Cutaneous lupus erythematosus in a dog

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SUMMARY
A 5-year-old mix breed domestic dog was referred with a 6-month history of nasal planum lesions. Diagnosis of cutaneous lupus erythematosus was made on the basis of histopathologic findings, negative antinuclear antibody test and clinical features. The present dog responded well to therapy with prednisolone, tetracycline, niacinamide and vitamin E. To the authors’ knowledge this is the first reported case of canine CLE in Turkey.

KEY-WORDS: Cutaneous lupus erythematosus - dog.

RÉSUMÉ
Lupus érythémateux discoïde chez un chien. Par A. KURTDEDE, K. URAL, M. GUZEL, S. GAZYAGCI et A. ARIKOK.

Un chien domestique de race croisée de 5 ans est référé pour des lésions de planum nasal depuis 6 mois. Le diagnostic de lupus discoïde a été établi sur la base des résultats histopathologiques, des anticorps antinucléaires et des figures cliniques. Le chien a bien répondu à la thérapie prednisolone, tétacycline, niacinamide et vitamine E. À la connaissance des auteurs ceci est le premier cas rapporté de LED canin en Turquie.

MOTS-CLÉS: lupus érythémateux discoïde - chien.

Introduction
Cutaneous lupus erythematosus, one of the most common autoimmune blistering skin disease in dogs with nasal planum depigmentation [10, 11, 18] usually causes depigmentation, erythema, erosions, ulceration and crusting in nasal planum and additionally oral cavity, nictitating membrane, dorsal muzzle, periocular, perioral skin [1, 7, 18].

This report highlights the importance of including CLE on the list of differential diagnoses for nasal planum lesions.

History
A 5-year-old mix breed domestic dog was referred to the University of Ankara, Veterinary Faculty Department of Internal Medicine, for evaluation of severe ulceration and destruction of the nasal planum. The dog had a history of nasal planum lesions for 6 months duration. The referring veterinarian had treated the dog with various antibiotics and topical iodine solutions, with no apparent response and than due to the suspected diagnosis of fungal infection, had decided to change the initial therapy with ketoconazole (dose and duration were unknown) and topical clotrimazole solution 1 month prior to referral. The owner reported no apparent health problems other than the lesions on the nasal planum. The dog had been on several different commercially dog foods, and was currently eating a commercially adult dog food. According to the owner the dog had been vaccinated frequently and kept indoors. Due to lack of success with previous treatments, the dog was referred to our clinic.

Clinical examination and laboratory tests
Physical examination revealed the dog was hyperactive and anxious. The dog was afebrile and did not show any sign of systemic illness. Occasional ulceration, crusting, erythema and an area of demarcation along the mucous membrane were evident on the nasal planum and periocular skin (Fig 1). Mucopurulent ocular and nasal discharge, mucocutaneous...
ulcerations on the nose and eyes were observed. These lesions were strongly suggestive of an auto-immune condition. The results of bacterial and fungal culture, cytologic examination from the nose revealed no abnormalities. Skin scraping revealed no mite. A CBC, serum biochemical analysis and urinalysis were performed; all results were within normal range. Lateral-ventral thoracic and head cavity radiography for differentiating aspergillosis, was unremarkable. The result of antinuclear antibody test was negative.

Skin biopsies were taken at several points along the line of demarcation and ulceration, and forwarded to laboratory for histological examination. Histopathology showed a mild atrophic epidermis with hydropic degeneration of the epidermal basal cells and additionally incontinent pigmentation in dermis (Fig 2). On the basis of histopathologic findings, negative antinuclear antibody test, clinical features and the absence of multisystemic disease, a diagnosis of classical cutaneous lupus erythematosus was proposed.

**Treatment and response to therapy**

Initial treatment included tetracycline (500 mg, PO, q 8 h) [13, 19], prednisolone (1 mg/kg, q 12 h) [12, 14, 20], niacinamide (500 mg, PO, q 8 h) [13] and vitamin E (200 IU, q 12 h) [19] and restriction of the dog’s access to sunlight [19]. Drugs were administered for 20 weeks. After 11 weeks of therapy, the nasal lesions were 75% healed, with some scar tissue remaining. Administration of tetracycline and niacinamide were then reduced to twice a day (q 12 h) for another 4 weeks, and once a day (q 24 h) for the last 5 weeks, and resolution was nearly 100% at the end of 20 weeks.

Improvement was defined as resolution of clinical signs such as ulcers, erythemas, and crusts. An attempt was made to reduce the dose of these drugs even if improvement was seen. Re-evaluation of the dog was performed every 8 weeks (Fig. 3). A photographic record taken on week 8 revealed the healing on the periocular skin and a mild hyperemia on the nasal planum.

