IJBPAS, August, 2014, 3(8): 2047-2051

ISSN: 2277–4998

International Journal of Biology, Pharmacy and Allied Sciences (IJBPAS)

'A Bridge Between Laboratory and Reader'

www.ijbpas.com

FORELIMB SWEAT GLAND ADENOCARCINOMA IN A CAT

ABEDI G[1], HESARAKI S[2], ASGHARI A[1*]

1: Department of Clinical Science, Science and Research branch, Islamic Azad University, Tehran, Iran

2: Department of Pathobiology, Science and Research branch, Islamic Azad University, Tehran, Iran

***Corresponding Author: E Mail: Dr_Ahmadasghari@yahoo.com**

ABSTRACT

Sweat gland adenocarcinoma is a rare malignancy with high metastatic potential seen more commonly in later years of life. Scalp is the most common site of occurrence and it usually spreads to lymph nodes. Liver, lung and bones are the distant sites of metastasis with fatal results. The differentiation between apocrine and merocrine metastatic sweat gland carcinoma is often difficult. The criteria are inadequate to be of any practical utility. Adnexal tumors of the skin are relatively rare in cats and humans. This is a report of an apocrine sweat gland adenocarcinoma in a 7-year-old crossbred cat. The tumor masses were multiple and nodular on the left forelimb. No metastatic lesions were seen on radiographic examination. The overlying skin was completely intact. Microscopically, the tumor cells had round to ovoid, hyperchromatic nuclei with prominent nucleoli and scant eosinophilic cytoplasm that arranged in glandular or cystic pattern. The mitotic activity was prominent. This tumor is very rare in cats.

Key words: Cat, Sweat Gland Adenocarcinoma, Forelimb

INTRODUCTION

Skin tumors can originate from any cells of the skin or associated structures such as glands, hair follicles and supportive tissues. Cats are prone to cutaneous neoplastic disease particularly (specify the more common tumours) **[1]**. Adnexal tumors of the skin are very common in dogs, whereas they are relatively rare in cats and humans. Apocrine

tumors occur rarely in the skin of the head, pinna, neck and axilla, limbs and tail in cats **[2]**. Goldschmidt and Shofer (1992) reported that taking all variants of apocrine sweat gland tumours still only constituted 3% of feline skin tumours **[3]**. A total of 340 cases of cutaneous neoplasia were examined by biopsy or necropsy during a 41 month period by another group around the same time **[4]**. Who similarly found that only 11(3.2%) of 340 cases were diagnosed as apocrine adenocarcinoma. The WHO classification categorizes apocrine sweat gland tumors in domestic animals into adenoma, carcinoma, mixed tumor and ductal adenoma or carcinoma **[5]**. Apocrine carcinoma is a malignant tumor showing differentiation to apocrine secretory epithelium **[6]**. In a study, the follow-up of three cats with eyelid apocrine adenocarcinoma ranged from 2 to 5 years which all tumors were completely excised. Neither of the 2 domestic shorthair cats experienced recurrence, but the third had a 3-year history of the tumors and 5 years later, additional tumors were present **[7]**.

CASE HISTORY

A 7-year-old, male domestic cross breed cat was referred for evaluation. Grossly, multiple nodular large, firm masses were located in the deep dermis and sub cutis of the left forelimb **(Figure 1)**.

An excisional biopsy of this tumor was performed by the referring surgeon. The histopathology report confirmed malignant, apocrine sweat gland adenocarcinoma. The lesions were nonpruritic, painful, with no evidence of self trauma. The overlying skin was completely intact without pigmentation and alopecia. No other skin abnormalities were noted. Thoracic radiographs showed no visible metastatic lesions. The tumor masses were removed surgically by left forelimb amputation because of deep and extensive invasion of tumor. It was white to gray in color, multi lobular with central cystic degeneration and necrotic foci at cross section. Microscopically, a poorly encapsulated, multilobular tumoral tissue was observed in the dermis which was subdivided by a fibrovascular connective tissue trabecular. The proliferative epithelial cells lining the cysts were arranged in multiple layers as tubular and solid patterns **(Figure 2)**.

