

## Short communication

### INFILTRATING DUCTAL CARCINOMA OF MAMMARY GLAND IN A GERMAN SHEPHERD DOG

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#### ABSTRACT

A German Shepherd bitch of about 2.5 years old showed swollen ulcerated L-5 mammary gland. The affected L-5 gland and adjacent lymphnode were excised and processed for histopathological study with routine Hematoxylin and Eosin staining method. The ductular epithelial cells showed polymorphism and adenoid pattern growth of cells with hyperchromatic nuclei. Metastasis was not evident in the excised lymphnode. The neoplastic epithelial cells infiltrated the surround tissue. On the basis of histopathological finding this case was diagnosed as infiltrating ductal carcinoma.

**Key words:** Ductal carcinoma, mammary gland, German Shepherd, dog

#### INTRODUCTION

The mammary glands are the most common site of neoplasia in female dogs. Bitches have a greater incidence of mammary neoplasia than other female domestic animals or women (Brodey *et al.*, 1983). Mammary neoplasia is rare in bitches younger than 2 years, its frequency increases dramatically after 6 years and peaks at 10 to 11 years, thereafter it declines (Mulligan, 1975). Intact bitches have greater risk of developing mammary cancer than neutered females (Priester, 1979). Increased risk of mammary neoplasia has been reported in the Airdale terrier, Brittany spaniel, Boston terrier, Cocker spaniel, English setter, English springer spaniel, Fox terrier, German shorthaired pointer, Great pyreneess, Irish setter, Keeshond, Labrador retriever, Pointer, Poodle and Samoyed (Mitchell, 1974 ). On the contrary reduced risk for mammary tumors has been reported for mixed breed bitches, Chihuahuas and boxers (Cohen, 1974). About half of all canine mammary tumors are benign and most benign tumors are fibroadenomas and most malignant tumors are adenocarcinomas (Johnston, 1993). This case study includes the surgical removal and histopathology of the mammary tumor of a dog.

#### CASE DESCRIPTION

##### Case history

A German Shepherd bitch of about 2.5 years old was admitted in the Teaching Veterinary Hospital, Chittagong Government Veterinary College, suffering from swollen ulcerated mammary gland. Concurrent clinical signs were dullness, depression and inappetence and slightly elevated temperature. Previously the bitch was treated by field veterinarian suspecting mastitis. The swollen mammary gland (left - 5) was pedunculated and ulcerated with hard in consistency (Fig. 1). Left-4 mammary gland was also little bit swollen. Decision was taken for surgical removal of the affected glands.



Fig. 1. Pedunculated mammary tumor showing ulceration on its surface.

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### Operative procedure

The animal was fasted for 12 hours before operation. The surgical site was prepared aseptically. It was premedicated with chlorpromazine @ 0.4 mg/kg body weight (Largactil<sup>®</sup>, Aventis, Bangladesh Ltd.) and diazepam @ 4 mg/kg body weight (Sedil<sup>®</sup>, Square, Bangladesh Ltd.). After 15 minutes thiopentone-sodium @ 20 mg/kg (Pentothal<sup>®</sup>, Abott Laboratories India, Ltd.) was used for anaesthesia.

An elliptical incision was made around the L-5<sup>th</sup> mammary gland (a minimum of 1 cm from the tumor). The incision was continued through subcutaneous tissue to the fascia of the external abdominal wall. Precaution was taken to avoid incising mammary tissue. Traction on the elevated skin section was made to facilitate dissection. The inguinal fat pad and lymphnode were separated from the mammary gland. Continuing gliding scissors dissection was reached upto caudal superficial epigastric vessels. After ligating the epigastric vessels, the mammary gland was excised. The L-4 mammary gland was excised in the same way by ligating craniosuperficial vessels. A lymphnode adjacent to the L-5 mammary gland was excised for histopathology. The wound was lavaged with normal saline and evaluated whether any abnormal tissue remained. The skin edges were brought closer by suturing the muscle layer. The skin edges were apposed by horizontal mattress suture using silk.

A tissue sample from the swollen mammary gland was preserved in 10% formalin. After processing and sectioning, the histological sections were stained with hematoxylin and eosin following the routine procedures (Luna, 1968)

### RESULTS AND DISCUSSION

Section made from the collected breast mass show a malignant neoplasm composed of anaplastic duct epithelial cells (Fig. 2) revealing mild pleomorphism and large hyperchromatic nuclei arranged in glandular pattern infiltrating into the surrounding fibrous tissue. The cells were resembled to the cells of ductular epithelial cells. Considering these lesions the condition was diagnosed as infiltrating ductal carcinoma. Benjamin *et al.* (1999) reported that ductal carcinomas were more fatal than adenocarcinomas and had a higher rate of metastasis, but most malignant tumors were adenocarcinomas (Brodey *et al.*, 1983; Priester, 1979).

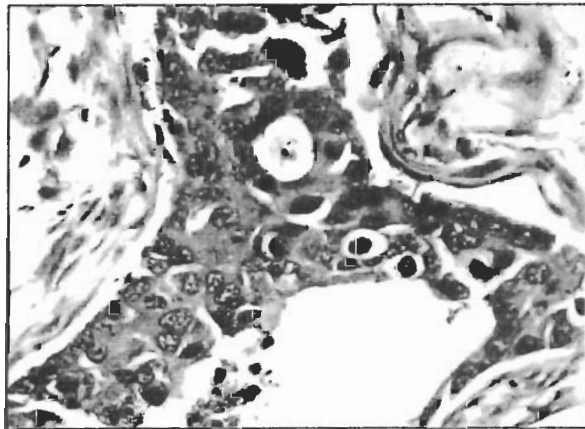


Fig. 2. A duct with anaplastic epithelial cells.

**Biopsy taken** from the regional lymphnode revealed reactive lymphocytes and lymphadenitis was observed. There was no evidence of metastasis. Mammary carcinomas in dogs metastasize most commonly to the regional lymphnodes (Brodey *et al.*, 1983). Inflammatory mammary carcinoma is highly metastatic and tumor cells causing obstruction in superficial lymphatics is usually present (Susaneck *et al.*, 1983).

**The affected animal** was dull anorectic and these clinical findings were supported by (Perez-Alenza *et al.*, 2001) **The dog was** about 2.5 years old and had single parity. The risk of mammary tumours for dogs spayed before their first estrus is 0.5%. This risk increases to 8% after one estrus cycle and 26% after the second estrus (Ogilvie and Moore, 1995). The dog was fed with home made feed comprising rice, egg, meat (beef). Perez-Alenza *et al.* (1998) noticed the intake of homemade meals (compared to that of commercial foods) was significantly related to a higher incidence of tumors. Other significant risk factors were a high intake of red meat, specially beef and pork and a low intake of chicken. The L-5<sup>th</sup> and L-4<sup>th</sup> mammary glands were affected in this case. Brodey (1970) stated that mammary tumors may occur in any of the five pairs of the mammary glands and are most common in the two caudal pairs.

It may be concluded that infiltrating ductal carcinomas are more fatal than adenocarcinomas and had a higher rate of metastasis. But the dog survived as there was no metastasis and the operation was done in time.

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