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Nonthymoma-associated exfoliative dermatitis in 18 cats

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Background – Exfoliative dermatitis has been described in cats as a paraneoplastic skin disease associated with thymoma. There are anecdotal reports of cases without thymoma, with various suspected aetiologies.

Hypothesis/Objectives – To identify common features, underlying causes, response to therapy and outcome of nonthymoma-associated exfoliative dermatitis in cats.

Methods – Retrospective analysis was carried out of cases presented to dermatology referral centres or cases submitted for histopathological examination. Detailed historical and clinical data were obtained and evaluated statistically. Histopathology was reviewed in a blinded fashion by three dermatopathologists, and PCR for herpesvirus was performed.

Results – Eighteen cats fulfilled all inclusion criteria. There was no sex, age or breed predisposition. All cats presented with severe generalized (77%) or multifocal exfoliation (23%); 12 cats were severely depressed. In all cats, thymoma was excluded radiographically and feline leukaemia virus tests were negative. Additional imaging procedures in 14 cats and postmortem examination in two cats did not detect neoplasia. Histopathology revealed interface dermatitis, mural interface folliculitis and sebaceous adenitis indistinguishable from findings in thymoma-associated cases. PCR for herpes DNA was negative. No aetiology was identified. Treatment in 12 cases consisted of immunosuppressive doses of corticosteroids and/or ciclosporin; one responded to antibiotics, one to shampoo, two went into spontaneous remission, and two did not receive any therapy and were euthanized.

Conclusions and clinical importance – Nonthymoma-associated exfoliative dermatitis in cats is clinically and histopathologically indistinguishable from thymoma-associated cases. Most cases benefit from immunosuppressive therapy; therefore, an immunopathological response to an undefined trigger is suspected.

Introduction

Exfoliative dermatitis in cats describes a skin disorder associated with large and adherent scales covering large parts of the body.[1] In middle-aged to older cats, a severe generalized exfoliative dermatitis followed by alopecia has been described as a primarily nonpruritic paraneoplastic syndrome in association with thymoma.[2–5] Remission was reported after surgical removal of the thymoma, indicating that the skin lesions are associated with the tumour.[6–9] The exact pathogenesis is not clearly understood, but it is suspected that the diseased thymus activates autoreactive cytotoxic T cells that act on epithelial cells in similar manner to graft-versus-host disease. The same mechanism has been assumed in myasthenia gravis and myositis observed in cats with thymoma. An aberrant antitumour response, with production of autoantibodies that cross-react with epithelial antigens, is less likely because immunoglobulins were not found in skin biopsies.[8]

The histopathological features of feline thymoma-associated exfoliative dermatitis are described as cell-poor to cell-rich CD3+ lymphocytic interface dermatitis, with orthokeratotic epidermal hyperkeratosis and extensive desquamation. Hydropic degeneration of basal keratinocytes and presence of apoptotic cells throughout the epidermis are seen. Additionally, an interface mural folliculitis involving the infundibular and isthmic part of the hair follicle is present. Sebaceous glands are severely affected or absent.[8,10] Cases with severe clinical presentation, where crusts and erosions predominate over alopecia and scaling, are often associated with a cell-rich interface dermatitis.[8] Additional findings include bacterial colonization, mild to moderate hyperplasia of the epidermis and exocytosis of lymphocytes. Although *Malassezia* spp. have been documented in a retrospective study as a frequent finding associated with internal neoplasia, *Malassezia* dermatitis is not a constant feature in feline thymoma-associated exfoliative dermatitis.[11,12] Cases

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with similar clinical and histological appearance have been published in cats without thymoma, and various causative factors have been identified or suspected, such as non-thymic neoplasms,[13] drug administration[14] and nutritional factors.[15] Other authors reported similar cases as feline sebaceous adenitis,[16,17] feline cutaneous lupus-like dermatitis[18] and as a seasonal syndrome with spontaneous resolution.[19]

The goal of our study was to report the clinical and histological findings of cats with exfoliative dermatitis in which no thymoma was found, and to compare the clinical and histological picture with the published cases of thymoma-associated exfoliative dermatitis. Our aim was to attempt to identify a common underlying cause and features which might predict the outcome of the disease.