The tumor cells had round to ovoid, hyper chromatic nuclei with prominent nucleoli and scant eosinophilic cytoplasm. There was also a relatively remarkable cellular and nuclear pleomorphism. The mitotic activity was prominent **(Figure 3)** about four mitoses per HPF.

The samples were processed and cut according to routine methods, and stained with the usual haematoxylin-eosin stain after which they were evaluated. For ultrastructural studies, tumor tissue from cat was deparaffinized, hydrated, postfixed in 1% osmium tetroxide, dehydrated, cleared, and embedded in epoxy resin. One-micrometer sections were cut and stained with toluidine blue for preliminary light microscopic examination. Thin sections (80–90 nm) were cut, stained with uranyl acetate and lead citrate, and examined with a transmission electron microscope.

Figure 1: Apocrine Sweat Gland Adenocarcinoma. Multiple Large Nodular Masses on the Left Forelimbin a Cat

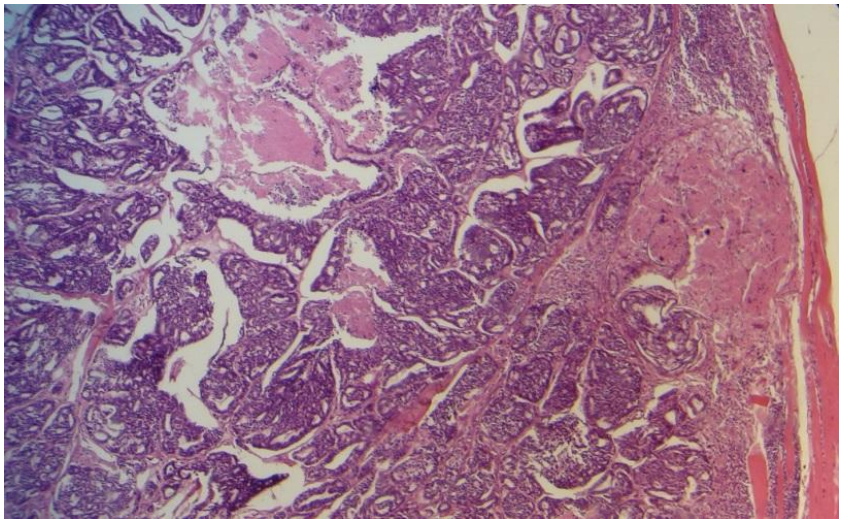

Figure 2: Apocrine Sweat Gland Adenocarcinoma. Proliferations of the Glandular Epithelial Cells as Tubular, Cystic and Solid Structures Invading Skeletal Muscles (HE×100)

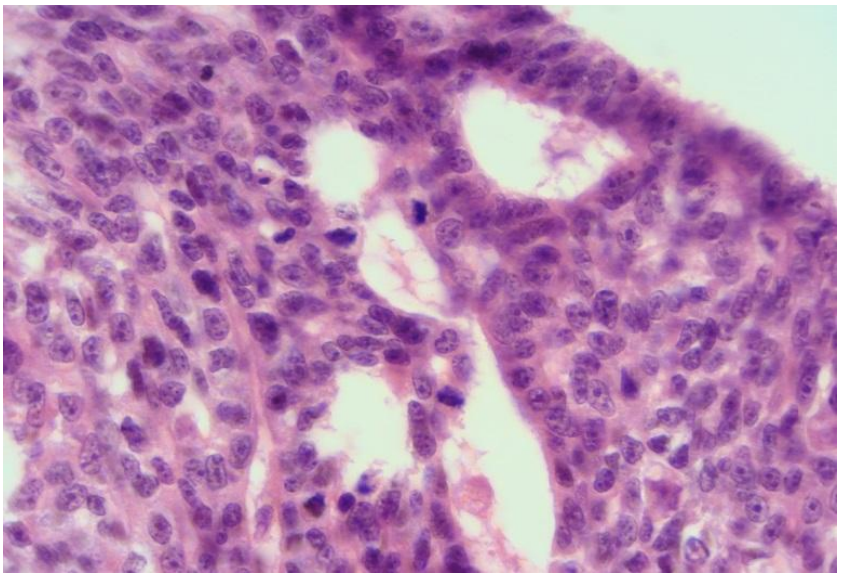

Figure 3: The Tumor Cells Had Round to Ovoid, Hyperchromatic Nuclei With Prominent Nucleoli. The Mitotic Activity Was Prominent (×650)

