

CASE REPORT

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DISCOID LUPUS ERYTHEMATOSUS IN DOG

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ABSTRACT

Lupus erythematosus complex is an immune-mediated dermatological disease, mainly represented by the generalized and discoid forms. The last form described is milder, as it is limited to the appearance of lesions, usually on the face and in mucocutaneous regions. Its pathophysiology is considered multifactorial, however, continuous exposure to ultraviolet radiation seems to be very relevant to trigger and/or worsen clinical manifestations. Definitive diagnosis is obtained by histopathological analysis, and treatment is mainly based on immunosuppression and protection against ultraviolet radiation. The objective of this study was to report the case and clinical evolution of a mixed breed bitch, diagnosed with discoid lupus erythematosus. The bitch presented moderate desquamation, crusts and depigmentation restricted to the nasal plane. No other clinical or laboratory findings were evidenced in the screening tests. Upon confirmation by histopathology, the initial therapy was started with oral prednisolone. The owners were also instructed to avoid exposure to sunlight, as well as to use topical protectors against ultraviolet radiation. The

patient presented good response to therapy, showing remission of signs. Other sporadic recurrences were observed later, however, they were controlled only with topical corticosteroids, but always reinforcing the other precautions of environmental management. This work also addressed the risks, benefits and need to institute ongoing care to control discoid lupus erythematosus. Therapeutic success can vary among patients, as the intensity of the disease can be manifested in varying degrees. Therefore, in those individuals in which the condition is mild, it may be advantageous to opt for more conservative therapies in order to avoid side effects.

KEYWORDS: autoimmune; canine; dermatopathy; sun exposure; immunosuppression

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1. INTRODUCTION

Lupus erythematosus complex belongs to the group of the most relevant autoimmune dermatoses in veterinary medicine. The cutaneous form can be represented mainly by discoid lupus erythematosus (DLE), with desquamative and ulcerative lesions limited to the face and nasal plane, and generalized discoid lupus erythematosus (GDLE), characterized by multifocal cutaneous lesions that can affect the cervical region, back, ventral and lateral portion of the thorax, and more rarely, the mucocutaneous junctions (BANOVIĆ et al., 2016; OLIVRY; LINDER; BANOVIĆ, 2018). The systemic form of the disease is described as systemic lupus erythematosus (SLE), in which there may be cutaneous, joint, renal, mononuclear phagocytic system, manifestation of hyperthermia, gastrointestinal disorders, among others (SMEE; HARKIN; WILKERSON, 2007).

Exposure to ultraviolet rays is described as one of the main triggering factors of clinical cutaneous manifestations, due to the more exacerbated photosensitivity in these patients (SANDERS, et al., 2003). Ultraviolet light (UVA and/or UVB) penetrates the basal cells of the epidermal layer, induces the expression of self-antigens, previously found only in the nucleus, which migrate to the surface of the keratinocyte membrane. The epidermis contains specific autoantibodies for these antigens and their binding (and formation of the antigen-antibody complex) leads to the release of chemokines and cytokines, which favor an inflammatory environment and promote the appearance of lesions (SCOTT; MILLER; GRIFFIN, 2002).

Dense-coated dogs such as Akitas, German Shepherds, Collies, Shetland Shepherds and Siberian Huskys are usually the most affected (GOO et al., 2008). The definitive diagnosis is made by skin histopathological examination, which reveals intracellular edema, apoptotic keratinocytes, mononuclear-plasma cell infiltrate and thickening of the basement membrane (FERREIRA et al., 2015; PALUMBO et al., 2010). Hematological exams, such as blood count, renal and hepatic profiles, as well as

urinalysis allow the evaluation of the involvement of other organs (LARSSON; OTSUKA, 2000).

The treatment of DLE is based on the use of topical immunosuppressive agents, especially in milder cases (LOUZADA et al., 1999; OLIVRY; LINDER; BANOVIĆ, 2018). Glucocorticoids are good options to be prescribed topically or systemically, however, it is worth highlighting the various side effects involved in the chronic use of these substances and the risks associated with iatrogenic hypercortisolism (ELKHOLLY et al., 2020). In refractory cases, it is ideal to associate other immunosuppressants such as azathioprine, chlorambucil or cyclosporine (PALUMBO et al., 2010; OBERKIRCHNER; LINDER; OLIVRY, 2011), because, although they also present adverse effects, these are more discreet, when compared to corticosteroids (OLIVRY; LINDER; BANOVIĆ, 2018). Regardless of the therapeutic option, it is important to protect these patients from sun's rays (BANOVIĆ, 2018).

