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Olgu Sunumu / Case Report

Pilomatricoma in a Papillon Dog

Tuncer KUTLU^{1,a}, Yanad ABOU MONSEF^{2,b*}, İrem ERGİN^{3,c}, Osman KUTSAL^{2,d}

¹ Mustafa Kemal University, Faculty of Veterinary Medicine, Department of Pathology, Hatay / TURKEY

² Ankara University, Faculty of Veterinary Medicine, Department of Pathology, Ankara / TURKEY

³ Ankara University, Faculty of Veterinary Medicine, Department of Surgery, Ankara / TURKEY

ORCID: 0000-0002-8771-1256^a, 0000-0002-4929-9395^b, 0000-0003-2373-5133^c, 0000-0003-3599-6867^d

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ABSTRACT:

Pilomatricoma is a benign adnexal skin neoplasm uncommonly reported in dogs. Three nodules surgically removed from the back of a 13-year-old female papillon dog at the Surgery Department of Ankara University, Faculty of Veterinary Medicine, formed the material of this study. The masses formation started six months earlier. Surgically resected nodules were sent to the Pathology Department of Ankara University, Faculty of Veterinary Medicine, for a detailed histopathological examination. Grossly, the nodules were 1x0,5x0,5 cm; 2x2x1 cm and 1x1x1 cm in diameter and covered with ulcerated skin. The masses were elastic in consistency with yellow-reddish cut sections. Histopathological examination revealed subcutaneous cystic structures surrounded by ghost cells or shadow cells and containing keratin filaments on the surface in all the nodules. The tumor was diagnosed according to the pilomatricoma chronological staging method used in human medicine as an early stage of pilomatricoma due to the presence of cystic structures and the absence of calcification and giant cells. This study is thought to assist by the definition of early lesion of canine pilomatricoma to the histopathological classification of pilomatricomas in canine species.

Papillon Irkı Bir Köpekte Pilomatrikoma

ÖZET :

Pilomatrikoma, köpeklerde nadir olarak karşılaşılan iyi huylu adneksiyal deri tümörüdür. Papillon ırkı 13 yaşlı dişi bir köpeğin sırt bölgesinden, Ankara Üniversitesi Veteriner Fakültesi Cerrahi Anabilim Dalı'nda, operasyonla alınan 3 adet kitle çalışmanın materyalini oluşturdu. Kitlelerin oluşumunun altı ay önce başladığı bildirildi. Ayrıntılı bir histopatolojik inceleme için, cerrahi olarak rezekt edilen tümörler Ankara Üniversitesi Veteriner Fakültesi Patoloji Anabilim Dalı'na gönderildi. Makroskobik olarak, üzerinde ülserli deri bulunan kitleler, 1x0,5x0,5 cm, 2x2x1 cm ve 1x1x1 cm çapındaydı. Elastik kıvamda olan kitlelerin kesit yüzleri sarı-kırmızımsı renkteydi. Mikroskobik incelemede, her üç kitlede, hayalet/gölge hücre olarak tanımlanan hücreler ile çevrili subkutanöz yerleşimli kistik yapılar fark edildi. Ayrıca hayalet hücrelerin yüzeyinde keratin iplikçikleri dikkati çekti. Kistik yapı göstermesi; kalsifikasyon ve dev hücrelerine rastlanmamasından dolayı insan hekimliğinde kullanılan kronolojik sınıflandırmaya göre, incelenen bu pilomatrikoma, erken lezyonlu pilomatrikoma olarak teşhis edildi. Pilomatrikoma erken lezyonunun tanımlanmasının, köpek pilomatrikoma tümörlerinin histopatolojik olarak kategorize edilmesine katkı sağlayacağı düşünüldü.

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* Sorumlu Yazar e-posta adresi / Corresponding Author e-mail address yanad.abou.monsef@gmail.com

1. Introduction

Tumours of the hair follicle found in mammalian skin are uncommon and account for 10,4 % of skin tumours in dogs. These tumours can arise from different elements of the hair follicle (1, 2). According to the World Health Organization (WHO) hair follicle tumours are classified as: infundibular keratinizing acanthoma, tricholemmoma, trichoepithelioma, pilomatricoma and trichoblastoma (2, 9).

