

Short Communication / Kısa Bilimsel Çalışma
Sebaceous gland adenoma in two dogs

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Summary: In this report, biopsy materials taken from two dogs are examined histopathologically. First of all, a mass surrounded by skin and located in the metacarpophalangeal region of the left front leg in a 4 year old female cross bred street dog, measuring 7.5 x 6.5 x 10 cm and weighing 300 g, was fully removed at necropsy. Secondly, the smallest of the multilocational foci of a 11 year old male Terrier (skin) was with the size of a ventril whereas the largest foci being a size of a hazelnut, and a biopsy material measuring 0.1 x 0.5 x 0.2 cm was taken from these foci with an operation. However, this dog has been brought to the clinics for nutritional disorder. In both cases, sebaceous gland adenoma consisting of many mature sebaceous cells were identified in microscopical examination.

Key words: Adenoma, dog, sebaceous gland.

İki köpekte yağ bezi adenomu

Özet: Bu raporda; iki köpektan alınan biopsi materyalleri histopatolojik olarak incelendi. İlk olarak; 4 yaşlı, dişi, melez bir sokak köpeğinde ön sol ayağın metacarpophalangea bölgesinde deri ile çevrilmiş 7.5x 6.5x10 cm boyutlarında ve 300g ağırlığında olan kitle nekropsisi esnasında tamamen alındı. İkinci olarak; 11 yaşlı, erkek, Terrier köpekte deride multilokalizasyon gösteren, mercimekten nohut büyüklüğüne ulaşan kitlelerden 0.1x0.5x 0.2 cm boyutlarındaki bir tanesi operasyonla biyopsi materyali olarak alındı. Bu köpek kliniğe beslenme yetersizliği nedeniyle getirilmişti. Mikroskopik olarak, her iki olguda da deride çok sayıda olgun yağ hücrelerinden oluşan yapılar görüldü. Bu görünüm yağ bezi adenomu olarak tanımlandı.

Anahtar sözcükler: Adenom, köpek, yağ bezi.

Sebaceous gland adenomas are the most frequently encountered skin tumour in dogs (8). Sebaceous gland adenomas are reported to be observed rarely in cats and other animal species (11,14). Adenomas are most frequently observed in dogs between the ages 8 and 13 (1,9). Cocker spaniels are know to have predisposition for the mentioned tumour (1), whereas adenoma has been determined to be more widespread among Poodles (9). Female dogs are reported to be more sensitive (6). Predisposition arising from sex has not been reported (7). Sebaceous gland adenomas can be located in any region of the body (4,5). However, they are reported to be located primarily in the head in dogs (7,11,15). Sebaceous gland tumours are classified as hyperplasia, adenoma, ductal adenoma, epithelioma and carcinoma, based upon the differentiation degree of sebaceous cells (3,6,16). Macroscopical examination has revealed sebaceous gland adenomas to be formed of many lobules of irregular shape and various sizes which may reach to a diameter of 2 cm. These lobules are completely separated from the surrounding tissue (6). Alopecia, hyperpigmentation, secondary bacterial infections and ulcerous areas may be

associated with these nodular structures (7). Upon microscopical examination, two types of cells have been detected to exist in these lobules: namely, in-differentiated generative cells and mature sebaceous cells (6,10). Generative cells are reported to be identical with cells located at the periphery of normal sebaceous glands (10). In regions where transformation into ductal structure is present, squamous changes and keratinization have been observed (7,15). In such cases, many connected ducts have been detected to surround the keratinised sebaceous gland duct. A great number of basal cells and widespread proliferation are observed at the periphery of sebaceous glands (6).

Infrequent reports of sebaceous gland tumours except for retrospective studies and the low number of adenoma cases encountered, constituted the aim of this study.