Materials and methods

The medical records of cats with exfoliative dermatitis diagnosed between 2002 and 2010 were reviewed. Cases either had been presented with clinical exfoliative dermatitis at five dermatology referral centres (Institute for Animal Dermatology, Vetsuisse Faculty, University of Bern, Switzerland; Tieraerztliche Spezialisten, Hamburg, Germany; Klinik für Kleintiermedizin, Vetsuisse Faculty, University of Zurich, Switzerland; Centre for Clinical Veterinary Medicine, Ludwig Maximilian University Munich, Germany; Dermatologie und Allergologie fuer Tiere, Hueneberg, Switzerland) or had been diagnosed with interface dermatitis and interface mural folliculitis in the Institute for Animal Pathology, Vetsuisse Faculty, University of Bern.

Inclusion criteria

Cases were selected based on the clinical picture of exfoliative dermatitis, no identified underlying cause via skin scrapings, trichograms, cytological examination and dermatophyte culture, and compatible histological findings on skin biopsy. Clinical signs included scales, exfoliation or crusts that were multifocal, generalized or affecting a large body area. Thymoma was excluded with radiographs or other imaging procedures. The histological cases were selected based on the histological pattern and the clinical information provided by the veterinarian who submitted the biopsies, using the same inclusion criteria as outlined above.

Clinical examination

Detailed historical and clinical data were recorded by the clinicians or, in the cases identified via biopsy alone, obtained from veterinarians via a questionnaire and additional telephone interviews by one of the authors. The data included signalment, age of onset, living indoors or outdoors, travel history and regular prophylactic treatments (e.g. vaccination, deworming and flea treatment). Clinical features included primary and secondary lesions, distribution and extension, as well as the presence of pruritus at the onset (which was regarded as primary) or later in the course of the disease (which was regarded as secondary). Other clinical signs, systemic involvement and all diagnostic procedures that were performed, including serology for feline immunodeficiency virus (FIV) and feline leukaemia virus (FeLV), imaging procedures and elimination diets when applicable, were recorded. Response to therapy was recorded, and a follow-up period of at least 2 months was required for inclusion.

Histological examination

Paraffin blocks of skin samples, which had been previously fixed in 4% neutral buffered formalin and embedded in paraffin wax, were obtained from several pathologists. Sections (4 μm thick) were cut and stained with haematoxylin and eosin or periodic acid Schiff. The cases were evaluated blindly and independently by three experienced dermatopathologists. The following parameters were considered.

1. *Epidermal changes*: vacuolization of basal cells, presence and location of apoptotic cells, i.e. either in the basal cell layer only or throughout the epidermis, presence or absence of hyperkeratosis, its severity and type (lamellar versus basket-weave), serocellular crusts and acantholytic cells within the crusts.
2. *Adnexal changes*: hydropic changes in the basal cells of the infundibulum and the outer root sheath of the isthmus, apoptotic cells in the outer root sheath, infiltration of inflammatory cells into the follicular wall, destruction of the follicular wall, infundibular casts, infiltration of inflammatory cells in the sebaceous glands and absence of sebaceous glands.
3. *Dermal changes*: band-like subepidermal infiltrate, perivascular to interstitial dermal infiltrate and types of inflammatory cells in the infiltrate.

The presence of each change was recorded for each sample, and the results of the three dermatopathologists were compared. In cases of disagreement, the respective slides were reviewed together. As there were only minor differences in the evaluation of the histopathological changes between the three pathologists (data not shown), the description of the histopathological results is presented as a single data set.

