

A Pre-Neoplastic Lesion: A Case Study

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1. Abstract

The aim of this paper is to report a case of Actinic Dermatitis in an 8-year-old female adult dog with erythematous skin. In the clinical evaluation, the animal presented normal parameters for the species, but, due to the lesions observed, cytological and parasitological skin tests were requested, which showed the presence of bacteria (cocci), degenerated neutrophils, and dermatophyte fungi, and demodicidosis. Treatment consisted of the use of numerous drugs such as itraconazole, amoxicillin with potassium clavulanate, prednisolone, Sarolaner, and immunomodulators. In addition, the animal has a topical treatment with ketoconazole shampoo and cream. Generally, deep pyoderma that reach the follicle of dogs and form ulcerated wounds, cause a chronic inflammation of the skin, due to the sun's ultraviolet rays, or familial predisposition or microbial hypersensitivity, or due to other diseases and, usually, they are recurrent and do not allow healing. However, in this specific case, the treatment allowed the animal to improve nearly 80%.

2. Introduction

Actinic Dermatitis is a deep pyoderma that occurs in the follicle (folliculitis – forunculosis – cellulitis), being a pre-neoplastic lesion. Characterized by non-healing wounds, in the form of plaques

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and ulcers, and chronic inflammation of the skin. This dermatosis represents 15% of skin neoplasms in cats aged 10 to 12 years and affects dogs aged 6 to 10 years. Activation of virus and prehistoric activation protein in viruses, can still activate protein activation system and bacterial immunity in problems, still virus and pre-problem immunity protein in inflammatory family problems). The disease is locally, but with low metastatic potential, there is an early diagnosis, it has a good prognosis, however, it can occur [8]. In cats, they mainly serve the ears and nasal region, while in dogs they mainly serve the digits and eyelids. There may be a metastatic inguinal lymph node, becoming metastatic in digits; and in cats there may be a primary lung tumor. The region also hair and skin (frontal cephalic and inguinal), anal region, may be present in the oral region and pharynx. In cats there is the presence of *Pasteurella multocida*, α -hemolytic *Staphylococcus*, and *Staphylococcus pseudointermedius*, and in dogs: *Staphylococcus pseudointermedius*, *Pseudomonas*, *Proteus*, *E. coli* and even in atopic canines there is the presence of *Pseudomonas aeruginosa* (Burkholderia cefacea complex).

It is also observed that this kind of dermatitis affects mainly white or mottled coats, usually with short hair and animals that were exposed to the sun [6]. Diagnosis of Actinic Dermatitis is clinical

cal with cytology and histopathology at cytology are bacteria and some neutrophils. It is necessary to identify sporotrichosis, trichoepithelioma or carcinomas. PCR techniques and Maldi-TOF can be used to identify bacteria.

In the treatment, COX-2 inhibitors, cryosurgery, 5% imiquimod in cream, cyclosporine 5 - 10 mg per kg, SID, ketoconazole or itraconazole, prednisolone, radiotherapy and photodynamic therapy can be used. Chemotherapy can also be performed with carboplatin, mitoxanthone, or bleomycin. Anti-inflammatories such as meloxicam or piroxicam can also be used as long as there is concomitant use of omeprazole or ranitidine. Electrochemotherapy, when used, can reach 81% of remission. Antibiotics such as cephalexin 30 mg per kg, and amoxicillin with clavulonate can be used [5, 9]. Topical therapy helps prevent new infections and should be done for 45 days for pyoderma. As an adjuvant, potassium permanganate, vitamin E and Omega 3 and 6 can be used.

3. Case Study

Pit bull female dog, weight 38 kg, 8 years old, erythematous skin for 2 years, not dewormed, delayed annual vaccines (rabies and viruses), biopsy with absence of cancer cells and diagnosis of furunculosis and questioning the presence of dermatophytosis. This animal had previously been medicated with cephalexin, rifampicin, and thymomodulin by another veterinary colleague. A hemogram had been performed.

During the clinical examination, the clinical suspicion was actinic dermatosis, and collection was performed for cytology and superficial skin scraping. The cytology result showed what was expected in the literature inflammatory cells (neutrophils) and bacteria (cocci) as well as the presence of fungi. While the superficial skin scraping showed the presence of *Demodex canis*.