**Discussion**

Cutaneous lupus erythematosus (CLE) has been described to resemble the cutaneous form of systemic lupus erythematosus (SLE) in human being, but differentiate with the negative antinuclear antibody tests and none internal organ involvement [2, 3, 15]. Canine Cutaneous lupus erythematosus, a relatively benign cutaneous disease, has been well characterized [3] and told to be the most common disease affecting the nasal planum of dogs in high sunny regions [3, 11, 18]. In a previous study CLE has been reported to account for 0.3% of canine dermatosis. Canine CLE also has no systemic involvement [15]. Sun exposure has been described to increase the intensity of the disease suggesting that photosensitivity has an important role in the pathogenesis [6, 15], however in the present case, according to the owner, there was no history of excessive exposure to the sunlight. It has also been demonstrated that subacute cutaneous lupus is characterized by cutaneous eruption on ultraviolet radiation exposed skin [8]. The possible pathogenesis of cell lesions in CLE by Ultraviolet radiation has been suggested as the induction of cell damage and releasing of cytokine, which leads to the exposure novel intracellular antigens on keratinocytes [6].

Most common reported differential diagnosis for the nasal planum lesions are; nasal solar dermatitis, nasal depigmentation, pemphigus erythematosus or pemphigus foliaceus, dermatomyositis, drug reaction, contact dermatitis, uveodermatologic syndrome, epitheliotrophic lymphoma, vitiligo and SLE [15, 18].

Solar dermatitis and nasal depigmentation were ruled out as the cause of the nasal lesions in the present case as the dog lived in a flat and spend most of the time indoor. The dog also had no history of drug reaction previously. Pemphigus erythematosus or pemphigus foliaceus, reported by HALLIWELL and GORMAN [3] was not associated with the nasal lesions in the present case since histopathology revealed hydropic cutaneous lesions. Canine Dermatomyositis, a hereditary immune-mediated condition of the skin and muscles of especially young Collies and Shetland sheepdogs [4, 5, 6] was not associated with the skin lesions in the present case since the lesions occurred at 5 years of age, not early in life, and there was no history myositis. Additionally scattered vacuolar change of the surface and follicular basal cells, intrabasal or subepidermal clefting described by SCOTT and SCHULTZ [16] and a cell-poor interface dermatitis and folliculitis described by JACKSON and OLIVRY [6] were not observed on biopsy samples of the present case. Contact dermatitis was also unlikely to have been involved in the present case as there was no history of any contact with an offending substance such as any shampoo, detergent or solution. Canine uveodermatologic syndrome, similar to Vogt-Koyanagi syndrome in humans, displays an autoimmune disorder affecting the nasal planum and the uveal tract [15, 18]. However the case reported here had no sign of uveitis and depigmentation of the footpads, scrotum and anus was not observed. Histopathologic findings in uveodermatologic syndrome cases characterized by lichenoid dermatitis within large histiocytes as a major component [15] were not evident on dermatopathologic changes of the dog of this report. Epitheliotrophic lymphoma, an uncommon condition in dogs [15, 18], was not associated with the dermatopathologic changes in the present case since whole body scaling or depigmentation/ ulceration of the footpads, anus or oral cavity was not observed. Besides biopsy findings such as malignant lymphocytes invading the epidermis with T cell originated lichenoid infiltrate [18] was not observed in the present case. Vitiligo, an idiopathic depigmentation especially seen in the rottweiler and Doberman pinscher, has been told to affect the nasal planum and other mucocutaneous junctions. Classical histopathologic lesions described in vitiligo cases as complete absence of melanin and mild interface lymphocytic inflammation [15, 18] was not evident in the present case. SLE was also unlikely to have been involved, as the dog of this report did not show any sign of systemic illness or disorders affecting the bone marrow, kidneys or joints.
Therapy of CLE has typically been the use of immunosuppressive agents such as glucocorticoids (topical or systemic), azathioprine or chlorambucil [9, 17, 18]. Alternative treatments with tetracycline alone or in combination with niacinamide [7, 19] and vitamin E are also available [17]. In a previous study with 20 CLE cases (of 31 dogs with autoimmune skin disease), 14 had excellent or good response (8 and 6 respectively) to treatment with tetracycline and niacinamide [19]. POIRIER [13] also reported complete resolution with tetracycline and niacinamide in a CLE case. As in the present case complete respond to treatment was observed with the latter drugs, as recommended previously [7, 18, 19], and additionally prednisolone and vitamin E. In humans antimalarial drugs, including chloroquine, hydroxy-chloroquine and quinacrine, have been reported to be effective for the treatment of CLE. The latter drugs may be of beneficial in the dog within taking care of dosage and toxicity. Retinoids, dapsone and aurothioglucose are the other reported compounds in humans [15].

The prognosis for CLE has been reported to be usually good. Medical therapy would probably be needed to be continued for life [15].
The present authors’ experience in the present case was the good response to the therapy. No side effects and complete recovery were noticed 5 months after initial therapy, however follow-up examination was not done because the owner did not bring the dog back.

This report highlights the importance of including CLE on the list of differential diagnoses for nasal planum lesions. As in the past years the present authors did not record any CLE cases, the present case was found to be interesting for publication.

References