All cases that fulfilled the clinical and histopathological criteria were examined at the Vetsuisse Faculty of the University of Zurich by PCR for herpesvirus DNA as a possible aetiological trigger, as previously described.[20] Briefly, primers detecting an extended part of the FeHV-1 gB gene (737 bp) were designed (forward primer: GCA CAC GAC CGG CTA ATA CAG G; and reverse primer: CAG CTT TCG AGA GGC ACA TAC CC) with the Primer Select program from DNA Star (Lasergene, Madison, WI, USA).

Statistical analysis

We tested the hypothesis that factors such as breed, age, sex, flea infestation and prophylaxis, deworming regimen and indoor housing versus outdoor access influence the development or clinical picture of the disease. Next, we tested the hypothesis that the clinical and histological picture is not distinguishable between cats with thymoma and nonthymoma-associated exfoliative dermatitis with mural folliculitis. The correlation of any clinical or histological feature with treatment or outcome was evaluated to test possible underlying aetiologies. Means, proportions and correlations were analysed using Fisher's exact test and Spearman's rank correlation test. All analyses were carried out using Graphpad Instat 3.1 Software (Graphpad, San Diego, CA, USA).

Results

Cats

From the 40 cases that were primarily collected, 29 cases fulfilled either the clinical or the histopathological inclusion criteria (data not shown). Of these 29 cases, nine cats had not undergone a diagnostic work-up, one cat was euthanized and a thymoma was found at postmortem, and one was clinically compatible with exfoliative dermatitis but the final histological diagnosis was pemphigus foliaceus. A total of 18 cases met all of the inclusion criteria and were included for further evaluation.

Signalment and husbandry

Of these 18 cats, 12 cases were evaluated in dermatology referral centres and six cats by first-opinion practitioners. Fifteen cats were European shorthair cats, three cats were Somali and two of these were siblings that lived in the same household. There were seven neutered males and 11 spayed females. Age ranged from 1.5 to 15 years, with a mean age of 8.2 years at the time of diagnosis. Ten cats had outdoor access, five cats were kept strictly indoors,

and in three cats no information about the living environment was available. Data about travel history, vaccination, deworming and flea prophylactic status, as well as diseases prior to diagnosis could not be retrieved in >50% of the cases and therefore were not analysed further. Feeding was primarily commercial dry kibble (n = 3) or wet food (n = 2) or a mixture of both (n = 8) and was unknown in five cases. In two outdoor cats of 12 cats, where information about seasonality of clinical signs was available, the skin lesions developed in winter.

Clinical signs

The most prominent skin lesions were severe exfoliation (n = 16), scales (n = 15) and crusts (n = 14). The distribution was generalized in 14 of 18 cats or multifocal involving the head, body and legs (n = 1), head and neck (n = 2) and only the body (n = 1; Figure 1) Pruritus at the time of presentation was evident in nine of 18 cats, but in only three of 18 of the cases was it present at the onset of the disease and therefore regarded as primary. These three cats and four other cats with or without pruritus at the time of presentation underwent an elimination diet without any response.

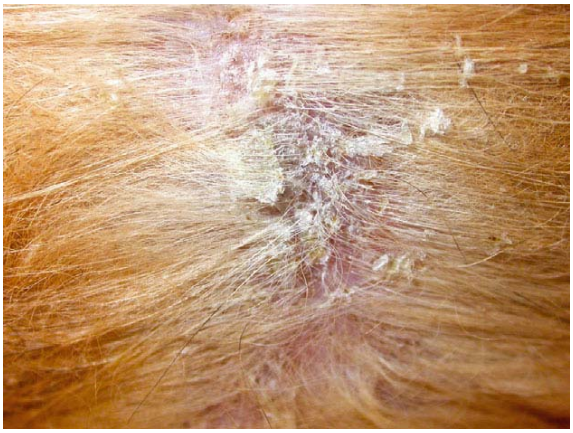

Figure 1. Case 7: Somali cat with severe generalized scaling, exfoliation and crusting; close-up picture of large and adherent scales.

