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Mammary Fibroadenoma in American Staffordshire Terrier Dog: A Case Report

(LAPORAN KASUS: TUMOR FIBROADENOMA MAMMAE PADA ANJING *AMERICAN STAFFORDSHIRE TERRIER*)

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ABSTRACT

Mammary tumors in dogs represent 50-70% of all neoplasms diagnosed in older female dogs. This article reports the case of a 13-year-old American Staffordshire dog presented in West Java Animal Hospital with palpable masses on its mammary gland that had been progressively enlarged over six months. Clinical examination revealed the presence of masses in the *pars abdominalis caudalis* and *pars inguinalis* of the mammary glands bilaterally. Further examination was conducted through Fine Needle Aspiration Cytology (FNAC). Cytological examination revealed multiple prominent nucleoli that have variation in nuclei size and shape, and the presence of a benign cell tumor was identified. Blood tests were also performed to evaluate the dog's health status, yielding relatively normal results, although a decreased hematocrit (HCT) was observed as a potential indicator of overhydration. Based on clinical examination and diagnostic findings, the dog was diagnosed with mammary fibroadenoma with a good prognosis, indicating a high recovery rate potential. Treatment was carried out by mastectomy to remove the tumor in the mammary glands of the dog. Post-operative care included the administration of antibiotic, analgesic, and anti-inflammatory medications. The dog was brought back by its owner to the hospital after 14 days for post-operative consultation during which the surgical wound was found to be dry and healed. Post-operative results showed a significant improvement in the healing status of the clinical symptoms experienced.

Keywords: Benign neoplasm; Mammary gland; Mastectomy; Tumor

ABSTRAK

Tumor *mammae* pada anjing terjadi pada 50-70% dari semua neoplasma yang didiagnosis pada anjing betina yang lebih tua. Artikel ini melaporkan kasus seekor anjing ras American Staffordshire berusia 13 tahun dengan massa teraba pada kelenjar *mammae* yang telah membesar secara progresif selama enam bulan. Pemeriksaan klinis menunjukkan adanya massa pada *mammae pars abdo-minalis caudalis* dan *pars inguinalis* secara bilateral. Pemeriksaan lebih lanjut dilakukan dengan melakukan biopsi aspirasi jarum halus pada massa tersebut. Pemeriksaan sitologi menunjukkan adanya beberapa nukleolus yang memiliki variasi dalam ukuran dan bentuk nukleus. Tes darah juga dilakukan untuk menilai status kesehatan anjing dengan hasil interpretasi relatif normal tetapi disertai dengan hematokrit yang menurun sebagai salah satu tanda kondisi overhidrasi. Berdasarkan pemeriksaan klinis dan penunjang, disimpulkan anjing mendeita *fibroadenoma mammae* dengan prognosis *fausta* yang mengindikasikan tingkat kesembuhan tinggi. Pilihan terapi yang dilakukan adalah dengan mastektomi untuk mengangkat tumor pada kelenjar *mammae*. Perawatan pasca-operasi meliputi pemberian antibiotik, analgesik, dan antiinflamasi. Anjing dibawa kembali oleh pemilik setelah 14 hari untuk melakukan konsultasi pascaoperasi dan didapati luka operasi yang kering dan menyatu. Hasil pascabedah menunjukkan peningkatan signifikan pada status kesembuhan gejala klinis yang telah dialami.

Kata-kata kunci: kelenjar mammae; mastektomi; neoplasma jinak; tumor\

INTRODUCTION

Mammary tumors represent one of the most frequently diagnosed neoplastic conditions in the canine population (Valdivia *et al.*, 2022). Multiple factors such as age, sex, breed, environmental exposure, dietary habits and histopathological characteristics play an important role in the occurrence and development of mammary tumors, and also associated with increased risk of mammary tumors (Sruthi *et al*., 2024). These tumors spontaneously developed in dogs natural state and represent 50-70% of all neoplasmdiagnosed in intact female dogs over the age of seven years (Vazquez *et al*., 2023). The treatment regimen and prognosis for the patient could be determined based on the tumor characteristics, location, histological and molecular classification (Vail *et al*., 2019).