The first therapeutic approach was to reduce the inflammatory process, suggesting the use of itraconazole 10 mg per kg, BID, for a month of treatment and baths with benzoyl peroxide; pipettes of dermatocalmante (Ibasa) and 100 mg/SID cyclosporine; after 2 months, an improvement in skin inflammation and back hair growth was observed. Amoxicillin with potassium clavulonate was used as antibiotic therapy, and the use of corticosteroids such as prednisolone 40 mg, SID, in addition to the antifungal, ketoconazole 200 mg, SID. After these medications, the animal improved considerably. Subsequently, the use of 10% urea for skin hydration and Imiquimod, an immunomodulator, was also suggested to the animal. It was prescribed the use of Sarolaner for demodectic disease and thymomodulin (for better immunity) and the use of a shirt with UV protection for the dog. Twenty days later, the use of potassium permanganate was suggested, and the dog also underwent topical therapy with ketoconazole shampoo and cream. Figure 1 shows the evolution of the treatment.



Figure 1: (a) animal before treatment, (b) animal after nine months of treatment.

4. Discussion

The histopathology of the female dog with this deep pyodermatitis is characterized by perforating suppurative folliculitis and furunculosis, which corroborates the studies by Hillier and colleagues [5]. The cytological examination showed the presence of structures suggestive of coccoid bacteria in considerable quantity, compatible with bacteria of the genus *Staphylococcus*. According to Barbosa [2], the main etiological agents involved in pyogenic dermatitis are coccoid bacteria of the genus *Staphylococcus*. However, other agents may be involved, such as *Pseudomonas aeruginosa*, which are gram-negative bacterial [1, 4, 9, 11]. These skin infections caused by this bacterial complex can occur in immuno-

competent and immunocompromised dogs, and bacterial isolates can be highly resistant to antimicrobials, making clinical management challenging. In addition, the skin infection can progress to life-threatening sepsis of the animal [3].

Most dogs analyzed by Poggianni and colleagues [10] had chronic skin diseases such as pyoderma, bacterial folliculitis, and demodicosis. These conditions are accompanied by inflammation of the skin. Still, these same authors observed that the disease is more frequent in females than in males and that American Pit Bull dogs are the most affected; information that corroborates the case under study.

Cyclosporine is a new drug used for the treatment of immune-me-

diated skin diseases and a safe and effective alternative to immunosuppressive therapy with glucocorticoids, however, even in dogs treated with cyclosporine (5 mg/kg, once daily) and metrexate (0.25 mg/kg once a week) the disease in the dog may be stable for six months, but there may be a recurrence [8]. The tutor did not administer cyclosporine at this time, however treatment with prednisolone at an immunosuppressive dose had a positive effect, and the use of topical Imiquimod as an immunosuppressant also had an effect.

Tham and colleagues [11] describe a dog with lethargy, anorexia, pain, and rapidly progressing skin lesions consistent with hemorrhagic papules, pustules, coalescing ulcers, and crusts, and treatment with oral ciprofloxacin, and topical antimicrobial shampoo, resulted in complete resolution of the symptoms in skin lesions within eight weeks. In this work, the use of antibacterial and antifungal shampoos (benzoyl peroxide-peroxy and ketoconazole) was fundamental in the treatment, whose antibacterial and antifungal efficacy is scientifically proven, reestablishing the skin balance [7]. As well as the use of the antibiotic amoxicillin with clavulanate, like antibiotic therapy.

5. Conclusion

Canine dermatoses are one of the most difficult investigations in daily practice, requiring the identification of the specific disease in the face of so many others that can be different and have similar characteristics. The canine showed considerable improvement in relation to the initial state of the lesions (~80%) exactly nine months after the treatment was instituted. Dog's hair grow completely in dorsal region and in almost all animal's lateral region. Treatment with laser light (phototherapy) for a better remission of the lesions was suggested however, it was not carried out. Meanwhile, the therapy with antimicrobials, antifungals, vitamins, moisturizers, and immunomodulators used allowed a significant improvement in the clinical condition of the animal. And the tutor was very grateful for that.

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