Information about general health status was available for 16 of the 18 cats. Twelve cats presented with marked lethargy and depression, but concurrent internal disease was found in only four cats.

Clinical evaluation

The clinical and diagnostic evaluations are presented in Table S1 in Supporting information. Thoracic radiographs did not reveal a thymoma in any of the cats. In 14 cats, ultrasound of the abdomen did not detect any neoplasia, and only four cats had detectable changes in abdominal organs, which included lymphadenopathy and splenomegaly, hepatomegaly, pancreatitis, lymphoplasmacellular hepatitis and cholangitis and, in one cat, tubular nephropathy (Table S1 in Supporting information). Serum biochemistry and haematological examination were performed in 14 of 18 cats. Eight cats had normal values, while in the other six cats the changes were inconsistent and diagnostically inconclusive (Table S1 in Supporting information). Tests for FeLV and FIV were negative in all cats tested (n = 14).

Histological findings

The main histopathological features are summarized in Table S2 in Supporting information, and examples are shown in Figures 2 and 3. All cases presented with abundant orthokeratotic hyperkeratosis, which was lamellar in 16 cases and basket-weave in two cases. In most cases, keratin was detaching multifocally, forming large scales. Apoptosis of epithelial keratinocytes was seen in 14 of the 18 cases and was transepidermal, with the exception

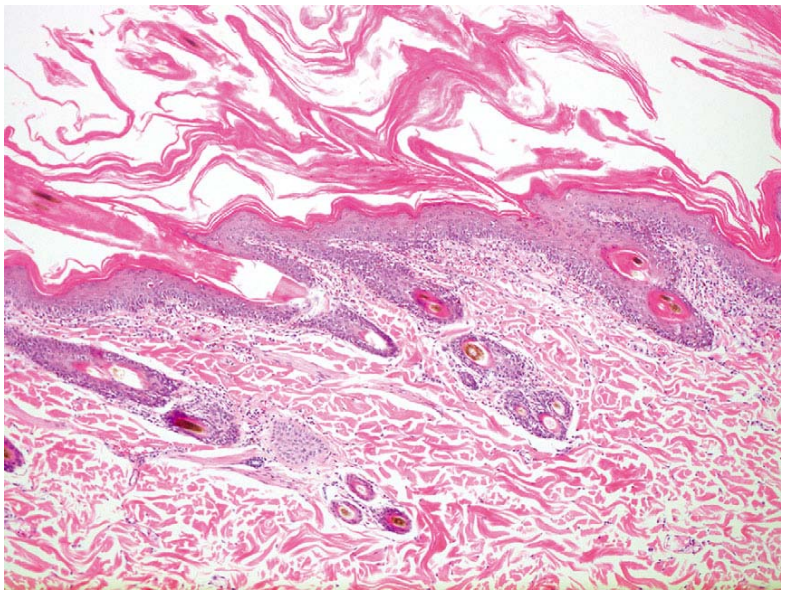

Figure 2. Histological features of a skin biopsy (case 14). Abundant laminar orthokeratotic keratinization covering the moderately hyperplastic epidermis. The basal cell layer of the epidermis and the infundibula is characterized by vacuolated keratinocytes; beneath the epidermis and around the adnexa there is a mild to moderate cellular infiltrate. Haematoxylin and eosin stain.

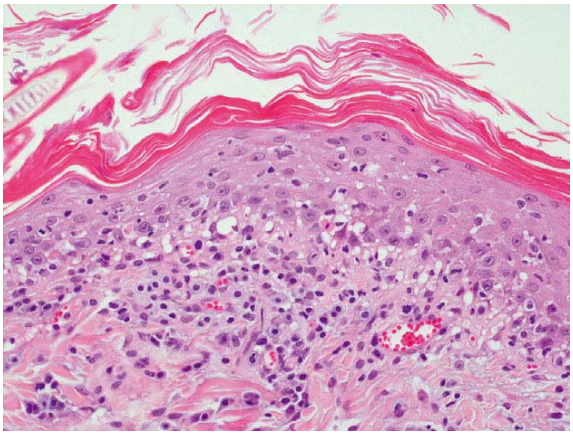

Figure 3. Histological features of a skin biopsy (case 17). Severe laminar orthokeratotic hyperkeratosis, hydropic degeneration of basal cells, numerous apoptotic cells and moderate subepidermal mast cell infiltrate. Haematoxylin and eosin stain.

