CASE REPORTS

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A Case of Fibrosarcoma on the Nasal Bone in a Dog, its Treatment and Histopathological Findings

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In this case report, a case of nasal fibrosarcoma and hepatoid gland adenoma in the neck region in a dog is discussed. The nasal fibrosarcoma mass was approximately 6×9 cm in size, while the hepatoid gland adenoma was 2×3 cm in size. It was learned that the hepatoid gland adenoma in the cidago region had been the same size for about eight years and did not cause any clinical symptoms. It was determined that nasal fibrosarcoma on the left side of the nose caused clinical symptoms including respiratory depression, excessive tear discharge, and inability to open the eyelids. It was determined that hepatoid gland adenoma did not recur from two totally extirpated masses, but nasal fibrosarcoma recurred. Due to the exacerbation of the clinical findings and the decrease in the chance of treatment, it was decided to euthanize the dog with the consent of the owner.

Key Words: *Dog, fibrosarcoma, hepatoid gland adenoma, nasal bone*

Bir Köpekte Nasal Kemik Üzerinde Karşılaşılan Fibrosarkom Olgusu, Tedavisi ve Histopatolojik Bulguları

Bu olgu sunumunda, bir köpekte nazal fibsarkom ve boyun bölgesindeki hepatoid bez adenomu olgusu tartışılmıştır. Nazal fibrosarkom kitlesi yaklaşık 6×9 cm boyutlarında iken, hepatoid bez adenomu 2×3 cm boyutlarındaydı. Cidago bölgesindeki hepatoid bez adenomunun yaklaşık sekiz yıldır aynı boyutta olduğu ve klinik semptom göstermediği öğrenildi. Burnun sol tarafındaki nazal fibrosarkomun solunum depresyonu, aşırı gözyaşı akıntısı ve göz kapaklarını açamama gibi klinik semptomlara neden olduğu belirlendi. Total olarak ekstirpe edilen iki kitleden hepatoid bez adenomunun tekrarlamadığı, ancak nazal fibrosarkomun tekrarladığı belirlendi. Klinik bulguların şiddetlenmesi ve tedavi şansının azalması nedeniyle, sahibinin onayıyla köpeğin ötanazi yapılmasına karar verildi.

Anahtar Kelimeler: *Köpek, fibrosarkom, hepatoid bez adenomu, nazal kemik*

Introduction

Fibrosarcomas, which are malignant tumors of fibroblasts of mesenchymal origin, are pink, sessile, irregularly surfaced masses (1-5). It is known that Golden Retriever and Doberman Pinscher dogs are genetically predisposed to fibrosarcomas, which are mostly encountered in older dogs. It has been reported that fibrosarcomas are more common in male dogs than female dogs. Although fibrosarcomas are mostly located in soft tissues, they can rarely be located in the stroma of the connective tissue in the periosteum (1, 4-7).

Tumors in the nasal and sinus regions are rare, with a rate of 0.0000025% in dogs (8, 9). It has been reported that 0.3%-1.4% of tumors affecting dogs are tumors in the nasal region (8, 10). Although the exact cause of nasal fibrosarcomas is unknown, there is information that it plays a role in the etiology of bone tissue pathologies such as Paget's disease, fibrous dysplasia and chronic osteomyelitis. Histopathological and immunohistochemical examinations are the gold standard for diagnosing all tumoral formations (11-13).

The most important treatment protocol is radical surgery because of the low metastatic potential of fibrosarcomas. In addition to surgical treatment, radiotherapy and chemotherapy are among the most frequently used treatment methods in these cases. (1, 4, 5, 12).

This case report evaluated examination of findings, treatment results, and histopathological examination findings of nasal fibrosarcoma and hepatoid gland adenoma in the cidago region in a 13-year-old Cocker Spaniel dog. In this case report, the information given about the treatment processes of one of the patients with nasal fibrosarcoma, one of the rare malignant tumors in the head and neck region, was evaluated, and the positive and negative results were discussed.

