

100mg/kg intramuscularly and xylazine @ 0.1 mg/kg bd wt intraperitoneally. The animal was kept in dorsal recumbency and the surgical site was prepared aseptically. An elliptical incision was made around the mass and it was bluntly resected from the surrounding tissues. Subcutis and skin was apposed using 3-0 PGA and silk. The mass was weighing 60 gms, 9 cm length and 5 cm wide (fig. 2). Post operatively ceftriaxone was administered @ 10 mg/kg intramuscularly for 5 days. Histopathological examination of the resected mass revealed fibroadenoma.

Mammary tumor growths are primarily dependent on estrogen and prolactin. Benign tumors (fibroadenomas) exhibit growth primarily due to increased influence of circulating prolactin. Spaying can reduce the development of mammary tumors influenced by prolactin and estrogen (Mietes, 1972).

If benign tumors are not treated, it will continue to grow becoming quite large measuring from several centimeters and encompassing up to half the body weight of the rat. These tumors may impinge on other organs, inhibit the mobility, difficulty in grooming and reduced feed intake. In addition it may get ulcerated and bleed, causing anemia.

Sometimes tumor becomes necrotic and release toxins into the blood, leading to toxemia and death. There are three ways to prevent tumors in rats. First, the feed should contain low fat, calorie diet, amines and nitrates. Secondly, selection of tumour free parent stock. The third is choosing male over female rats. Prognosis is good after surgical excision of the tumor (Pritchett and Corning, 2006). Animal had an uneventful recovery.

### References

1. Meites, J. (1972): Relation of prolactin and oestrogen to mammary tumorigenesis in the rat. *J. Natl. Cancer. Inst.*, 48(4): 1217-1224.
2. Percy, D. H and S. W. Barthold. (1993): Pathology of Laboratory Rodents and Rabbits. Iowa state Univ. press/Ames, pp: 109 – 113.
3. Pritchett, K.R.; Corning, B.F. (2006): "Biology and Medicine of Rats". Laboratory Animal Medicine and Management. 3: 42-45.



Fig.1 Preoperatively

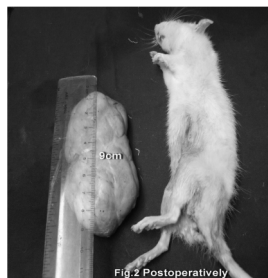


Fig.2 Postoperatively