of two cases in which it was restricted to the basal keratinocytes. Vacuolization of basal cells was seen in 12 of the 18 cats and was also present in the two cases where apoptosis was restricted to the basal cell layer. Eleven of 18 cases had apoptotic cells in the follicular wall.

Sebaceous adenitis or absence of sebaceous glands was prominent in 16 of 18 cases, and lymphocytes at the interface of the infundibular and isthmic follicular wall were seen in all biopsies, and were severe in 14 of 18 cases and mild in four. These interface changes were associated with a hydropic degeneration of infundibular and outer root sheath keratinocytes. Destruction of the follicular wall was not seen in any of the cases. In only two cats, the sebaceous glands were not affected; mural folliculitis was mild in these cats. Within the dermis, a subepidermal band-like infiltrate was present in 13 of 18 cases, and an additional severe perivascular infiltrate reaching the deep dermis was present in five of 18 cases. The various epidermal changes (e.g. apoptotic cells versus none) were not correlated with a specific dermal infiltrate. Mast cell counts, in particular, were elevated in 10 of 18 cases, but the infiltration with this cell type was not correlated with any of the other histological features, pruritus or response to therapy. PCR for herpesvirus DNA was negative in all 18 cats.

Treatment and follow-up

Twelve of 18 cats received immunosuppressive therapy. Four cats were reported to have a good response to immunosuppressive doses of prednisolone alone, and two cats improved with a combination of prednisolone and ciclosporin. Four cats were successfully treated with oral dexamethasone at a starting dose of 0.2–0.5 mg/kg daily, after failing to respond to prednisolone or a combination of prednisolone and ciclosporin. Two cats were successfully treated with ciclosporin therapy alone. Two of these 12 cats were euthanized, one (case 12) after 14 months due to adverse effects of prednisolone and one (case 5) after 2 months due to concurrent diseases. Of the remaining six cats without immunosuppressive therapy, one outdoor cat (case 8) was treated with antibiotics, had a relapse 12 months later at the same time of the year and again responded to antibiotics. This cat did not show any systemic changes. One cat (case 16) was managed with shampoo therapy alone for 3 years. This cat had only mild clinical and histopathological signs. Four cats received no treatment. Two of these (cases 3 and 6) were euthanized after 2 months at the owners' request because no improvement was seen. One cat went into spontaneous remission, and one cat, in which the clinical and histopathological picture was mild, remained the same for several months before being lost to follow-up.

Follow-up was between 2 months and 3 years. Clinically severe exfoliation, which was associated with severe mural folliculitis histopathologically, was followed by complete alopecia in some cats (Figure 4). Hair regrew in all cases that were treated. Of the 12 cats that had received immunosuppressive therapy, two cats were lost to follow-up after initial response to dexamethasone and a methylprednisolone injection, respectively, and two cats were euthanized due to a relapse after initial remission and due to recurrences while receiving tapering immunosuppressive therapy, respectively. Long-term management of the remaining eight cats consisted of immunosuppressive therapy, and all of these cats showed worsening of signs when the dosage was tapered. Three cats were treated with oral dexamethasone for >2 years. Two of these cats received 0.25–0.5 mg daily and one cat every other day. Three cats received ciclosporin daily ($n = 2$) or every other day ($n = 1$). In the two of four cats that were euthanized and a postmortem examination performed, the absence of thymoma or other neoplasia was confirmed. The pairwise correlation did not reveal any statistical relevance between clinical data, histological data and treatment response. Therapy of the 18 cats is summarized in Table S1 in Supporting information.