Case Presentation

In the anamnesis, it was reported that there were two different masses on the left nasal bone and in the cidago region of the dog. It was learned that the mass in the

cidago region appeared 8 years ago and did not grow. However, it was reported that the mass on the left nasal bone appeared two months ago and has recently grown rapidly.

In the clinical examination, it was determined that the mass (approximately 6×9 cm in size) on the left nasal bone had a solid structure and an irregular surface (Figure 1 A). The mass (approximately 2×3 cm in size) in the cidago region was found to be solid and superficial. Although the mass in the cidago region did not cause significant clinical findings, it was determined that the mass on the nasal bone caused many clinical symptoms. It was determined that especially respiratory depression, excessive tear discharge, inability to open the left eyelids and a bad odor came from the mass. Laterolateral (LL) and ventrodorsal (VD) radiography showed a large homogeneous mass on the left nasal bone (Figure 1B, C). Although suspicious masses (Figure 2) were found in the caudal lung lobes in the LL thorax radiography, the patient's general health condition was good. The mass in the nasal region had a significant impact on its life standards, and the patient did not accept chemotherapy, so it was decided to totally extirp the masses.

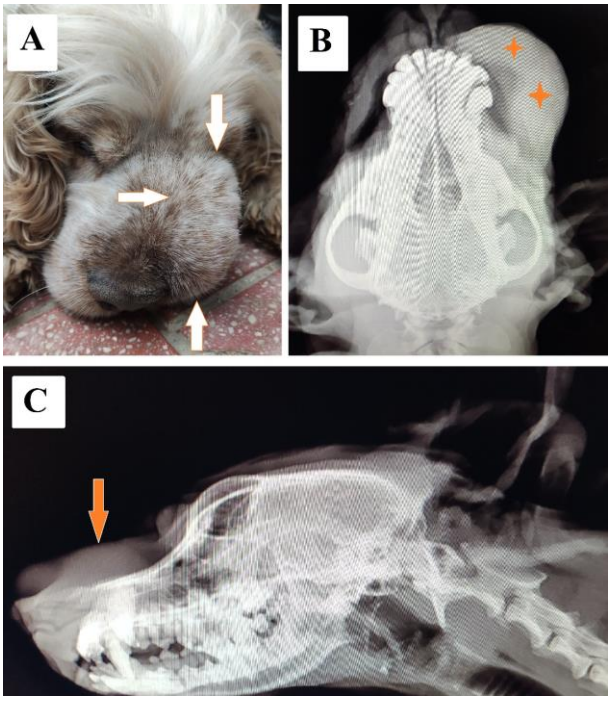

Figure 1. In the preoperative period, fibrosarcoma mass in the nasal region; clinical appearance (**A.** white arrows), dorsoventral radiographic view (**B.** orange stars and laterolateral radiographic view (**C.** orange arrow)

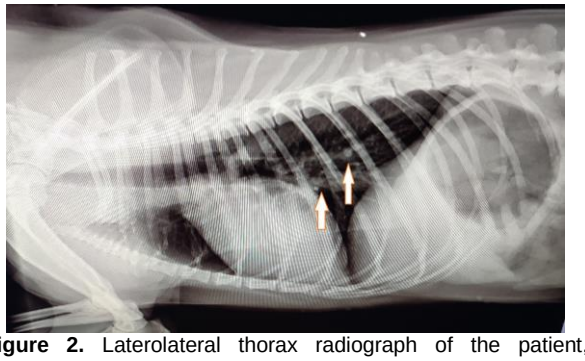

Figure 2. Laterolateral thorax radiograph of the patient, suspicious masses (white arrows)