Due to its low occurrence (0.3 to 1.4%) in the population of dogs in Brazil (PALUMBO et al., 2010), when present, it can generate doubts on the part of the veterinarian during the recognition and approach of the case, and so its description in the literature is relevant. The following report aims to describe the case and clinical evolution of a female dog diagnosed with DLE, as well as the risks and benefits related to the continuous therapy to control this disorder.

2. CASE REPORT

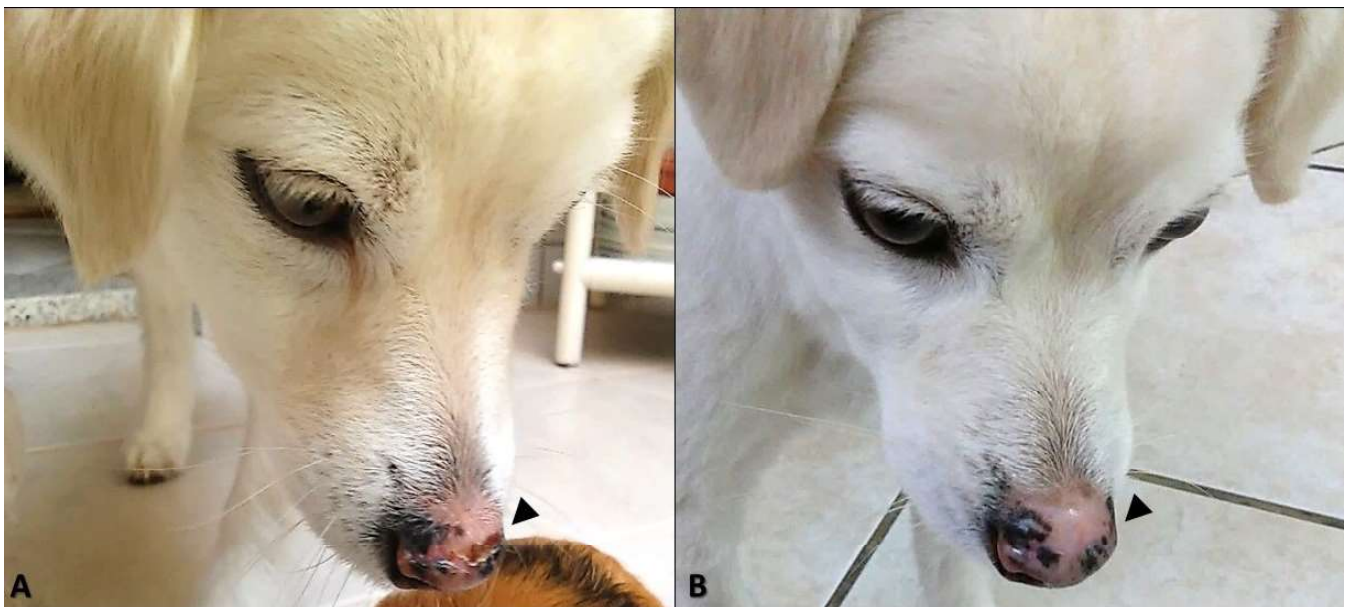
A female dog, mixed breed, seven years old, neutered and weighing 9.5 kg with a chief complaint of crusted lesions in the nasal dorsum region, chronic evolution and onset of manifestations while young was examined. The patient had preference for places with direct sunlight and her owners did not apply sunscreens against ultraviolet rays. During the physical examination, vital parameters were found to be within the normal range for the species. In the dermatological evaluation, it was possible to observe crusted skin lesions, depigmentation and

ulcerations restricted to the nasal plane, in addition to small alopecic areas (about 0.2 cm) in the chin region.

Laboratory tests (blood count, renal and hepatic profile, urinalysis and blood glucose), imaging and deep skin scraping did not reveal any changes. Likewise, serology for leishmaniasis was negative. The patient was then submitted to general anesthesia to collect skin fragments from the affected regions. The histopathological report revealed irregularly hyperplastic epithelium, occasional necrotic keratinocytes, topped by thin ortho and compact parakeratosis and a focus of fibrinoleukocyte crust. In the superficial dermis, areas with dense banded cellular infiltrate, mixed (lymphohistioplasmocytic, with few neutrophils), pigment incontinence, vascular congestion and mild hemorrhage were noted. Such findings suggested mixed interface dermatitis, compatible with DLE.