A 4 year old, female cross breed dog which died at the municipal boarding home for dogs at Kayseri and a male, 11 year old terrier that submitted to the Internal Diseases Clinic of Erciyes University, Faculty of Medicine for a medical treatment, constituted the material of

this study. Blood samples were collected for haematological and biochemical examination. Haematological examination included detection of erythrocyte, leucocyte and thrombocyte counts, haemoglobin concentration, haematocrit values, mean erythrocyte volume (MCV), mean haemoglobin amount (MCH), mean erythrocyte haemoglobin concentration (MCHC), erythrocyte dispersion volume (RDV) and mean thrombocyte volume (MPV) by means of a blood count apparatus. Biochemical examination included detection of serum alkaline phosphatase (ALP), aspartate aminotransferase (ALT), alanine aminotransferase (ALT) and keratin kinase (CK) activities; glucose, total cholesterol, triglyceride and urea concentrations by using commercial kits and a Shimadzu –UV 1208 model spectrophotometer. Tissue samples taken from tumour masses (measuring 7.5 x 6.5 x 10 cm and weighing 300 g) and biopsy material (measuring 0.1 x 0.5 x 0.2 cm) were fixed in 10% formalin and blocked in paraffin prior to preparation of 5-6 µ thick cross-sections. These cross-sections were later dyed with Hematoxyline-Eosin and examined under light microscope.

Clinical findings were not observed in the first case of the study, because the dog was brought to the Veterinary Faculty after it died at the municipal boarding home for dogs at Kayseri. The second dog was observed to be active and have a good appetite. Body temperature, pulse and respiration rates were determined as 38.9, 10/minute and 22/minute, respectively. All haematological and biochemical parameters were determined to be within normal ranges except for the mild increase in leucocyte count ($18.3 \times 10^3 \mu\text{L}$).

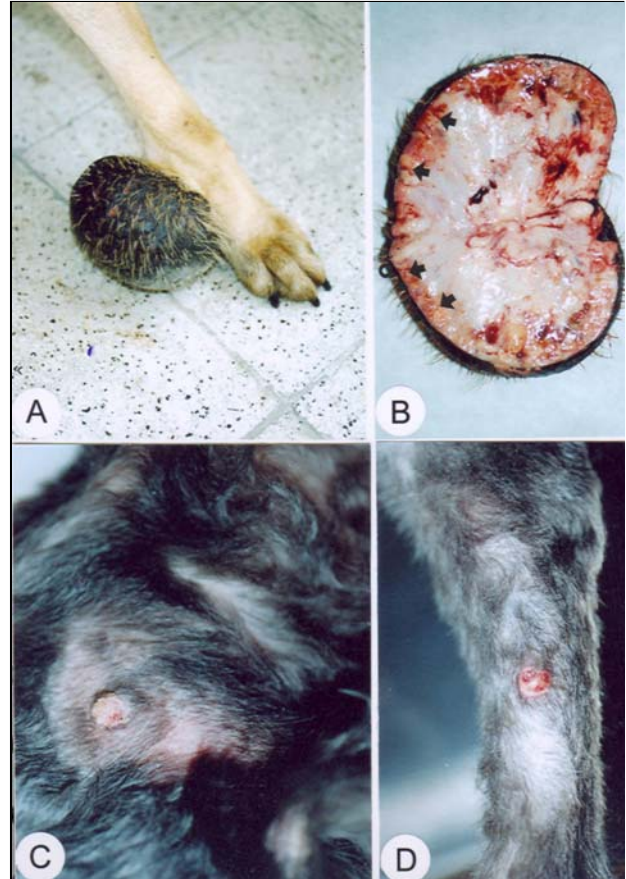
Case 1: The tumour was located in the metacarpophalangeal region of the front left leg in the 4 year old, female cross breed dog and was covered completely with hairy skin. Palpation revealed the mass to have an elastic consistency. Decubitus ulcers were observed to exist in certain areas and to be associated with hair loss. The tumoural mass was determined to measure 7.5 x 6.5 x 10 cm and weigh 300 g (Figure 1A). On the cut surface the tumour was observed to be yellowish in colour, lobular in structure and similar to gel in appearance.