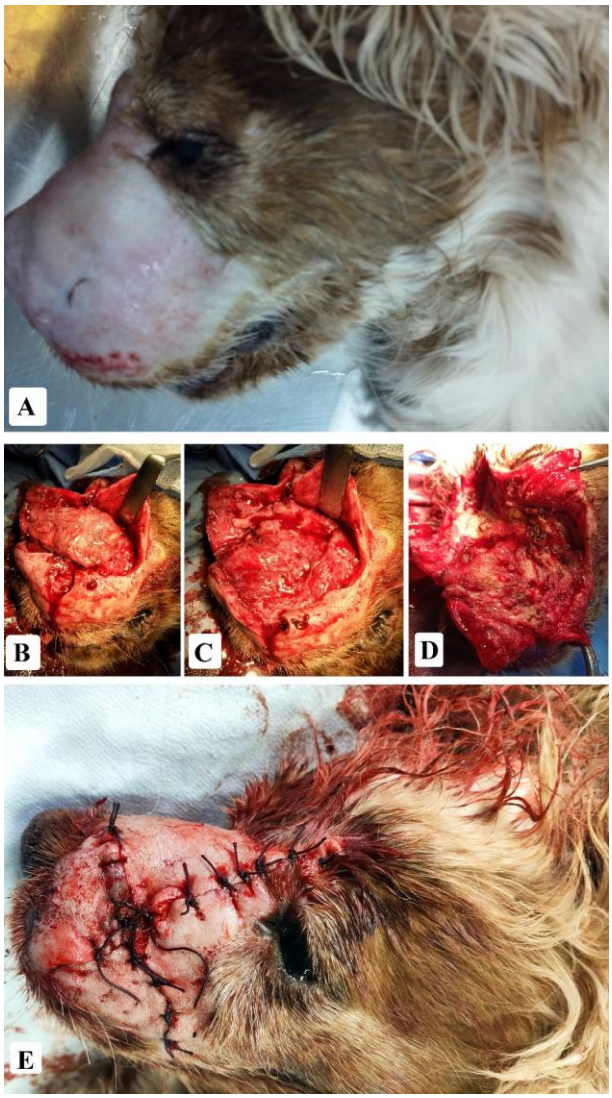

Figure 3. The appearance of the mass in the preoperative period (**A**), extirpation of the mass (**B, C, D**), closure of the operation area (**D**) postoperative appearance (**E**).

Extensive shaving and disinfection of the nasal and cidago regions was performed before the operation (Figure 3A). Anesthesia was provided by intramuscular administration of 10 mg/kg dose of ketamine hydrochloride 15 minutes after xylazine hydrochloride was administered intramuscularly at a dose of 2 mg/kg to the patient. Afterwards, a skin incision was made from 1 cm to the left of the left medial canthus of the patient to 1 cm dorsal to the upper lip. A second skin incision was made perpendicular to the first incision, from the dorsal of the left nostril to the left commissura labiorum, and the mass was completely exposed (Figure 3B). After the mass was discovered, it was widely extirpated (Figure 3C, D). A skin suture was then performed using the appropriate surgical procedure (Figure 3E). After the mass in the nasal region was extirpated and the skin was closed according to routine surgical procedures, the extirpation process of the mass in the cidago region was started. After the mass in the cidago region was extirpated using electrocautery, the operation was completed with a simple single suture on the skin. In the postoperative period, amoxicillin-clavunic acid was administered intramuscularly at a dose of 8.75 mg/kg for 15 days. In the postoperative period, meloxicam was administered subcutaneously for 5 days at a dose of 0.3 mg/kg for pain management. The extirpated masses were sent to Fırat University, Department of Pathology for histopathological examination.