DISCUSSION

The incidence of apocrine sweat gland adenocarcinomas is 0.7% to 2.2% of canine skin tumors **[8]**. Cats between 5-15 years have a higher incidence of apocrine sweat gland adenocarcinoma. Siamese cats have more increased risk than others. No sex predilection has been noted **[9]**. This tumor is rare but may be seen in the skin anywhere on the body specially footpads of the cat and dog, where these glands are normally located **[8, 9]**. Dermal apocrine adenocarcinoma has low metastatic behavior than apocrine adenocarcinoma of the anal sac **[10]**. In our case, the tumor was located diffusely on the left forelimb without any evidence of axillary involvement **(Figure 1)**. In one study of apocrine sweat gland neoplasia in both dogs and cats, 65.9% had capsular and stromal invasion, but only 11.4% had vascular invasion and 4% had distant metastasis. A more recent study suggested a higher figure of 22.5% of canine apocrine adenocarcinomas had lymphatic invasion with distant metastasis **[8, 11]**. In this case, there were no metastases to regional lymph nodes or distant areas but there was invasion to the surrounding tissues, especially skeletal muscles. In Dogs the rate of growth in primary adnexal tumours is typically slow, with a solitary lesion **[6]**, in our case however the tumor masses were multiple and large. Adequate diagnosis associated with good surgical treatment can provide good control or even a cure for this neoplasm. This cat was cured after complete amputation and one year later.

REFERENCES

[1] Miller M, Ramos J, Kreeger J, Cutaneous vascular neoplasia in 15 cats: clinical, morphologic, and immunohistochemical studies, Veterinary Pathology Online, 29(4), 1992, 329.

[2] Scott D, Miller W, Griffin C, Neoplastic and non-neoplastic tumors, Small Animal Dermatology, 5, 2001, 991-1126.

[3] Goldschmidt MH, Shofer FS, Skin tumors of the dog and cat, Journal of Small Animal Practice, 35(6), 1994, 325.

[4] Miller MA, Nelson SL, Turk JR, Pace LW, Brown TP, Shaw DP, Cutaneous neoplasia in 340 cats, Vet Pathol. 28(5), 1991, 389-95.

[5] Organization WH, Histological classification of epithelial and melanocytic tumors of the skin of domestic animals (2 nd series, vol 3). Washington, DC: Armed Forces Institute of Pathology, 1998.

[6] Khodakaram-Tafti A, Khub A, Shirian S, Pathological and immunohistochemical characteristics of apocrine sweat gland adenocarcinoma in a dog, Comparative Clinical Pathology, 21(2), 2012, 237-239.

[7] Newkirk KM, Rohrbach BW, A retrospective study of eyelid tumors from 43 cats, Vet Pathol. 46(5), 2009, 916-27.

[8] Simko E, Wilcock B, Yager J, A retrospective study of 44 canine apocrine sweat gland adenocarcinomas, Can Vet J, 44, 2003, 38-42.

[9] Goldschmidt MH, Hendrick MJ, Tumors in domestic animals, 4th ed, Wiley-Blackwell, 2002, 72-6.

[10] Ross J, Scavelli T, Matthiesen D, Patnaik A, Adenocarcinoma of the apocrine glands of the anal sac in dogs: a review of 32 case, The Journal of the American Animal Hospital Association, 1991, 27.

[11] Kalaher KM, Anderson WI, Scott DW, Neoplasms of the apocrine sweat glands in 44 dogs and 10 cats, Vet Rec, 127(16), 1990, 400-3.