

CASE REPORT

Surgical Management of a Unique Case of Salivary Gland Tumor in a Doberman

Santoshmani D. Tripathi, Monika Rani*, Gajendra S. Khandekar, Shahir V. Gaikwad, Manika Jadhav

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The primary salivary glands in dogs include the parotid, mandibular, sublingual, and zygomatic glands. Diseases affecting these glands are relatively rare, with an overall incidence rate of 0.17% (Carberry *et al.*, 1988). Common surgical conditions of the salivary glands in dogs include mucocele, sialadenosis, fistula, sialadenitis, sialolithiasis, and neoplasia (Johnson, 2008). The parotid and mandibular salivary glands are most frequently affected, with the parotid gland being the most commonly involved in canine cases (Hammer *et al.*, 2001). Salivary gland tumors are categorized as either benign or malignant, with the majority being malignant and of epithelial origin (Head and Else, 2002). The most frequently diagnosed malignant tumors are adenocarcinomas and carcinomas (Almeida *et al.*, 2010). Pleomorphic adenomas are rarely reported in dogs and cats (Head *et al.*, 2003). Diagnosis can be done through fine needle aspiration cytology, incisional biopsy, and histopathological examination of excisional biopsy samples (Militerno *et al.*, 2005). This article describes the surgical management of a rare salivary gland tumor in a dog.

CASE HISTORY AND OBSERVATIONS

A six year old male Doberman dog weighing 36 kg was brought to the surgical department of the Bai Sakarbai Dinshaw Petit Hospital for Animals, Parel, Mumbai, with a history of hard swelling on ventral neck region and continuous salivation

Department of Veterinary Surgery and Radiology, Mumbai Veterinary College, Parel, Mumbai-400012, MAFSU, Maharashtra, India

Corresponding Author: Monika Rani, Department of Veterinary Surgery and Radiology, Mumbai Veterinary College, Parel, Mumbai-400012, MAFSU, Maharashtra, India. e-mail: monikajangra3535@gmail.com

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(Fig.1A & 1B) that had been present since 4 years. Clinical examination revealed normal temperature, respiration rate and heart rate. The animal was dehydrated, dull, inactive, and had sunken eyeballs, pink mucous membrane and tent-like skin. Haemato-biochemical analysis (Table 1) showed normal findings. On radiography, a rounded mass with defined polylobulated borders was noted at the mandibular angle. Metastatic changes were not found in the lateral lung radiograph of the dog. With the consent of the owner, it was decided to operate the case and histopathologically confirm the excised tumorous mass.



Fig. 1: A. showing swelling under ventral region of neck (red arrow); B. Showing salivation (yellow arrow)

Table 1: Haemato-biochemical parameters before surgery

Parameter	Case	Reference range
Haemoglobin (g/dL)	17.30	12 to 18
PCV (%)	47.80	37 to 55
TLC ($10^3/\mu\text{L}$)	8.23	6 to 17
Neutrophil (%)	69.00	60 to 70
Lymphocyte (%)	25.00	12 to 30
Total protein (g/dL)	6.95	5.5 to 7.5
Serum albumin (g/dL)	2.68	2.5-3.5

TREATMENT AND DISCUSSION

As per routine procedure, the dog was aseptically prepared for surgery. The animal was premedicated with triflupromazine hydrochloride at a dose of 1 mg/kg b.wt., intravenously. General anesthesia was induced using intravenous propofol at 4 mg/kg b.wt., and maintenance was achieved with inhalant anaesthesia, *i.e.*, isoflurane. Additionally, cefotaxime (20 mg/kg) and meloxicam (0.2 mg/kg) were given preoperatively. The excision of the salivary gland was performed as the primary treatment for canine salivary gland neoplasia, aligning with Gnepp (1984). The dog was positioned laterally with a pad placed under the neck to

rotate the ventral aspect dorsally and maintain the neck in an extended position. A wide incision was made around the base of the tumor using electrocautery (Fig. 2A), followed by gentle dissection of the subcutaneous tissues (Fig. 2B). The adhering structures were separated, and the growth was excised from its base. During surgery, it was noted that the tumor often encircled or was in close proximity to the jugular vein, vagus nerve, and carotid artery. A wide area of tissue was removed to prevent recurrence. The entire gland was excised using electrocautery, ensuring care of major blood vessels (Figs. 2C and 2D). Bleeding points were controlled, and the incision was closed to eliminate dead space with absorbable suture material (Polyglactin 910 no: 0) in a simple continuous pattern. A baby feeding tube was placed for drainage (Fig. 2E). The skin was closed with interrupted cross sutures using non-absorbable material, nylon (polyamide no: 0). Postoperatively, the dog received intravenous fluids for one week, along with a five-day course of intramuscular antibiotics and analgesics. The owner was instructed to withhold food for at least one week, then gradually introduce a liquid diet in small portions starting from the second week. Daily wound care with povidone iodine and fly repellent spray was recommended. After ten days of surgery, Skin sutures were removed (Fig. 2F), and the dog showed a normal appetite and no salivation.