The prescribed treatment included topical use of dexamethasone acetate (1 mg) in the affected region every 12 hours for six weeks. It was also recommended to avoid environments with sun exposure and application of sunscreen (Soft Care Hydra Reflex – Pet Society®) throughout the body area. After 4 weeks, the first clinical follow-up was performed and only a slight positive evolution was observed. At this moment, the owners reported difficulties in administering the medication, since it was not possible to wait for it to adhere to the skin, because the bitch ingested it by licking. Faced with the failure of topical therapy and persistence of ulcerated lesions, prednisolone was prescribed at a dose of 1.5 mg/kg orally, once a day, for four weeks (treatment induction). After two weeks, it was possible to observe an important improvement in the nasal (figure 1) and mental integument.

Figure 1. Comparison of lesions in the nasal plane at the time of diagnosis and two weeks after the start of treatment. (A) Arrowhead represents the presence of crusts and depigmentation in the nasal plane. (B) Re-epithelialization of the nasal plane and absence of crusts, but there are still areas with depigmentation. Such changes are also evidenced by the arrowhead.



In view of the remission of almost all cutaneous manifestations (except for the permanence of depigmentation, obtained in four weeks), a gradual reduction of the prednisolone dose was initiated until its complete suspension. This period was enough for owners to notice polyuria and polydipsia.

Such findings became absent after systemic glucocorticoid withdrawal. It is important to note that topical treatment with sunscreen was continued indefinitely.

The patient remained under control for seven months, and after this period, approximately five relapses were observed

in four years, and the last occurred more than 15 months ago. The crises occurred even with the continuous use of sunscreens. However, the lesions were milder, with discrete areas of scaling, with rare and small crusts (less than 0.5 cm). At these times, it was decided to start the approach with topical therapy with dexamethasone acetate (1 mg) every 12 hours, for 21 days, with complete resolution of the wounds. Laboratory tests of blood count, renal profile, liver and ultrasound were requested every six months for early detection of possible comorbidities, and until the moment of this report, no noteworthy changes were observed. Currently, the patient is 11 years old and the owners remain with the indication for continuous application of sunscreen on the animal.

3. DISCUSSION

Although autoimmune skin diseases have low prevalence in the canine population (PALUMBO et al., 2010), the veterinarian should have extensive knowledge about the clinical evolution, differential diagnoses and therapeutic management, in order to carry out their control in an effective, safe and assertive way.

The pathophysiology of DLE is still partially unknown, however, ultraviolet light (UVA and UVB) seems to act as a pivot in the expression of nuclear antigens that migrate to the surface of the keratinocyte membrane. This scenario allows the formation of the antigen-antibody complex, with the release of inflammatory cytokines and chemokines, which leads to the appearance of lesions (LARSSON; OTSUKA, 2000). This fact is fundamental for the therapeutic choice, since individuals affected with DLE, as in this report, improve their condition when they are protected from sunlight. It is ideal to insist on the continuous use of sunscreens even in the absence of skin lesions, since they have been shown to be efficient in delaying relapses, in addition to seemingly attenuate the intensity of crises (BANOVIC, 2018).

Although Akita, German Shepherd, Collies, Shetland Shepherd and Siberian

Husky (GOO et al., 2008; BANOVIC et al., 2016) are the breeds most affected by DLE, the possibility that other groups are included, even mixed breed dogs, can't be disregarded. There is a tendency for DLE to develop in young and senile adult individuals. In contrast, the different genders do not seem to be involved in the development of this disease (OLIVRY; LINDER; BANOVIC, 2018).

Clinical alterations of DLE are considered benign when compared to SLE, as they are restricted to the dorsal nasal plane or the dermo-epidermal junction, usually on the lips and eyelids. These range mainly from depigmentation, ulcerations, erythema, crusting and desquamation (BANOVIC, 2018). Perivulvar, preputial and perianal lesions can also be observed (BALAZS, 2017). SLE is usually more aggressive, because in addition to the skin, it can affect several systems, bringing greater harm to the vital functions and quality of life of patients, with important clinical signs such as myalgia, joint pain, lethargy, fever and gastrointestinal disorders. In a minority, important clinical alterations such as collapse, convulsions, blindness, pleural effusion, epistaxis, paresis and blindness were also reported. Laboratory alterations in relation to SLE are also common and worrying, involving thrombocytopenia, leukocytosis, increased liver enzymes, anemia, hyperbilirubinemia, hyperglobulinemia, hypoalbuminemia, among other less common alterations (SMEE; HARKIN; WILKERSON, 2007).