Reddish-black coloured soft areas were detected especially in regions located near the skin. White coloured, hard-fluctuating foci and haemorrhages were also present in these areas (Figure 1B). During necropsy, any pathological lesion has not seen in the other organs of the dog, except for the mass located on the left front leg.

Microscopically examination revealed hyperplasia and hyperkeratinization in the epidermis. Many multilobular glands were detected in the dermis. In most of the glands, mature sebaceous cells were evident. Generative cells surrounded the normal lipid glands. In most regions, sebaceous glands were observed to acquire a ductal

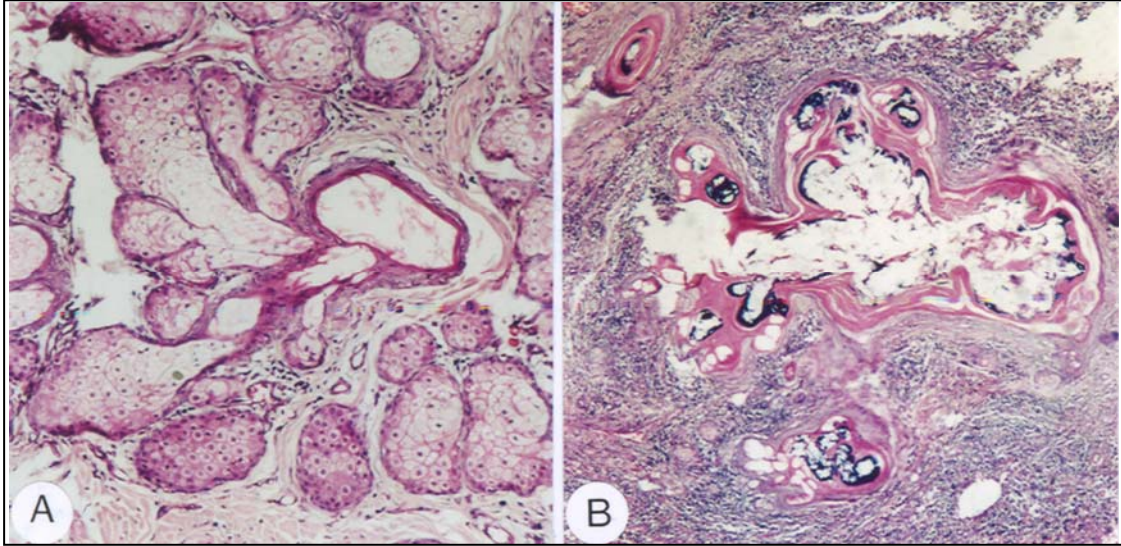
structure (Figure 2A). In such regions, evident squamous changes and keratinization drew attention and the sebaceous glands were observed to transform into complete ductal structure. Intensive calcification was observed in highly keratinized ducts (Figure 2B). Furthermore, extensive areas of granulation tissue were located outside the sebaceous gland lobules.

Any microscopically findings have not been seen during the histopathological observation of the other organs of the dog.



Figur 1. Sebaceous gland adenoma (Şekil 1. Yağ bezi adenomu) A. Mass covered with hairy skin in the metacarpophalangeal region (A. Metacarpophalangea bölgesinde kıllı deriyle örtülü kitle). B. Proliferative regions on the back with crusty surfaces (B. Kıllı deriyle örtülü kitlenin kesit yüzeyi yer yer kanamalı ve yağ dokusu görünümü). C. Partly haemorrhagic appearance of the cross-section of the mass covered with hairy skin and the appearance of sebaceous tissue (C. Sırt bölgesinde yüzeyi kabuklanmış üremeler). D. Generalised papillomatous proliferation at the lateral of the antebrachium (D. Antebrachium'un lateralinde generalize papillomatöz yüzeyi kabuklanmış üremeler).

