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Relato

Feline cutaneous atopic syndrome: case report

Síndrome atópica cutânea felina: relato de caso

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Abstract: Atopic dermatitis (AD) is an inflammatory, itchy and chronic disease and is characterized by a predisposition to develop signs of hypersensitivity after repeated exposure to allergens that in most cases are aeroallergens (pollen and mites). Its development is related to the interaction between genetic and environmental factors that promote changes in the skin barrier. This facilitates the transepidermal penetration of allergens, which come into contact with immune cells present in the skin, triggering an immune response by Th2 lymphocytes. These, in turn, stimulate a high production of IgE, which activates mast cells, stimulating the release of chemical mediators, culminating in the inflammatory process characteristic of AD. In this case, a 7-year-old castrated, spayed female cat weighing 3,900 kg was seen. The animal had intense itching and skin lesions since the age of 1.5 years, which were responsive to the steroid, but when weaning was performed, the lesions returned. On physical examination, the animal presented plaque lesions in the abdominal and axillary region and abrasions in the left ear. The animal was initially treated with cyclosporine and prednisolone, which showed good improvement of the symptoms presented, but had some side effects such as diarrhea, sneezing and nasal and ocular secretion and gingival hyperplasia, which were treated with Fanciclovir and azithromycin-based paste. The animal improved its symptoms after the treatment and even after weaning from cyclosporine it remained well and with a good response to the treatment.

Keywords: Hypersensitivity reaction. Cyclosporine. Skin lesion pattern.

Resumo: A dermatite atópica (DA) é uma doença inflamatória, pruriginosa e crônica e caracteriza-se por uma predisposição a desenvolver sinais de hipersensibilidade após exposição repetida a alérgenos que na grande maioria dos casos são aeroalérgenos (pólen e ácaros). Seu desenvolvimento está relacionado à interação entre fatores genéticos e ambientais que promovem alterações da barreira cutânea. Isto facilita a penetração transepidérmica de alérgenos, que entram em contato com as células imunológicas presentes na pele desencadeando uma resposta imunológica por linfócitos Th2. Estes, por sua vez, estimulam uma produção elevada de IgE, que ativam os mastócitos estimulando a liberação de mediadores químicos, culminando no processo inflamatório característico da DA. No caso, foi atendido uma gata, fêmea, sem raça definida, castrada, 7 anos de idade, pesando 3,900kg. O animal apresentava prurido intenso e lesões de pele desde de 1 ano e meio de idade, que eram responsivos ao corticóide, porém quando realizado o desmame as lesões voltavam. O animal foi inicialmente tratado com Ciclosporina e Predinisolona, em que apresentou boa melhora da sintomatologia apresentada, porém apresentou alguns efeitos colaterais como diarreia, espirros e secreção nasal e ocular e hiperplasia gengival, que foram tratados com Fanciclovir e pasta à base de Azitromicina. O animal melhorou da sintomatologia após o tratamento e mesmo sendo realizado o desmame da Ciclosporina permaneceu bem e com boa resposta ao tratamento.

Palavras-chave: Reação de hipersensibilidade. Ciclosporina. Padrão de lesão cutânea.

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Introduction

Atopic dermatitis (AD) is an inflammatory, pruritic and chronic disease characterized by a predisposition to develop signs of hypersensitivity after repeated exposure to allergens that in the vast majority of cases are environmental allergens (pollen and mites) (FONSECA, 2013). Its development is related to the interaction between genetic and environmental factors that promote changes in the skin barrier (FERREIRA et al., 2018). This facilitates the transepidermal penetration of allergens, which come into contact with immune cells present in the skin, triggering an immune response by Th2 lymphocytes. These, in turn, stimulate a high production of IgE, which activate mast cells stimulating the release of chemical mediators, culminating in the inflammatory process characteristic of AD (FERREIRA, 2019).

The term “feline atopy” has long been used in veterinary medicine to describe the allergic patient with chronic pruritus and a positive reaction to environmental allergens on intradermal allergy testing. Over time, the participation of allergen-specific IgE has not been proven in cats with allergic skin disease unresponsive (or partially responsive) to flea allergy dermatitis (FAD) and trophoallergic dermatitis exclusion therapies. Thus, the nomenclature feline atopic dermatitis becomes inappropriate, being more recently referred to as feline cutaneous atopic syndrome. (TAVARES, 2019).