In the histopathological examination, fusiform, pleomorphic and anaplastic fibrocytes and fibroblasts were seen in the biopsy tissue taken from the nasal region (Figure 4A). Among the histological features of the tumor, spindle-shaped cells, insufficient cytoplasm, elongated or oval-shaped nuclei, prominent cellular pleomorphism and increased cellular density were noted. These cells also showed anisocytosis and anionucleosis. Rarely, mitotic figures and multinucleated cells were also observed. Stromal tissue was keloid-like or loose myxoid character. In addition, many small capillaries were seen in the tumor stroma. Masson's triple staining showed the presence of dense collagen tissue between fibroblasts and anaplastic fibrocytes that make up the tumor parenchyma (Figure 4B). Based on these data, a diagnosis of fibrosarcoma was made on biopsy. In the biopsy tissue taken from the neck, it was observed that approximately 40-50 polyhedral shaped, oval and hypochromatic nuclei, cells resembling liver hepatocytes, formed many islet-shaped structures without a lumen (Figure 4C). It was determined that each islet was packed with a fibrous capsule (Figure 4D). No malignancy parameters such as anisocytosis, anionucleosis, anaplasia, and mitotic figure were found. This mass was diagnosed as hepatoid gland adenoma based on histopathological findings.

It was learned that the mass in the nasal region, which was diagnosed as fibrosarcoma in histopathological examinations, recurred on the 68th postoperative day (Figure 5A, B). Because of the more severe clinical signs, such as loss of appetite, extreme weakness, a large wound on the nose, and closing of the eyes, as well as the owner's request and the patient's poor general condition, euthanasia was decided.

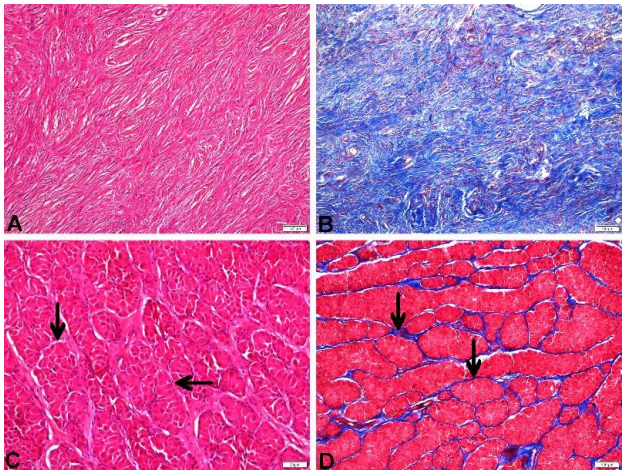

Figure 4. General histological appearance of the mass taken from the nose, HxE staining (**A**), presence of dense connective tissue in Masson's triple staining of the same tissue, blue stained areas (**B**), tumor islets in the mass taken from the neck (arrows), HxE staining (**C**), fibrous capsules (arrows) separating adenoma islets seen in Masson's triple staining of the same tissue (**D**)

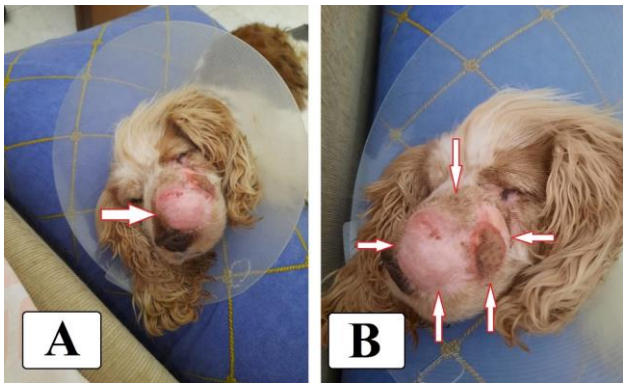

Figure 5. Recurrence of the fibrosarcoma mass on the 68th postoperative day (**A, B**)

Discussion

Tumors in the nasal and sinus regions are rare cases with a rate of 0.000025% in dogs (8, 9). It is reported that 0.3%-1.4% of tumors affecting dogs are tumors in the nasal region (8, 10, 14). Ricaldi et al. (8) reported that they detected nasal fibrosarcoma in 2% of dogs encountered with tumors in their sinonasal region. Nasal fibrosarcomas are rare cases not only in dogs but also in humans. It is known that nasal fibrosarcomas constitute 7-10% of all malignant tumors encountered in the head and neck region in humans (12). In this case report, a 13-year-old male *Cocker Spaniel* dog with fibrosarcoma in the nasal region was discussed. Considering all these data, the fact that the case of nasal fibrosarcoma encountered is unusual reveals the importance of this presentation.