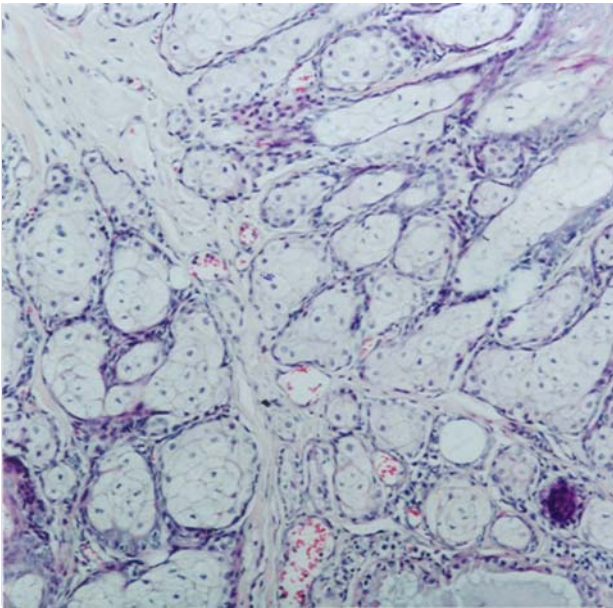
Case 2: A mass with elastic consistency, measuring 0.1 x 0.5 x 0.2 cm, which removed surgically at operation from the neck region in a case suspected to be papilloma, constituted the material. The tumour was determined to display multilocation in the head, neck,



Figur 2. Case 1. Sebaceous gland adenoma (Şekil 2. Yağ bezi adenomu). A. Sebaceous gland adenoma at the periphery of the lipid gland duct consisting of generative cells and mature sebaceous cells, HE x200. (A. Yağ bezi kanalı etrafında generatif ve olgun yağ hücrelerinden oluşan yağ bezi adenomu, HE x200.). B. Keratinisation, squamous differentiation (epithelium), calcification areas and intense granulation tissue in the sebaceous ducts, HE x200 (B. Yağ kanal yapılarında keratinizasyon, squamöz farklılaşma (epitel), kireçlenme sahaları ve yoğun granulasyon dokusu, HE x200).

abdomen, back and many regions of the leg. The smallest of these foci with the size of a lentil whereas the largest foci being a size of a hazelnut. Some of them were observed to be haemorrhagic on the cut surface and most of them with a crusty scare (Figure 1C,1D). On the cut surface were greyish white in colour.

Microscopical examination revealed the presence of findings observed in Case 1 except for proliferation of granulation tissue and calcification in sebaceous glands (Figure 3). Furthermore, severe haemorrhage and ulcerous areas were observed in the epidermis.



Figur 3. Case 2. Adenomatous structures consisting of mature lipid cells (Sebaceous gland adenoma), HE x200.) (Şekil 4. Olgun yağ hücrelerinden oluşmuş adenomatöz yapılar (Yağ bezi adenomu), HE x200).

Although, sebaceous gland adenomas have been reported as the most frequently encountered skin tumour in dogs (1, 2, 6, 12), unavailability of research carried out on these tumours in the last years except for retrospective studies, constituted the aim of this study.

Cocker spaniels have been reported to have a predisposition for sebaceous gland adenomas and the mentioned tumours are reported to be frequently encountered in Poodles (15). The diagnosis of sebaceous gland adenoma in a cross breed dog and Terrier in this study was supportive of the claim that breed predisposition may be valid and also provided indicative evidence that these tumours may also be observed in cross breed dogs. Despite the age group in which sebaceous gland adenomas are observed has been reported to be 8-13 years (4,7), the fact that one of the animals included in this study was 4 years old, has shown that this tumour may also be observed in young dogs. Research has revealed sebaceous gland adenomas to be located in the head, thorax and body (4, 13). In one of the studies included in the afore mentioned research, sebaceous gland adenomas have been reported to be observed in the head, thorax and body at a rate of 54% (15) In another study, this tumour has been reported to be observed more frequently in the head of dogs. The data obtained in this study with regard to the location of the tumour in one of the dogs, was in accordance with the reports of other researchers, whereas, differently, the tumour was found to be located in the metacarpal region in the other dog. Previously, sebaceous gland adenomas are thought to be seen often in female purebred dogs (11,15). However, in recent years the research indicated no sex differences (7). Since the number of the cases evaluated in this study was only