As in canine AD, pruritus is the most characteristic manifestation of the atopic syndrome, however, the pattern of distribution of the lesions is more variable in the cat, frequently the allergic feline patient will present at least one of the four common patterns of skin reaction indicative of pruritus and inflammation: head and neck pruritus, self-induced alopecia, miliary dermatitis and eosinophilic granuloma complex. However, these patterns are not specific and it is necessary to eliminate the differential diagnoses of cutaneous

hypersensitivity diseases before closing the diagnosis (DIESEL, 2017).

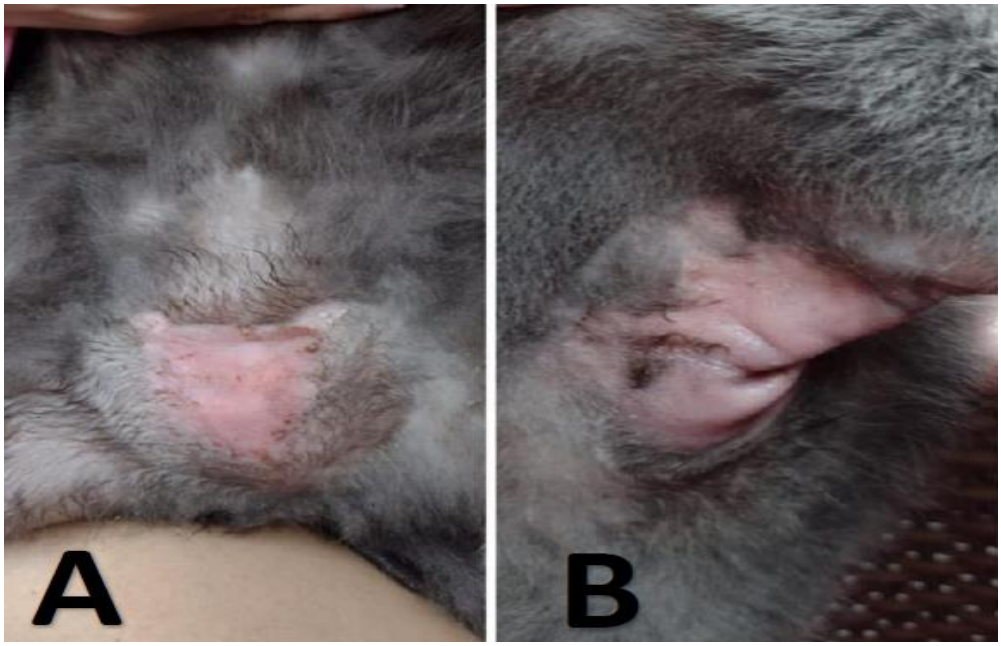
Since it is a common disease in clinical practice and few cases are reported, the objective of this study is to report a case of cutaneous atopic syndrome in a cat.

Materials e methods

A female cat, mixed breed (SRD), neutered, 7-years-old, 3.900kg, was referred for dermatological care at a Veterinary Hospital. The animal was treated due to intense pruritus since the first year of life. It was reported that every time the animal presented skin lesions, fungal culture was performed, in which the results always varied between positive and negative. It was reported that when the result of the cultures was positive, the animal was treated with Itraconazole and the lesions improved, in total there were 4 cycles of treatment with Itraconazole and when the animal had severe itching attacks it was treated with Prednisolone 2mg/kg SID in the period from 10 to 14 days. The animal remained without lesions for a certain period of time and then the lesions returned.

At the physical examination, it was observed that the patient had evident plaque lesions in the axillary and inguinal regions (Figure 1), a slight plaque lesion in the heel region and mild excoriations in the left ear, the ocular and oral mucosa were normocolored, no oral lesions were identified and the animal was normohydrated. No mites or fleas were seen on clinical examination.

Figure 1: Eosinophilic plaque in the axillary and abdominal region. A - Injury in the abdominal region. B - Injury in the axillary region.