Furthermore, the likelihood of developping mammary tumors is heightened by delayed reproductive sterilization (Salas *et al*., 2015; Benavente *et al*., 2016). According to Canadas *et al.* (2019), mammary tumor has seven benign types and 23 malignant subtypes with a ratio of benign to malignant tumor proportion of 4:45. Mammary tumors can be classified from tissue of origin, benign or malignant, cellular differentiation, staging and grading. Tissues of origin may include glandular (adenoma /adenocarcinoma), ductular (papilloma/ carcinoma), myoepithelial and ripotentiatial (mixed) cells (Kotrappa *et al*., 2018).

Fibroadenoma typically presentingas a firm nodular mass and most frequently occurring benign tumor in dogs and cats (Mirahsanti, 2022). The dogs exhibiting the highest rate among domestic animals as mammary tumors comprise approximately 50% of all neoplasms in female dogs (Kumar and Tiwary, 2015). Microscopic evaluation of the fibroadenoma histopathology showed moderate to marked proliferation of stromal connective tissue encircling the abnormal tubular structures (Kotrappa *et al*., 2018). This clinical case study wasaimed to provide an overview of the clinical, laboratory and therapeutic mana-gement of mammary fibroadenoma in

American Staffordshire Terrier dog.

RESEARCH METHODS

Case Description

Signalment and Anamnesis. A 13-year-old female American Staffordshire Terrier dog named Heni weighing 27 kg with brown fur was presented at West Java Animal Hospital, Indonesia with owner complaints that over the past several months, the dog has exhibited a noticeable decline in appetite. Physically and clinically the dog appeared healthy. Palpable masses have developed on *pars abdominalis cau dalis* and *pars inguinalis* of the mammary glands billaterally, with these lumps progressively enlarging over a six-month period (Figure 1). The dog has a history of breeding and has successfully whelped on two occasions.

Fine Needle Aspiration Cytology (FNAC).

The FNAC biopsy was performed by West Java Animal Hospital, Indonesia veterinarian. The aspiration performed after the mass is stabilized between fingers, 23-Gauge needle is inserted at the periphery of the mass, negative pressures were applied with plunger of syringe at least 3-4 times at different angles of the tumors, syringe moved back, aspirate spouted onto the slides and smeared. Two smears were prepared, after air-drying of smears they were stained with May-Grünwald Giemsa (MGG). The FNAC slide were sent to Animal Health and Veterinary Public Health Center, Lembang, West Java, Indonesia to confirm the diagnosis.

Complete Blood Count (CBC) Test

Prior to the surgery, a CBC test was conducted to assess the dog health status (Table 1). Blood samples were collected from the cephalic vein using a 23-gauge needle and subsequently analyzed using a hematology analyzer (BC-5000 Vet®, Shenzhen Mindray Animal Medical Technology Co., Shenzhen, China).

According to Complete Blood Count (CBC) result (Table 1), HCT level are lower than normal reference based on the ematology results. These findings suggest that the dog was experiencing overhydration (HCT<3x HGB) (Hayuanta, 2016). Therapeutic interventionfor canine overhydration remains nonspecific, with general reco-mmendations including diuretic therapy, enhanced patient mobility fluid and sodium restrictt-tion (Pardo et al., 2024). The surgery was performed on the basis of a relatively normal CBC examination result.

Diagnosis and Prognosis. Based on anamnesis, clinical examination, and FNAC result, the dog was diagnosed with fibroadenoma mammary tumor. The prog-nosis of the dog was *fausta*, which means that fibroadenoma mammary tumor can be cured with proper therapy.

Treatment. Prior to surgery, food and water intake were withheld for 12 hours to minimize the risk of regurgitation, ensuring a safer surgical procedure. Premedication is administered to provide analgesia and facilitate anesthesia with Xylazine HCl (Xyla®, Interchemie Werken "De Adelaar" B.V., Veneray, Netherlands) 1.1 mg/kg BW and Ketamine HCl (Ket-A-100®, Agrovet Market Animal Health, Lima, Peru) 15 mg/kg BW injection intramuscularly. The surgical site was clipped, cleaned, and disinfected using antiseptic solutions (Povidone Iodine, PT. Jayamas Medica Industri Tbk, Sidoarjo, Indonesia).

