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Madan Pal
Veterinary Surgeon, Animal Husbandry and Dairying Department, Fatehabad, Haryana, India

Kashi Ram
Deputy Director, Animal Husbandry and Dairying Department, Fatehabad-Haryana, India

Chander Pal Garhwal
Sub Divisional Officer, Animal Husbandry and Dairying Department, Fatehabad-Haryana, India

Dinesh
Assistant Professor, Department of Veterinary Surgery and Radiology, LUVAS Hisar, Haryana, India

Corresponding Author:
Madan Pal
Veterinary Surgeon, Animal Husbandry and Dairying Department, Fatehabad, Haryana, India

Surgical management of adenocarcinoma in a German shepherd female dog

Madan Pal, Kashi Ram, Chander Pal Garhwal and Dinesh

Abstract
A eight years old female German shepherd female dog reported with tumours growth on left cranial mammary gland. The mammary gland tumour was surgically excised under general anaesthesia and dog made uneventful recovery on 12th post-operative day. Histopathology confirmed adenocarcinoma of mammary gland of the female dog.

Keywords: Adenocarcinoma, German shepherd, mammary gland

Introduction
The mammary tumours in the dogs are the second most common tumour (after skin tumours) over all and display the most frequent neoplasm in female dogs. These tumours represent a serious problem in the veterinary practice as the fastest progressive cause of canine morbidity (Misdrop, 2002; Sontas *et al*., 2009) [4, 8]. Mammary gland neoplasm is a common finding in older female dogs that are not spayed. Spaying female dogs when they are young greatly decrease their risk of developing mammary cancer when aged. Overall, Unspayed female dogs have a seven times greater risk of developing mammary neoplasm than spayed female (Marconato *et al*, 2009; Ezerskyte *et al*, 2011) [3, 2]. The mammary tumours are often multiple. About 50% of mammary tumors in dogs were found to be malignant. Adenomas and fibroadenomas make up the benign types. Malignant mammary tumours are divided into sarcomas, carcinosarcomas, inflammatory carcinomas (usually anaplastic carcinomas), and carcinomas (including adenocarcinomas), which are the most common (Rezaie *et al*, 2009; Tavasoly *et al*, 2013) [6, 9].

History and Treatment
One 8 years old female German Shepherd dog weighing 15 kg body weight was presented in the Government Veterinary Hospital-Banawali (Fatehabad) with the history of large pendulous growth on the cranial mammary glands with ulceration over it (figure.1), Physiological and haematological parameters were within the normal range. Clinical examination revealed hard, solitary and ulcerated mass and it was decided for excision. The animal was kept off fed for 24 hours and anesthetized using atropine @ 0.04mg /kg body weight (b.wt.), xylazine@1mg/kg b.wt. and ketamine@5mg/kg b.wt along with fluid therapy. The site was shaved routinely, cleaned and draped properly. The outer pendulous mass was hold and circular incision was given over the hard growth. Then the skin and subcutaneous tissues were separated with blunt incision and the tumour was exposed (figure.2). Blood vessels supplied to the stump were legated properly, transfixed and the mass was excised. Then site was cleaned with normal saline solution. The muscle was sutured with Vicryl no 1/0 suture. The extra pendulous skin was excised and sutured with mersilk in interrupted pattern (figure.3). The animal was given ceftriaxone@10mg/kg b. wt., meloxicam @0.02mg/kg b.wt. and the same was continued for 5 days as postoperative measure. The dog made uneventful recovery on 12th post-operative day (figure. 4).

Histopathologically, it was diagnosed as adenocarcinoma characterized by presence of neoplastic cells arranged in tubular fashion. The linings of the tubules were 2-3 cells thick. Most of the neoplastic cells showed pleomorphic (oval to round) vesicular nuclei with single prominent nucleolus (figures 5 and 6). However, some of the cells revealed hyperchromatic nuclei. A few mitotic figures were also evident (figure.6). The inflammatory reaction was also noticed with presence of neutrophils and mononuclear cells in the stroma. At places, the tubular lumen revealed the presence of detached neoplastic cells and secretions.

Results and Discussion

The canine mammary tumours mainly occur in adult female dogs. The bitches aged 7-11 years are most frequently affected with mammary tumours (Schneider, 1970) [7]. In present case mammary tumour excised was in a female German shepherd dog and Vishvanath *et al.* (2000) [10] reported the higher incidence of tumours in German shepherd dogs. Moulton (1990) [5] observed sixty per cent of the mammary tumours involve posterior glands and more common neoplasia in female dogs but in the present case tumour was present on cranial mammary gland. In the present case histopathology confirmed adenocarcinoma of mammary gland of female dog. Similar case reported in bitch by Anup and Sundaram (2009) [1].

Fig 1: Large pendulous growth on the left cranial mammary glands with ulceration over it.

Fig 2: Tumorous growth removed after surgery

Fig 3: Hoizontal mattress suture placed on skin

Fig 4: Uneventful recovery of dog after 12 days of operation

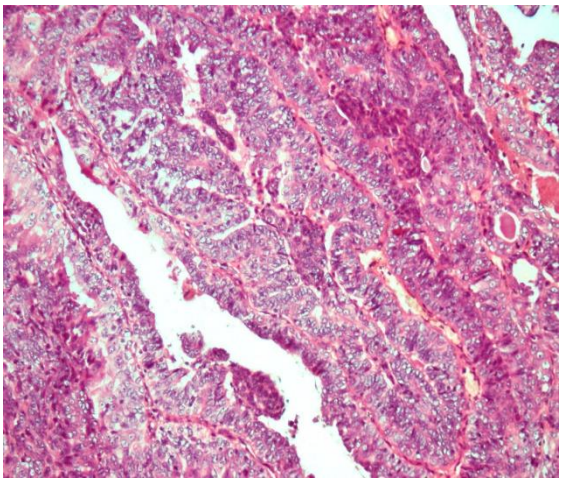

Fig 5: Mammary adenocarcinoma: Neoplastic cells arranged in tubular fashion with 2-3 layered thick cells. H.&E. ×200

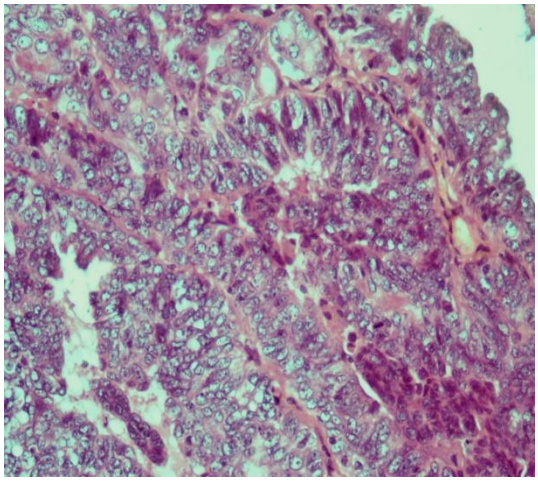

Fig 6: Mammary adenocarcinoma: Most of the neoplastic cells showing pleomorphic (Oval to round) vesicular nuclei with prominent nucleolus. Mitotic figure is also evident (arrow). H.&E. ×400

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