After the physical examination, complementary exams were requested: hematological (complete blood count) and serum biochemical: alanine aminotransferase (ALT), creatinine, gammaglutamyltransferase (GGT), which were performed on the same day of the consultation, to assess the general condition of the animal. In addition, material from plaque lesions in the axillary and inguinal region was collected by the method of scarification for cytology to confirm eosinophilic plaque.

As an initial treatment, a compounded spray (75ml) based on Ciprofloxacin 0.35% and Hydrocortisone 1% BID was instituted for 10 days, to be applied to the lesion site, in addition, Cyclosporine (Cyclavance®) 100mg/mL orally was prescribed (VO) at a dose of 7.6mg/kg SID for 60 days and Prednisolone (Prediderm®) 5mg VO at a dose of 1.3mg/kg SID in the first 7 days and 0.6mg/kg SID in the following 7 days, ending with the dose 0.6mg/kg every 48 hours for 7 days.

Results and discussion

The hemato-biochemical tests, which were performed on the day of the consultation, it was observed in the erythrogram was within the normal range, the leukogram showed discrete eosinophilia (3402/ul) and discrete lymphopenia (1386/ul), with slightly hemolyzed plasma and discrete thrombocytosis. (660,000/mg3) In the biochemical tests, increased creatinine (1.7 mg/dl) was observed, and the other biochemicals were within the normal range. In the cytology (Figure 2) performed on the axillary and inguinal lesions, a high cellularity was observed in the sample, composed of scaly cells, horny scales and inflammatory cells (numerous intact and degenerated neutrophils, eosinophils and macrophages). In the examined sample, abundant microbiota composed of coccoid bacteria was observed and no yeast or neoplastic cells were seen. The cytological examination, observed in the sample, was compatible with the clinical picture, observed in the animal, of eosinophilic plaque.

After 20 days of the first consultation, the animal returned to the clinic, and the owner reported that after 15 days of treatment, the animal had nasal and ocular secretions and sneezing. The pruritus was reported to be controlled, food and water intake was normal, and diarrhea was reported at the start of treatment with cyclosporine (Cyclavance®). During the physical examination, the animal was normal colored, normohydrated, with the presence of nasal and ocular secretion (Figure 3) and the places where there were lesions of eosinophilic plaque (Figure 4) were healed.

For the presented symptoms, Amoxicillin + Potassium Clavulonate (Agemoxi CL®) 50mg orally at a dose of 12.5mg/kg BID for 10 days was prescribed, Munnomax tablet VO SID for 30 days, Tobramycin (Tobrasyn eye drops®) TID for 10 days and Lactobac® SID until the diarrhea improves. After 22 days of the prescribed support medication, the animal presented gingival hyperplasia (figure 5) and still had sneezing and nasal secretion even after treatment against respiratory complex.

A compounded Azithromycin-based paste was then prescribed for local use on the gingiva and fanciclovir (Penvir®) 90mg/kg VO BID for the first 7 days, then fanciclovir (Penvir®) 30 mg/kg VO BID for 23 days.

Currently, the animal is still being treated with cyclosporine (Cyclavance®) at a dose of 7.6mg/kg every 48 hours and with fanciclovir (Penvir®), the animal has itching and respiratory symptoms under control.

Figure 2: Photomicrograph (1000x magnification) of the cytological examination of the plaque lesion in the abdominal region. A pyogranulomatous inflammatory process is observed, composed of eosinophils, neutrophils and macrophages.

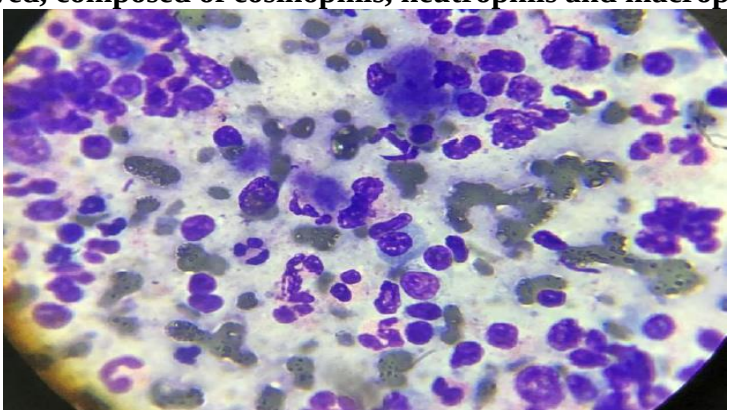


Figure 3: Presence of bilateral serous-type ocular discharge.