Discussion

No underlying aetiologies or factors predicting treatment response were identified in this case series of 18 cats

Figure 4. Case 18: European shorthair cat that was initially presented with severe exfoliation and then developed generalized alopecia during therapy; the hair regrew over time.

with feline exfoliative dermatitis and mural folliculitis not associated with thymoma. There was no sex or age predilection, although most cats were middle-aged to old cats (similar to cats with thymoma-associated exfoliative dermatitis) and only three cats were <3 years of age. Of the 18 cases, three cats were Somali, with two of them from the same litter and living in the same household. Owing to the small number of cases, a possible breed predilection could not be evaluated statistically.

Pruritus as a primary feature of the disease at onset was seen in only three cats and did not correlate with blood eosinophilia ($n = 1$), mast cells in skin biopsies or response to an elimination diet. These data weaken the hypothesis that exfoliative dermatitis is a feline reaction pattern associated with hypersensitivity. Pruritus is likely to be due to secondary bacterial or yeast infection in most cases. Unfortunately, data about cytology results in cats with pruritus in comparison to cats without pruritus were not available. The clinical picture in thymoma-associated exfoliative dermatitis has not been described in as much detail as in our cases; severe scaling and crusts, an often generalized distribution, always involving the head, and lack of primary pruritus[3,4,9] are signs identical to the clinical findings found in the present case series.

Like the clinical picture, the histopathological findings in our cases were indistinguishable from those described in thymoma-associated exfoliative dermatitis.[8] Basal cell vacuolization and apoptosis of keratinocytes throughout the epidermis, as well as a band-like interface infiltrate composed mainly of lymphocytes with varying amounts of mast cells and plasma cells, was a common feature of both conditions; likewise, an infundibular and isthmic lymphocytic interface or infiltrative lymphocytic mural folliculitis. As in thymoma-associated cases, there was severe sebaceous adenitis or sebaceous glands were either absent or only a few remnants were detectable in all except two of our cases. Giant cells, which have been described in one of the thymoma-associated exfoliative dermatitis cases, were not found in any of our cases.

The underlying aetiology remains unresolved. Twelve of our cats showed signs of severe illness, but only four cats revealed severe, albeit inconclusive, changes in other organs, such as lymphoplasmacytic hepatomegaly and splenomegaly, generalized lymphadenopathy or pancreatitis. Changes in blood cell counts, such as nonregenerative anaemia, leukocytosis or lymphocytosis, and changes in serum chemistry were inconsistent and inconclusive. It is therefore possible that clinical signs of systemic disease are induced by an underlying, not verified infectious trigger and disease. One further possible explanation for the reduced general condition could be a severely increased transepidermal water loss, a feature often seen by the authors manifesting in a damp feeling to the touch and most probably due to impaired barrier function. Dehydration and metabolic acidosis might be a sequel, and arterial blood gas sampling might be considered to evaluate this hypothesis further.

In thymoma-associated feline cases, a graft-versus-host-like reaction of autoreactive T cells is suggested due to the histological similarity and the presence of CD3+ T cells.[9] In bone marrow grafting, cytotoxic T cells present in the graft attack epidermal cells and lead to apoptosis.[15] The histological pattern with apoptotic cells throughout the epidermis shows similarities to erythema multiforme. There is one case report of a dog in which erythema multiforme is described in association with thymoma.[21] In the present case series, an underlying neoplasia that could have led to the development of autoreactive T cells was excluded as far as possible by imaging techniques (radiography of the thorax in all cases, abdominal ultrasound in 14 and postmortem examination in two cats), but we cannot completely exclude the presence of small neoplastic foci, which are still undetectable by these methods. Nevertheless, neoplasia as the underlying cause seems to be unlikely given that some of the cats responded to therapy for a prolonged period of time. Magnetic resonance imaging could be employed in future cases to exclude a neoplastic process definitely.