Although the reported patient's manifestations were very characteristic with those described in the DLE, this disorder has several differential diagnoses, including infectious diseases such as leishmaniasis (ATAIDE et al., 2019). Although patient serology revealed the absence of antibodies for this disease, our report reinforces the importance of performing tests when such suspicions are involved. Other differentials that cannot be disregarded include demodicosis, dermatophytosis, pemphigus foliaceus, vitiligo, epitheliotropic lymphoma and contact dermatitis (SCOTT; MILLER; GRIFFIN, 2002; OLIVRY; LINDER; BANOVIC, 2018).

Unlike human medicine, in veterinary

medicine there is only a single case of lesions compatible with DLE that progressed to the systemic form (SLE) (OLIVRY; LINDER, 2013). In addition, Levy et al (2020) diagnosed two dogs that developed concomitant autoimmune skin diseases, namely pemphigus foliaceus and GDLE. Such information confirms the importance to frequently monitor individuals with autoimmune diseases, since they may develop other disorders of the same character. Up to the time of this report, no routine clinical or laboratory alterations were observed.

Since DLE is an autoimmune disease, it is evident that care and therapies are likely to be lifelong. Instituting treatment according to the severity of clinical manifestations can be advantageous, avoiding patient exposure to excessive or very conservative therapies (ATAIDE et al., 2019). In localized wounds, it is ideal to prioritize topical immunosuppressants based on glucocorticoids or calcineurin inhibitors, such as tacrolimus (OLIVRY; LINDER; BANOVIC, 2018), as they act efficiently and safely. However, if the application offers a challenge to the tutor, as observed in

our report, it may be interesting to opt for the use of oral glucocorticoids, such as prednisone or prednisolone (OLIVRY; LINDER; BANOVIC, 2018) for short periods. The presence of side effects such as emesis, dysorexia, polyuria, polydipsia or others that outweigh the advantages of its administration requires immediate weaning. However, these patients should be routinely and closely monitored (ELKHOLLY et al., 2020).

4. CONCLUSION

Discoid lupus erythematosus is an autoimmune skin disease that is highly correlated with exposure to ultraviolet radiation. Preventing and/or protecting the individual from the sun's rays is essential, however, many times it is not possible to have this approach as monotherapy. Therefore, it is coherent to use topical or oral immunosuppressants, according to the aggressiveness of the manifestations. Regardless of the pharmacological class used, it is important to monitor the patient for side effects or comorbidities that may be associated.

LÚPUS ERITEMATOSO DISCOIDE EM CÃO

RESUMO

O complexo lúpus eritematoso é uma enfermidade dermatológica imunomediada, sendo principalmente representado pela forma generalizada e discoide. A última descrita é mais branda, pois se limita ao aparecimento de lesões geralmente em face e em regiões muco-cutâneas. Sua fisiopatogenia é considerada multifatorial, entretanto, a exposição contínua à radiação ultravioleta parece ser muito relevante para desencadear e/ou agravar as manifestações clínicas. O diagnóstico definitivo é obtido pela análise histopatológica, e o tratamento se baseia principalmente na imunossupressão e proteção contra a radiação ultravioleta. O objetivo deste trabalho foi relatar o caso e evolução clínica de uma cadela sem raça definida, diagnosticada com lúpus eritematoso discoide. A mesma

apresentou moderada descamação, crostas e despigmentação restritas ao plano nasal. Nenhum outro achado clínico ou laboratorial foi evidenciado nos demais exames de triagem. Após confirmado pela histopatologia, a terapia inicial foi instituída a partir da prednisolona por via oral. Os tutores também foram orientados a evitar exposição a luz solar, bem como, fazer a utilização de protetores tópicos contra a radiação ultravioleta. A paciente teve boa resposta à terapia, apresentando remissão dos sinais. Após este episódio, outras recidivas esporádicas foram observadas, entretanto, controladas apenas com corticoides tópicos, mas sempre reforçando os demais cuidados com o manejo ambiental. Este trabalho também abordou os riscos, benefícios e necessidade de instituir o cuidado contínuo para controle do lúpus eritematoso discoide. O sucesso terapêutico pode variar

entre os pacientes, uma vez que a intensidade da doença pode ser manifestada em vários graus. Portanto, naqueles indivíduos em que o quadro é brando, pode ser vantajoso optar por terapias mais conservado-

ras, a fim de evitar seus efeitos colaterais.

PALAVRAS-CHAVE: autoimune; canino; dermatopatia; exposição solar; imunossupressão.

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