After the surgery was successfully carried out, the dog was given amoxicillin antibiotic (Intramox-150LA®, Interchemie Werken "De Adelaar" BV, Veneray, Net-) 0.15 mg/kg BW injection intramuscularly. Silver sulfadiazine (Burnazin Cream®, PT Darya-Varia Laboratoria Tbk, Jakarta, Indonesia) as an antibiotic agent was applied topically. Analgesic agent Tramadol HCl (Tramadol HCl, PT Bernofarm Pharmaceutical Company Sidoarjo, Indonesia) 4 mg/kg BW and the anti-inflammatory ketoprofen (Ketosol-100®, Interchemie Werken "De Adelaar" B.V., Veneray, Netherlands) 2.2 mg/kg BW twice a day for five days administered by intramusculary injection.

Table 1. Complete Blood Count Test Result

Parameter	Result	Norma references	Unit	Description
White blood cell	13.80	6.00-17.00	$10^3/\mu L$	Normal
Lymphocytes	01.90	0.80-01.80	$10^3/\mu L$	Normal
Mid-cell	01.10	o.00-1.80	$10^3/\mu L$	Normal
Granulocytes	10.80	4.00-12.60	$10^3/\mu L$	Normal
Red blood cell	05.91	5.50-8.50	$10^6/\mu L$	Normal
Haemoglobin	14.30	11.00-15.50	g/dL	Normal
Haematocrit	37.80	39.00-56.00	%	Lower
Mean corpuscular volume	64.10	62.00-72.00	fL	Normal
Mean corpuscular haemoglobin	24.10	20.000-25.00	pg	Normal
Mean corpuscular haemoglobin concentration	37.80	30.00-38.00	g/dL	Normal
Red cell Distribution Width – Coefficient of variation	15.10	11.00-15.50	%	**Normal**
Red cell Distribution Width-Standard Deviation	31.6	20.00-80.00	fL	**Normal**
Platelete Count	427	117-460	$10^3/\mu L$	**Normal**
Mean platelet volume	11.3	7.00-12.90	Fl	**Normal**
Platelet Distribution Width	14.50	5.00-20.00	%	**Normal**
Plateletcrit	0.482	0.10-0.50	%	Normal

Note: *Source: Hematology Analyzer BC-5000 Vet Mindray®

Figure 1. Clinical presentation of mammary lumps seems enlarged on *pars abdominalis caudalis* and *pars inguinalis* of mammary glands bilaterally