Figure 4: Axillary and abdominal region healed after 20 days of treatment with Cyclosporine. A - Axillary region. B - Abdominal region.

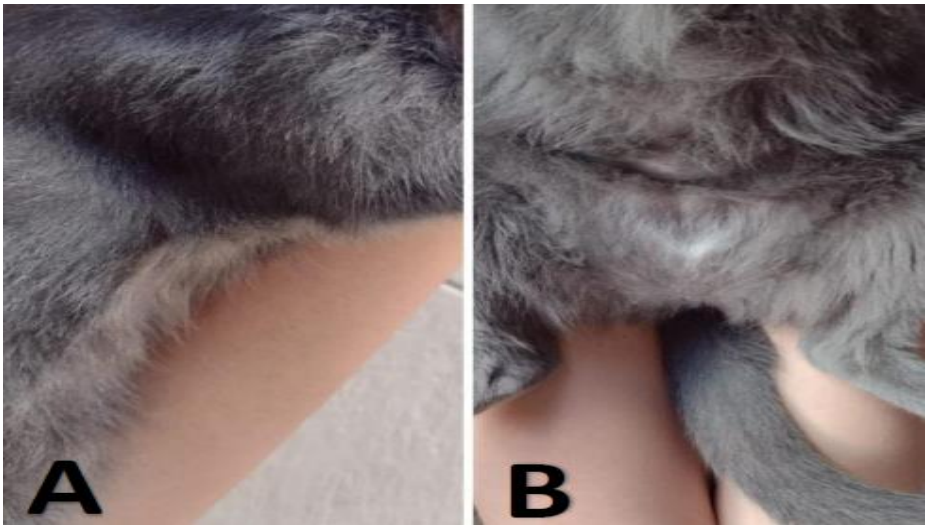


Figure 5: Presence of gingival hyperplasia after 1 month and a half of treatment with Cyclosporine.

Atopic syndrome begins in young cats up to two years of age (TAVARES, 2019), with the first clinical signs demonstrated between six months and three years of age (LUDWIG, 2016), and although predisposition by gender is not proven, according to a study carried out by Hobi et al. (2011) females represented 58% of the sample. Thus, the report in question is in agreement with the cited authors, as the feline of the report is female and, although it was diagnosed late, the animal began to show symptoms before 2 years of age, as reported by the tutor.

According to a study carried out by Ravens (2014), the prevalence of the disease was 12.5%, with a predisposition to mixed breeds of domestic cats, abyssinians

and devon rex, which is not consistent with the case of the report in question, since the animal had no defined race (SRD).

The most common clinical signs presented by patients are constant itching and cutaneous signs that involve self-induced alopecia, head and neck pruritus, eosinophilic dermatoses and miliary dermatitis (DIESEL, 2017; TAVARES, 2019), showing that the report is in accordance with the authors, since the main symptomatology of the feline was pruritus and, in addition, it presented eosinophilic dermatoses, in this case eosinophilic plaque, in the axilla region and ventral abdomen. In addition, the animal had extra cutaneous clinical signs, diarrhea and cough, which agree with what was reported by Gedon (2018), where he said that cats with atopic syndrome may have digestive signs, such as pasty stools, diarrhea and vomiting, allergic otitis, sinusitis and conjunctivitis, as well as feline asthma in some patients. However, the frequency with which these clinical manifestations occur concomitantly is unknown.

Since none of these patterns is pathognomonic of feline cutaneous atopic syndrome, the diagnosis is obtained through the exclusion of differential diagnoses, combining history and clinical signs, in all patients (MACHADO, 2021), in the case in question, when the animal arrived for consultation, he had already undergone some exclusions of differential diagnosis, in which he had already made control of ectoparasites, eliminating the suspicion of allergic dermatitis to the bite of ectoparasites and he was already on a hypoallergenic diet and with a favorable response to the immunosuppressive treatment started after consultation, all this helped in the diagnostic conclusion.