Pilomatricoma is also known as tricomatricula, pilomatricoma or Malherbe's calcifying epithelioma (12). This tumour is a benign tumour that grows from the matrix cells of the hair follicles. Pilomatricomas are not related to the epidermis, they show a dermal or subcutaneous location and often develop as a single tumour (7, 8, 11). Malignant pilomatricomas which are less limited and show metastasis have been rarely reported in dogs. The histological features of malignant pilomatricomas include high mitotic activity and excessive nuclear pleomorphism in basal cells (5). In a study on the etiology of these tumours in human, β -Catenin gene repeated mutations were reported to be responsible for the tumour development (10). Pilomatricomas account for 1-3% of all canine skin tumours and 13-10 % of all follicular tumours (1, 2).

The purpose of the present case study is to investigate and evaluate the histopathological features of pilomatricoma; a benign skin tumour rarely described in dogs. Furthermore, we aimed to prove that this tumour examined on the basis of chronological staging method used in human medicine can be categorized as an early lesion.

2. Case Story

A 13-year-old female Papillon dog was presented to the Surgery Department of Ankara University, Faculty of Veterinary Medicine for having three nodules located on its back. The masses developed six months earlier. The dog had undergone surgical resection of the nodules which were sent to the Pathology Department of the Faculty for a detailed histopathological examination. On gross examination, they were 1x0,5x0,5 cm; 2x2x1 cm and 1x1x1 cm in diameter and the skin covering those masses presented ulcers of different dimensions (Figure 1). The masses were elastic in consistency and creamy grey colored small necrotic foci filled their reddish cut sections.



Figure 1: Gross view of the mass covered by ulcers (arrows) of different sizes.

Şekil 1: Üzerinde farklı boyutlarda ülserler (oklar) bulunan kitle.

Tissue samples were fixed in 10 % buffered formalin, routinely processed in alcohol and xylene series, embedded in paraffin then the sections were cut at 4 μ m and stained with hematoxylin and eosin (HE).

On histopathological examination, the three nodules showed cystic structures located subcutaneously (Figure 2). While the center of the cysts consisted of necrosis, in its wall; multi-layered basaloid cells showed gradual degeneration toward the center (Figure 3) and led into anuclear and pale stained cells known as ghost cells or shadow cells. Additionally, keratin filaments were seen on the surface of the shadow cells (Figure 4). Histopathological features of the tumour were consistent with pilomatricoma.

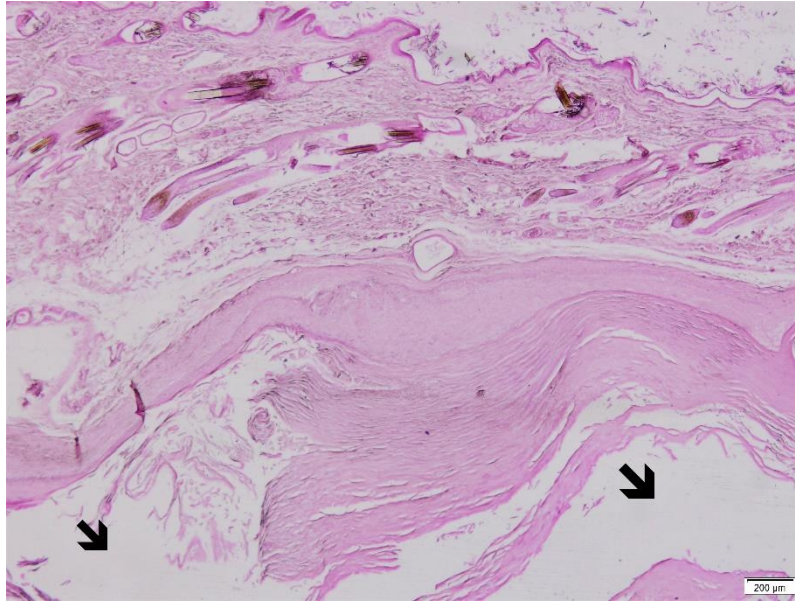


Figure 2: Cystic structures located subcutaneously (arrows), HE.

Şekil 2: Subkutanöz yerleşimli kistik yapılar (oklar), HE.