few (one male one female), drawing a conclusion would be hard on this results. Sebaceous gland adenomas are reported to consist of many lobules arising from mature sebaceous cells and generative cells according to data obtained from microscopical examination (10). Regions in which lobules are observed to transform completely into ductal structure are reported to be associated with severe keratinization and squamous changes. Similar findings were determined in this study. However, apart from the above mentioned common observation, severe calcification was also observed in the first case. Intense granulation tissue was also detected in these areas.

In conclusion, histopathological examination revealed the tumoural masses detected in both dogs to be sebaceous gland adenomas. Haematological and biochemical parameters measured in one of the dogs revealed only a mild increase in leucocyte count and other values to be within the normal range. Therefore, it is thought that the sebaceous gland adenoma did not exhibit a systemic effect in this animal, because there are not enough resources about this subject at the literature.

References

1. **Erer H, Kıran MM** (1993) : *Konya'da 1985-1992 yılları arasında köpeklerde görülen tümörler*. Selçuk Üniv Vet Fak Derg, **9**, 87-89.
2. **Ertürk E, Tanzer F, Bulucu M** (1971) : *Patolojik-Anatomi Kürsüsü'nde 1964-1970 yılları arasında incelenen köpek ve kedi tümörleri*. Ankara Üniv Vet Fak Derg, **18**, 383-386.
3. **Goldschmidt MH** (1984) : *Sebaceous and hepatoid gland neoplasms of dogs and cats* . Am J Dermatopathol, **6**, 287-293.
4. **Halouzka R, Nevole M** (1976) : *Sebaceous gland tumors in dogs*. Vet Med, **21**, 565-572.
5. **Jubb KVF, Kennedy PC, Palmer N** (1993) : *Pathology of Domestic Animals*. Fourth ed., Academic Press, Inc. San Diego, pp.714-715.
6. **Levene A** (1984) : *Sebaceous gland differentiation in tumours of the feline oral mucosa*. Vet Rec, **114**, 69.
7. **Meuten DJ** (2002) : *Tumors in Domestic Animals*. In: *Tumors of the Skin and Soft Tissues*. Fourth ed., Iowa State Press , Ames, Iowa, pp.64-67.
8. **Mikulastik J, Bednar B** (1989) : *Sebaceous skin tumors*. Ceskoslovenska Pathol, **25**, 94-98.
9. **Moulton JE** (1990) : *Tumors of the Skin and Soft Tissues*. In: *Tumors in Domestic Animals*. Third Ed, University of California Press, Berkeley, Los Angeles, pp.64-66.
10. **Nielsen SW, Cole CR** (1960) : *Cutaneous epithelial neoplasms of the dog. A report of 153 cases*. Am J Vet Res, **21**, 931-948.
11. **Paikne DL, Kadhane DL, Purohit BL, Deshmukh MS** (1971) : *Pulmonary spirocercosis and sebaceous gland adenocarcinoma in dog*. Indian Vet J, **48**, 22-24.
12. **Pamukçu M, Ertürk E** (1962) : *Ankara'da köpeklerde görülen tümör çeşitleri*. Ankara Üniv Vet Fak Derg, **9**, 1-9.
13. **Scott DW, Anderson WI** (1990) : *Canine sebaceous gland tumors. A 172 cases*. Canine Pract, **15**, 19-21.
14. **Scott DW, Anderson WI** (1991) : *Feline sebaceous gland tumors. A nine cases*. Feline Pract, **19**, 16-18.
15. **Strafuss AC** (1976) : *Sebaceous gland adenomas in dogs*. JAVMA, **169**, 640-642.
16. **Warren S, Warvi WH** (1943) : *Tumors of sebaceous glands*. Am J Pathol, **19**, 441-459.

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