Short communication

INFLITRATING 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 left mammary gland. The affected left gland and axillary lymph nodes were excised and processed for histopathological study with routine hematoxylin and eosin staining method. The ductal epithelial cells showed polymorphism and adenomatous growth at some with hyperchromatic nuclei. Mitochondria was not evident in the excised lymph node. The adenomatous epithelial cells infiltrated the surrounding tissue. The 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 (Broady 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 (Milligan, 1975). intact bitches have a greater risk of developing mammary cancer than removed bitches (Piette, 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 pyrenees, Irish setter, Keeshond, Labrador retriever, Pointer, Poodle and Samoyed (Machell, 1974). On the contrary reduced risk for mammary tumors has been reported for mixed breed bitches, Chihuahua and basseters (Colten, 1974). About half of all canine mammary tumors are benign and most benign tumors are benzandromas and most malignant tumors are adenocarcinomas (Johnson, 1993). This case study underscores 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 distress, depression and inappetence and slightly elevated temperature. Previously the bitch was treated by field veterinarian suspecting mastitis. The swollen mammary gland (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.

1. Intern student.

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The animal was fasted for 12 hours before operation. The surgical site was prepared aseptically. It was premedicated with chlorpromazine at 0.4 mg/kg body weight (Largactil\textsuperscript{b}, Aventis, Bangladesh Ltd.) and diazepam at 4 mg/kg body weight (Sediva\textsuperscript{b}, Squibb, Bangladesh Ltd.). After 15 minutes administration sodium at 20 mg/kg (Proin\textsuperscript{b}, Abbott Laboratories India, Ltd.) was used for anaesthesia.

An elliptical incision was made around the L-5\textsuperscript{a} 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. Precipitation was taken to avoid damaging mammary tissue. Traction on the elevated skin section was made to facilitate dissection. The inferior 3rd pad and lymph node were separated from the mammary gland. Continuing plating sections dissection was started upon caudal superficial epigastric vessels. After ligating the epigastric vessels, the mammary gland was excised. The L-3 to 4 mammary gland was excised in the same way by ligating cranioventral vessels. A lymph node adjacent to the L-3 to 5 mammary gland was excised for histopathology. The wound was closed with normal saline and evaluated whether any abnormal tissue remained. The skin edges were brought together by suturing the muscle layer. The skin edges were approximated by bitoraxial mattress suture using silk.

A tissue sample from the excised mammary gland was preserved in 10% formalin. After processing and sectioning, the histological sections were stained with hematoxylin and eosin following the usual procedures (Rang, 1988).

RESULTS AND DISCUSSION

Seventy male from the collected breast mass show a malignant tumor composed of anaplastic duct epithelial cells (Fig. 2) revealing mild decapitation and large hyperchromatic nuclei arranged as glandular pattern intersecting into the surrounding fibrous tissue. The cells were resembling to the cells of ductal epithelial cells. Considering these lesion the condition was diagnosed as infiltrating duct carcinoma. Benjamin et al. (1999) reported that ductal carcinoma were more frequent in adenocarcinomas and had a higher rate of metastasis, but most malignant tumor were adenocarcinomas (Blocky et al., 1983; Peuser, 1979).

![Fig. 2. A duct with anaplastic epithelial cells.](image-url)

\textsuperscript{b} Bhoyer taken from the regional lymph node revealed reactive lymphocytes and lymphoid tissue was observed. There was no evidence of metastasis. Mammary carcinomas in dogs metastasize more commonly to the regional lymph nodes (Blocky et al., 1983). Infiltrating mammary carcinoma is highly mitotic and tumor cells causing obstruction in superficial vessels is usually present (Lurmann, 1983).

The affected animal was sedated anesthetic and these clinical findings were supported by (Perez-Alcena et al., 2001). The dog was about 3.5 years old and had simple pantry. The risk of mammary tumors for dogs stabled before their first estrus is 0.5%. This risk increases to 8% after the first estrus cycle and 26% after the second estrus (Opyele and Morris, 1968). The dog was fed with horse meat feed comprising rice, egg, meat (fish). Perez-Alcena et al. (1998) noticed the intake of homestead meals (compared to that of commensal 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-5th and L-6th mammary glands were affected in this case. Blocky (1978) 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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REFERENCES


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