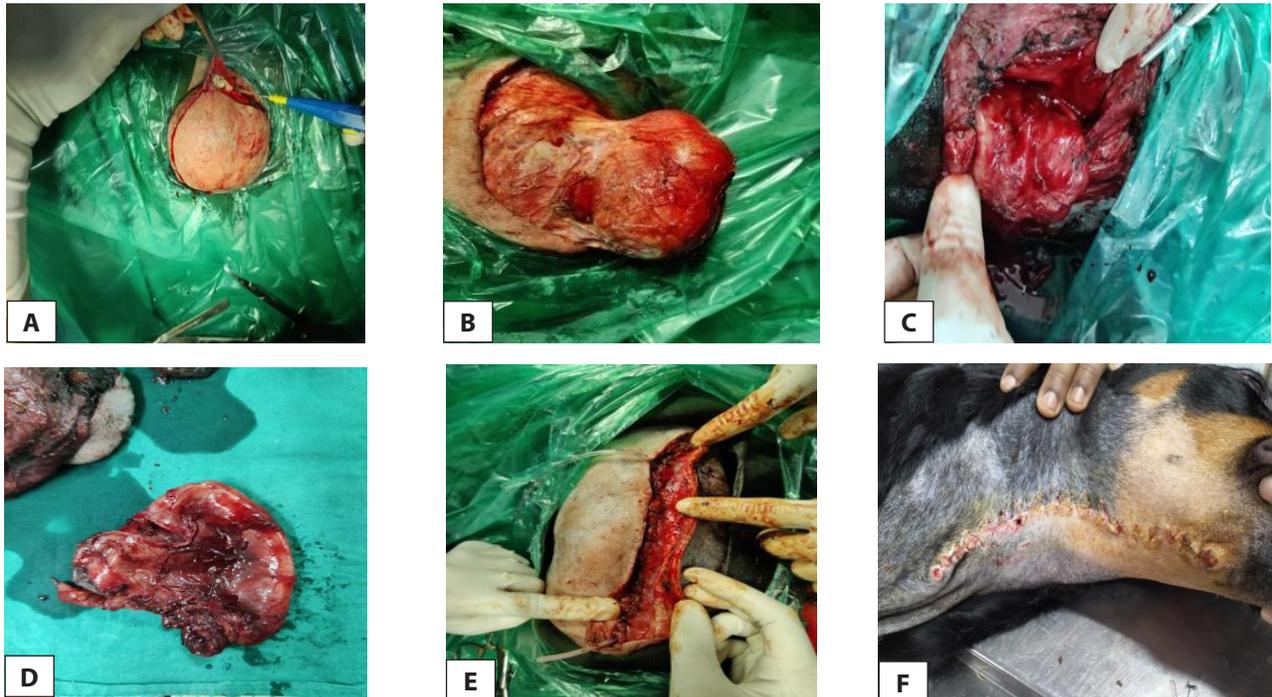


Fig. 2: Showing step by step surgical procedure for complete salivary gland excision: (A) skin incision, (B) After subcutaneous separation, (C) After the salivary gland tumor removal, (D) Salivary gland after extraction, (E) Baby feeding tube kept for drainage, (F) After suture removal.

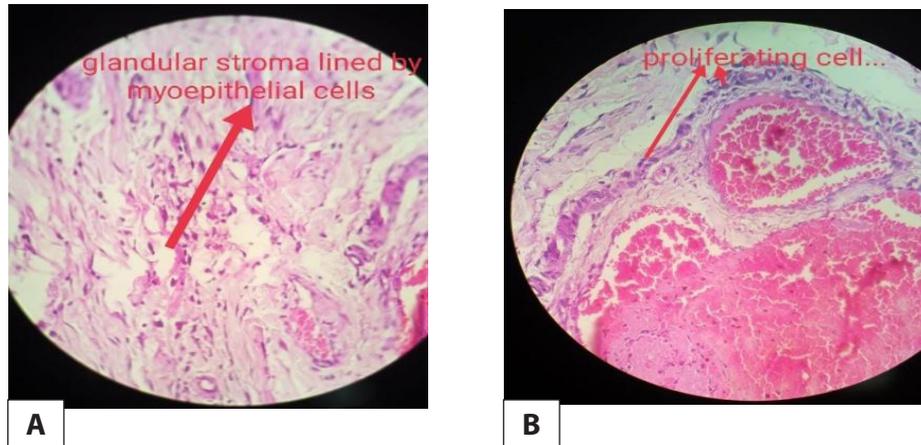


Fig. 3: A & B. Pleomorphic Adenoma

The excised tumor mass weighed approximately 300 g. It was fixed in 10% formalin and sent for histopathological examination, which confirmed it as a salivary gland adenoma. The tissue sections stained with H&E stain revealed the proliferation of round, oval and polygonal cells arranged in dense layer. Nuclei of cells were round to oval, with a slightly eccentric arrangement. Proliferated cells were separated by fibrous connective tissue and collagen. They contained variable amounts of faint acidophilic cytoplasm with hazy borders. Pleomorphism was noted. Irregular canalicular structures of masses with intercellular bridges of polygonal or fusiform eosinophilic cell structure were present, suggestive of pleomorphic adenoma of salivary gland (Fig. 3A & 3B). No evidence of malignancy was revealed in histopathology. Giggin *et al.* (2023) reported histopathological findings of cut section of the salivary gland tumor with cuboidal to oval uniform size cells with distinct nuclei arranged in groups of varying sizes. Thin bands of hyalinized fibrocollagenous tissue were observed between the cell groups.

In general, the surgical management of the salivary gland tumor in the Doberman confirmed a successful outcome, emphasizing the importance of rapid diagnosis and intervention in such rare cases. The procedure not only reduced the symptoms but also significantly improved the quality of life for the dog.

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