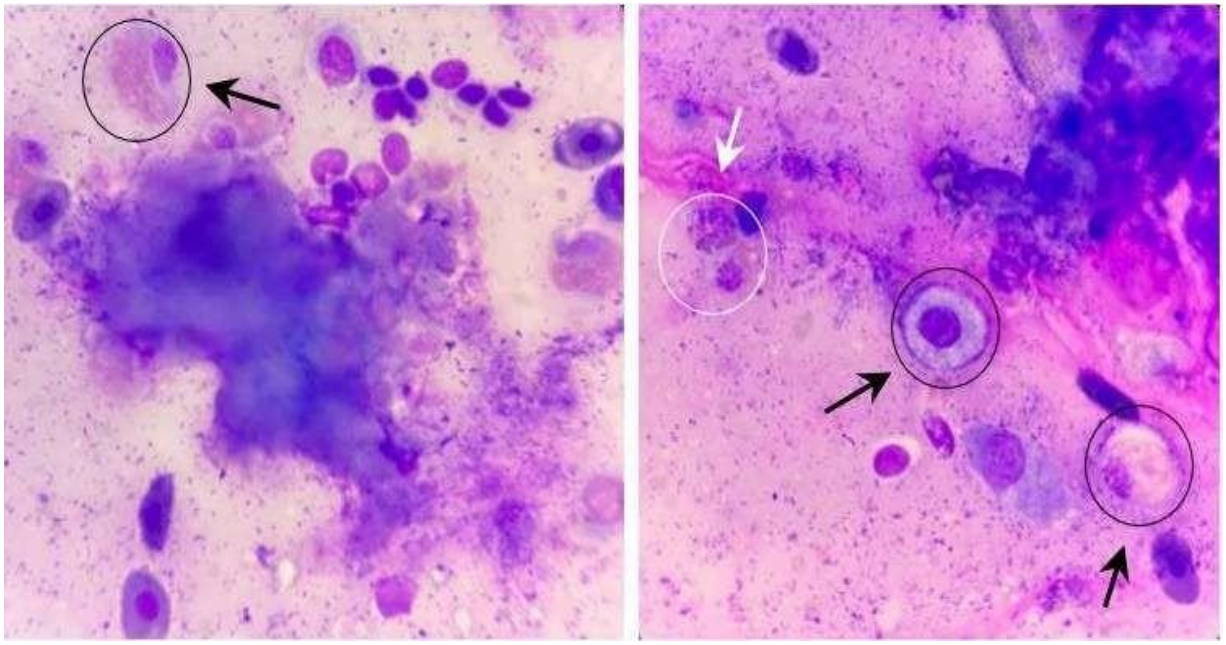

Figure 2. Results of cytology examination of mammary gland tumor. Multiple prominent nucleoli (white arrow), anisokaryosis (black arrow). 400× magnification, MGG stain.

RESULTS AND DISCUSSION

The FNAC results with sample number 1233/PT.01.04.02/BKHKMV, indicate several features. These include the absence of mitotic figures, presence of multiple prominent nucleoli, evidence of anisokaryosis (variation in nuclear size and shape), and identification of a benign cellular tumor with a fibrinous structure. The results of the cytology findings are the basis for determining the pathological conditions that occur. Irregular nuclei, multinucleated cells and fibromyxoid stromal fragments are hallmark cytomorphological features observed in fibroadenoma (Chauhan *et al*., 2022). Fibroadenoma is a neoplastic mass characterized by tubules lined with uniform cuboidal or columnar cells, surrounded by loose connective tissue rich in mucopolysaccharideswith older neoplasms exhibiting denser fibrous stroma and hyalinization (Goldschmidt *et al*., 2011). Fibroadenoma is the form of benign canine mammary tumor with Encapsulated feature and lack of invasive growth (Nosalova *et al*., 2024).

Figure 3. Surgically Removed mammary Tumor Mass

The exactcause of mammary fibroadenoma remains unclear. However, hormones and breed are suspected to significantly influence the development of mammary gland hyperplasia and neoplasia (Mirahsanti, 2022). Among dog breeds, terriers exhibit one of the highest frequencies of mammary tumor occurrence due to genetic factors (Kumar and Tiwary, 2015).

Post-operative care included the administration of antibiotic, analgesic and anti-Inflamematory medications. Amoxicillin is widely used and preferred as prophylactic agent for patients at risk of post-operative infection due to preoperative conditions (Turkki *et al*., 2023). Tramadol is commonly utilized in veterinary medicine as analgesic agent that mediates its effects via opioid, noradrenergic, and serotonergic pathways (Clarke *et al*., 2019; Donati *et al*., 2021). Several studies have reported that the intramuscular combination of tramadol and ketoprofen are effective for managing acute and chronic pain, implying a synergistic relationship between the two agents (Ugwu *et al*., 2018). Ketoprofen is a non-steroidal anti-inflammatory drug (NSAID) commonly used in veterinary medicine to manage pain and inflammation in dogs (Millman and Coetzee, 2020). This medication was used to optimized the post-surgical condition. On the 14th day after the dog's operation, the case was declared healed with dry and fused surgical wounds.

CONCLUSION

It can be concluded that the dog was diagnosed with fibroadenoma on its mammary gland. Surgery was carried out to remove the mass and medication was given after the procedure. Post-operative results showed a significant improvement in the healing status of the clinical symptoms experienced

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