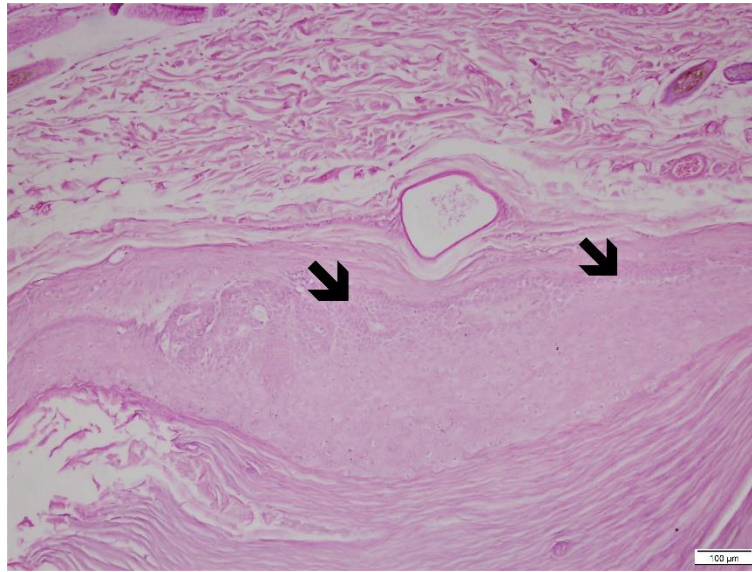


Figure 3: From the periphery to the center, multi-layered basophilic basaloid cells (arrows), HE.

Şekil 3: Dıştan içe doğru çok katlı bazofilik bazaloid hücreler (oklar), HE.

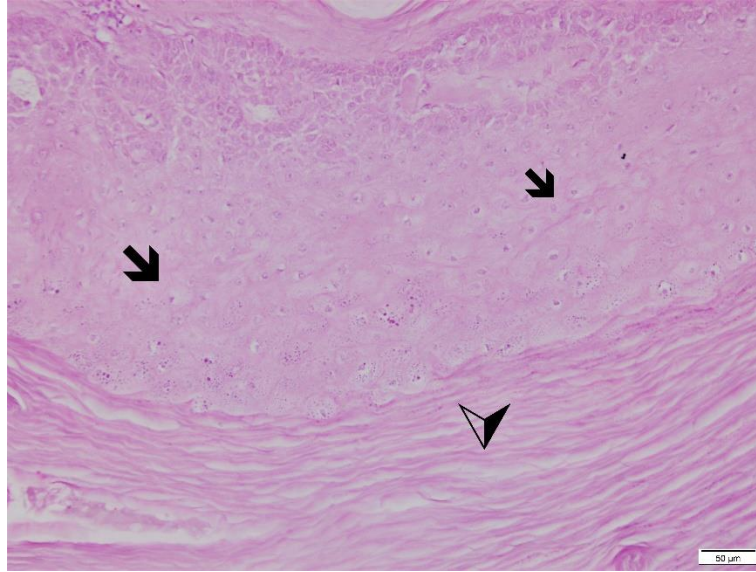


Figure 4: Ghost cells (arrows) and keratin filaments (arrowhead), HE.

Şekil 4: Hayalet hücreler (oklar) ve keratin iplikleri (ok başı), HE.

3. Discussion and Conclusion

Pilomatricoma primarily affects the head, neck and limbs in dogs with a mean age of 6 years (1 to 13 years old) (1, 6). In our case the appearance of pilomatricoma tumor on the back region of a 13-year-old dog as 3 nodules was considered important in veterinary oncology.

Histopathologically, this tumour in human is categorized during its formation into four distinct and consecutive stages: Early stage, fully developed stage, early regressive stage and late regressive stage (12). In the early stage of pilomatricoma, a single type of squamoid and basaloid epithelial cells that arise from hair follicle matrix is present. At the center, cystic structures surrounded by keratinized enucleated shadow or ghost cells are reported (12, 13). The previously cited ghost cells are pathognomonic of pilomatricoma (13). In the fully developed stage, basaloid cells at the periphery and shadow cells with keratinization at the center are present. Besides, calcifications are also observed within. The early regressive stage is the stage characterized by the absence of an epithelial lining and small number of basaloid cells and shadow cells accompanied by granulation tissue with inflammatory infiltrate and multinucleated histiocytic giant cells. In the late regressive stage, pilomatricoma has no epithelial components and calcified shadow cells are present with little or no inflammatory cells (12). In late lesions, calcification and sometimes ossification may be seen because of necrosis.

According to this classification, fully developed stage of pilomatricoma was previously described in animals for the first time in a 12 years old dog (6). In this report the presence of cystic structures and the absence of calcification and giant cells are compatible with the early stage of pilomatricoma according to the pilomatricoma classification in human medicine. This report was thought to contribute to the classification of canine pilomatricomas based on histopathological findings.

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