A subset of erythema multiforme cases in humans is associated with an aberrant reaction to a herpesvirus infection.[22,23] Viral cultures are usually negative, but PCR is used to demonstrate the virus in the skin lesions. In our cases, lesional skin was negative for feline herpesvirus DNA. Moreover, human herpesvirus-induced erythema multiforme is a self-limiting clinical disease and rarely needs immunosuppressive therapy.[24,25] Most of our cases did not resolve spontaneously but needed immunosuppressive therapy, rendering a viral pathogenesis less likely.

A drug reaction as cause for the clinical and histological findings is unlikely due to the extended duration of the disease. However, because of the missing clinical data in many cases we cannot exclude drugs as being causative in at least some cases.

Exfoliative dermatitis was initially thought to be associated with imidacloprid in one case report, but 4 months later a thymoma was diagnosed in that cat, thus it seems more likely that the thymoma was not evident at the first evaluation.[26]

Infiltrative lymphocytic mural folliculitis has been reported in 66% of feline allergic dermatitis and in 100% of feline atopic dermatitis, flea allergy, contact allergy and eosinophilic granuloma cases.[27] However, in that report the clinical features were not described, and mural folliculitis in those cases was mainly restricted to the infundibulum; thus, it is questionable whether a lymphocytic exocytosis involving only the infundibulum should be described as mural folliculitis. There are two cases with a similar clinical picture and mural folliculitis described by Declercq[15,28] that were assumed to be food induced. The hair coat in these cases improved on an elimination diet, but one of the cats died 4 months after initial presentation and was only in partial remission, suggesting a possible undiscovered underlying disease. In the second case, the improvement might have been due to spontaneous remission, similar to the spontaneous remission seen in one case of the present case series. In our study, seven cats underwent an elimination diet and none improved; therefore, diet does not seem to play a prominent role in the pathogenesis. We cannot, however, exclude the possibility that a feline hypersensitivity reaction due to any allergen could trigger nonthymoma-associated exfoliative dermatitis.

In the dog, an exfoliative cutaneous lupus erythematous with lymphocytic interface dermatitis, lymphocytic exocy-

tosis, mild keratinocyte apoptosis, sebaceous adenitis and lymphocytic mural interface folliculitis above the infundibulum has been described in young German shorthaired pointers, which shows an autosomal recessive inheritance.[29,30] An identical clinical and histological picture has also rarely been seen in other dog breeds by some of the authors. The treatment response in exfoliative cutaneous lupus erythematous to immunosuppressive therapies with prednisolone is unrewarding, whereas ciclosporin and hydroxichloroquine could at least stop the progression in one report.[29] The findings we report here for the cats are clinically and histologically similar to exfoliative cutaneous lupus erythematous, but the age of onset is later and thus a genetic trait is unlikely. The response of our cats to variable immunosuppressive therapies, recurrences with dose tapering and the necessity of long-term immunosuppression in most cases make an immunpathological reaction, so far without known trigger, most likely.

Limitations of the study are the retrospective nature and, as a consequence, the lack of historical data, especially for drugs and past diseases as a possible trigger. Concurrent diseases were addressed due to a thorough investigation in most cases, but a consistent method of work-up is missing.

In this case series of 18 cats with feline exfoliative dermatitis and mural folliculitis not associated with thymoma, no underlying pathogenesis could be identified even with extensive diagnostic investigation. Although spontaneous remission was seen in very few cases, most cats benefited from long-term immunosuppressive therapy, making an immune pathological process most likely.

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Supporting Information

Additional Supporting Information may be found in the online version of this article.

Table S1. Summary of clinical features and investigation and follow-up.

Table S2. Summary of the histological features.

Résumé

Contexte – La dermatite exfoliative a été décrite chez le chat comme une dermatite paranéoplasique associée au thymome. Des cas anecdotiques sans thymome avec des étiologies variées ont été décrits.

Hypothèses/Objectifs – Identifier les caractéristiques fréquentes, les causes sous-jacentes, la réponse au traitement et le suivi des dermatites exfoliatives non-associées au thymome chez le chat.