In addition, complementary cytology exams were performed on the lesions, to confirm the presence of eosinophilic plaque, a skin lesion caused by the syndrome and to confirm whether there was presence of bacteria or fungi in the lesions, in agreement with what was reported by Machado (2021) who said , in atopic animals it is very important to use cytological exams to determine the possible presence of bacteria and fungi, since the control of these infections surprisingly relieves the symptoms presented by the animal.

The symptom control of an atopic feline usually lasts for life and involves treatments and changes or adjustments in the lifestyle of both the patient and the owner (TANAKA, 2016). The combination of cyclosporine with low doses of oral corticosteroids was used in the animal of the report until the induction of a serum concentration of Ciclosporin capable of sustaining its immunomodulatory effects and making the animal stable in the face of

the symptoms presented. According to Neto (2017), this is necessary due to the fact that the satisfactory effects of cyclosporine are only observed, on average, from 21 to 30 days of continuous use.

In the present study, even with the withdrawal of corticosteroids, cyclosporine remained effective in controlling pruritus from the 21st day of treatment, even after starting to be performed alternately, which coincides with the results obtained by Burton et al. (2004), who attribute this efficacy to the fact that cyclosporine inhibits the proliferation of Langerhans cells, decreasing survival and degranulation of mast cells, induces eosinophil apoptosis and inhibits the release of IL-4, IL-5, TNF alpha , IL-3 and IL18, which leads to several beneficial immunomodulatory effects and improves clinical signs and pruritus associated with atopic skin syndrome, without compromising the body's immune function.

The animal presented diarrhea after starting treatment with Cyclosporine, in agreement with what was reported by Neto (2017), who says the cause of this side effect is not elucidated but it is suggested that it occurs due to the dispersion profile of the drug molecules in the small intestine (mean diameter and particle size distribution) that may cause gastrointestinal effects after administration of Ciclosporin. In addition, due to the immunosuppressive effect of cyclosporine and corticosteroid, the animal may have presented a reactivation of feline Herpesvirus during treatment.

As reported by Machado (2021) in some cases, the combination of respiratory clinical signs may be associated with feline herpesvirus infections. In the present report, the animal presented symptoms compatible with feline Herpesvirus infection shortly after starting immunotherapy treatment, therefore it was treated with Fanciclovir (antiviral) and Amoxicillin + Potassium Clavulonate and gradually improved the ocular and respiratory signs, in agreement with what is described by CASTRO (2012).

Fanciclovir reduces ocular signs (conjunctivitis, keratitis and corneal sequestration) and rhinosinusitis associated with infection, because the drug inhibits viral replication, in addition to felines showing good tolerance to the associated drug. antibiotic therapy (penicillins, cephalosporins or quinolones) for the treatment of secondary infections.

About a month and a half after the start of the immunotherapeutic treatment, the animal presented gingival hyperplasia, in agreement with what was described by Villela (2015), that gingival hyperplasia can occur frequently, due to the use of some drugs, among them to cyclosporine. This reaction can be observed from 1 to two months after the start of treatment with

cyclosporine and its mechanism of action is not yet well defined and is related to the individuality of each animal, as well as a genetic predisposition. For the animal in question, a manipulated paste was prescribed to try to reduce gingival hyperplasia, the active principle placed in the paste was Azithromycin, in agreement with what is said by Stahlke (2013), that macrolides, a group of antibiotics in which Azithromycin is part, in addition to their bactericidal properties, macrolides can be used for long or short periods as immunomodulators. They have the same properties as corticosteroids, but do not cause immunosuppression, having an anti-inflammatory activity.

Conclusion

Feline cutaneous atopic syndrome is an increasingly frequent disease in the small clinic, however, there is still a lot of information to discover when it comes to atopic cats. Its diagnosis requires time and dedication, both on the part of the veterinarian and the tutor, since there is still no accurate diagnostic test, mainly because its treatment is for the rest of the animal's life, with the need to always adjust. the protocol as the animal improves or presents new symptoms.

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