Similar clinical symptoms such as increased volume on the nasal region, dyspnea, nasal discharge (sometimes bloody), sneezing can be seen in nasal tumors (8, 15). Kassem et al. (15) reported that they observed exophthalmos, nasal secretion and fascial asymmetry along with volume increase on the left orbital region and frontal bone in a donkey in which they detected fibrosarcoma in the nose. In this case report, clinical findings such as increased volume on the left nasal bone, respiratory depression, excessive serous discharge in the left eye and inability to open the eyelids were detected in a dog diagnosed with nasal fibrosarcoma. In addition, it was determined that there was a bad odor from the mass. Kassem et al. (15) reported that in the skull radiograph of a donkey with nasal fibrosarcoma, they observed an increase in volume in the nose, maxillary, frontal and left orbital sinuses and radiopacity of different intensity. In this case report, a large homogeneous hyperechoic mass was detected on the left nasal bone in the laterolateral (LL) and ventrodorsal (VD) radiography of the skull.

Criteria such as the tissues in which tumoral masses develop and their spread in the body are very important in determining the treatment method. Surgery, radiotherapy, chemotherapy, hormone therapy, immunotherapy and hyperthermic therapy can be used in the treatment of tumors (16, 17). In this case report, the patient's owner was recommended total extirpation of the tumoral mass and chemotherapy. However, the patient's owner approved only operative treatment due to the side effects of chemotherapy.

Recurrence is frequently encountered in both fibrosarcoma and nasal carcinomas (3, 14). Although metastases are not common, fibrosarcoma cases may recur after total excision (3, 18, 19). In this case report, it was found that the mass recurred and the growth rate increased in a dog whose nasal fibrosarcoma was extirpated by surgical operation. As a result, due to the owner's request and the poor prognosis of the mass, it was decided to euthanize the patient.

In the histopathology of fibrosarcomas, fibroblasts are seen in a hyperchromatic, pleomorphic structure, in the form of spindles or shuttles, with thin cytoplasm, swirly-like bundles that move in different directions. Multinucleated giant inflammatory cells can be encountered among the fibroblast bundles. In fibrosarcoma cases, fibroblasts with mitotic figures can also be seen intensely (3, 18). Although histopathological findings similar to those in other fibrosarcoma cases were observed in this case report, it was determined that mitotic figures were not frequently encountered.

Perianal gland adenomas or hepatoid gland adenomas are benign masses in the tail, perineum, preputium, and lumbosacral region that are mostly seen in older male dogs. Hepatoid gland adenomas, which are common in dog breeds such as Cocker Spaniel, Samoyed and Beagle, are formed due to androgenic stimulation (2, 20). In this case report, a hepatoid gland adenoma was found in the cidago region of a Cocker Spaniel dog. In the histopathological examination of hepatoid gland adenomas, the cells are round or polyhedral in shape with eosinophilic cytoplasm (20). In this case report, in the histopathological examination of the mass taken from the cidago region, polyhedral shaped, hypochromatic nuclei, multiple islet-shaped structures without a lumen, formed by the combination of cells similar to liver hepatocytes, were detected.

In conclusion, although fibrosarcoma cases have been reported to have a low risk of metastasis in the literature, it causes severe tissue damage in the region where it is located, as well as important clinical symptoms that affect the quality of life. Although there are many tumoral masses detected together, it is thought that nasal fibrosarcoma and hepatoid gland adenoma detected in the cidago region are two independent cases in this case report.

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