Cutaneous Epitheliotropic T-cell Lymphoma with Systemic Spread in a Guinea Pig (*Cavia porcellus*)

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Abstract

A 5-year-old female guinea pig (*Cavia porcellus*) was presented with a history of decreased appetite, nonpruritic alopecia, erythema, severe epithelial scaling, and thickening of the skin of the front and rear limbs and the ventral region. Hematology analysis revealed a severe leukocytosis with lymphocytosis. Because of the deterioration of the animal, it was humanely euthanatized and submitted for necropsy. Histopathologic examination and CD-3 immunohistochemistry revealed an epitheliotropic T-cell cutaneous lymphoma. To the authors' knowledge, this is the first report of epitheliotropic cutaneous lymphoma in a guinea pig. Cutaneous epitheliotropic T-cell lymphoma should be considered in the differential disease diagnosis list if a guinea pig presents with alopecia, erythema, and severe scaling of the epithelium.

Key words: **cutaneous lymphoma; epitheliotropic lymphoma; guinea pig; mycosis fungoides; skin**

Spontaneous tumors are relatively uncommon in guinea pigs.[1,2] In one retrospective study of guinea pigs evaluated before 1976, only 319 cases of neoplasia were identified from more than 42,000 submissions.[3] The neoplasia cases were reported in patients as early as 4 months of age, but usually occurred in those >3 years old.[1,2] The most common tumor in guinea pigs was bronchogenic papillary adenoma, followed by skin neoplasia;[1] of the skin neoplasms, trichofolliculoma was a frequently diagnosed tumor.[4-7]

Cutaneous epitheliotropic lymphoma (CEL) is an uncommon, progressive disease characterized by neoplastic infiltration of the epidermis and adnexal structures.[8-11] The classification of epitheliotropic lymphoma is well established in the human literature,[12] but controversial in veterinary medicine.[11] In domestic animals, The World Health Organization classifies cutaneous T-cell neoplasms as epitheliotropic and nonepitheliotropic. Epitheliotropic neoplasms are divided into the classic nodular form, or mycosis fungoides, and pagetoid reticulosis (PR).

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Clinically, in dogs and humans, PR is described as an exfoliative erythroderma with alopecia, erosions, and ulcers without obvious neoplastic masses.[8,10,13,14] In dogs, PR is more frequent than the nodular form of mycosis fungoides.[15] Finally, the Sézary syndrome (SS) is an uncommon form that is generally considered to represent a leukemic stage with erythroderma, lymphadenopathy, and circulating atypical mononuclear cells, called Sézary cells (SC), in the peripheral blood.[16]

Scott proposes another classification based on the clinical presentation of CEL in dogs: exfoliative erythroderma, plaque/nodule, ulcerative disease of the oral mucosa, and a mucocutaneous form.[8] CEL has been reported in dogs,[8,10,11,17] cats,[8,11] rabbits,[18] Syrian hamsters,[19] a calf,[20] a rat,[9] mice,[21] horses,[22,23] ferrets,[24] an eastern chipmunk,[25] a bontebok,[26] a coatimundi,[27] a squirrel,[28] and a zebrafish.[29] To the authors' knowledge, this is the first report of CEL in a guinea pig.

A 5-year-old female shorthair guinea pig was examined at the Veterinary Teaching Hospital, Autonomous University of Barcelona, with a history of severe epithelial scaling and skin thickening affecting all the limbs and the ventral region of the body. The owner reported that the animal had a decreased appetite and weakness for 2 days before presentation. The animal was housed in a commercial cage, with cat litter and wood shavings. The patient's diet was composed of commercial guinea pig pellets, lettuce leaves, and guinea pig treats.

On physical examination, the animal weighed 936 g and showed nonpruritic alopecia, erythema, severe scaling, and thickening of the skin along the ventral surface of the body from the chin to the genital region and the distal area of all 4 limbs. These epithelial lesions were more severe on the limbs, nipples, and vulvar mucocutaneous junction. Severe onychogryphosis was also noted on physical examination (Fig 1). Skin scrapings and Wood's lamp examination were negative for parasites and *Microsporum canis*. A blood sample was collected from the jugular vein using manual restraint. A complete blood cell count was performed with the sample, which revealed a severe leukocytosis ($45{,}000 \times 10^3$ μL; reference range: $5.5\text{-}17.5 \times 10^3$ μL).[30] Serum biochemistry analysis, cutaneous cytology, and a skin biopsy were recommended, but the owner elected not to pursue further diagnostic testing. The animal was discharged from the hospital on a treatment regimen of trimethoprim-sulfamethoxazole (Septrin suspensión; UCB Pharma, Barcelona, Spain) (20 mg/kg, orally, every 12 hours) and a single dose of ivermectin (0.4 mg/kg, subcutaneously, Ivomec; Merck/Merial, Duluth, GA USA). Forty-eight hours later, the patient's condition had severely deteriorated, but further diagnostic testing and treatment recommendations were declined by the owner and the patient was euthanized.

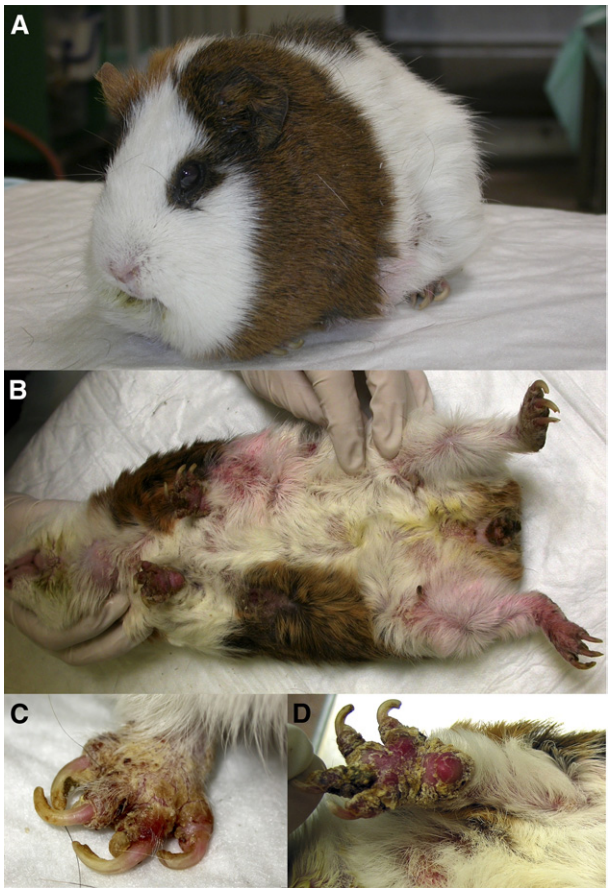

Figure 1. (A) Image of the guinea pig that presented with dermal lesions along the ventral surface of the body. (B) The limbs, nipples, and vulval mucocutaneous junction are the most severely affected areas on the patient. (C) Note the severe onychogryphosis on the dorsal aspect of the foreleg. (D) Ventral aspect of the foreleg.

A necropsy was performed. When the guinea pig was examined externally on the necropsy examination, the same skin lesions described above were noted. Gross examination revealed marked atrophy of skeletal muscles. The liver tissue was a homogeneous pale color, but no other macroscopic changes were found in other internal organs. Multiple skin samples and specimens from liver, intestines, pancreas, kidneys, spleen, mesenteric lymph nodes, lung, heart, ovary, uterus, and central nervous system were collected for histopathological examination.

Samples were fixed in 10% neutral-buffered formalin and routinely processed. Sections from each sample were stained with hematoxylin and eosin and