Méthodes – Une analyse rétrospective a été menée sur des cas présentés à des centres de dermatologie référée ou des cas soumis pour examen histopathologique. Le détail des données anamnestiques et cliniques a été obtenu et évalué statistiquement. Trois dermatopathologistes ont revus en aveugle les histologies et une PCR pour le virus herpes a été réalisé.

Résultats – Dix-huit chats ont rempli tous les critères d'inclusion. Il n'y avait aucune prédisposition de sexe, d'âge ou de race. Tous les chats présentaient une exfoliation sévère, multifocale ou généralisée (77%); 12 chats étaient sévèrement déprimés. Pour tous les chats, un thymome a été exclu par radiographie et les tests de leucémie féline étaient négatifs. Des images radiographiques supplémentaires pour 14 chats et un examen *post mortem* pour deux chats n'ont pas permis de détecter de tumeur. L'histopathologie a révélé une dermatite d'interface, une folliculite murale d'interface et une adénite sébacée identiques aux données rapportées des cas associés à un thymome. Les PCR pour ADN d'herpes étaient négatives. Aucune étiologie n'a été identifiée. Le traitement pour 12 cas consistait en des doses immunosuppressives de corticoïdes et/ou de ciclosporine; un cas a répondu aux antibiotiques, un cas à des shampooings, deux se sont spontanément améliorés et deux n'ont reçu aucun traitement et ont été euthanasiés.

Conclusions et importance clinique – La dermatite exfoliactive non-associée à un thymome chez le chat est cliniquement et histopathologiquement identique des cas associés à un thymome. La plupart des cas répondent à un traitement immunosuppresseur; ainsi, une réponse immunopathologique à une cible non déterminée est suspectée.

Resumen

Introducción – se ha descrito una dermatitis exfoliativa en gatos con una enfermedad para neoplásica asociada a timoma Hay informes anecdóticos de casos sin timoma, con varias etiologías sospechosas

Hipótesis/Objetivos – identificar las características comunes, las causas subyacentes, y la respuesta a terapia y resolución de la dermatitis exfoliativa no asociada con timoma en gatos.

Métodos – se realiza un análisis retrospectivo de los casos presentados a centros dermatológicos de referencia o de casos remitidos para examen histopatológico. Se obtuvieron datos detallados de la historia clínica y se evaluaron estadísticamente. La histopatología fue revisada en estudio ciego por tres dermatopatólogos, y se realizaron pruebas de PCR para herpes virus.

Resultados – 18 gatos cumplieron los criterios de inclusión. No hubo predisposición basada en raza, edad ni sexo. Todos los gatos se presentaron con exfoliación severa generalizada (77%) o multifocal (23%); 12 gatos estaban severamente deprimidos. En todos los gatos, timoma se excluyó mediante radiografía y las pruebas para el virus de la Leucemia Felina también fueron negativas. Pruebas adicionales de imagen en 14 gatos y el examen postmortem en dos gatos no detectaron ninguna neoplasia. La histopatología reveló una dermatitis de interfase, foliculitis mural de interfase, y adenitis sebácea indiferenciable de los hallazgos en casos asociados con timoma. Las pruebas de PCR para DNA de herpesvirus fueron negativas. No se identificó ninguna etiología. El tratamiento en 12 casos consistió en dosis inmunosupresoras de corticosteroides y/o ciclosporina; uno respondió a antibióticos, uno a tratamiento con shampoo, dos presentaron remisión espontánea, y dos no recibieron ningún tratamiento y fueron eutanasiados

Conclusiones e importancia clínica – los casos de dermatitis exfoliativa no asociados con timoma en gatos son clínicamente e histopatológicamente indiferenciables de los casos asociados con timoma. La mayoría los casos se benefician de la terapia inmunosupresora; por lo tanto, se presume una respuesta inmunopatológica a una causa no identificada.

Zusammenfassung

Hintergrund – Eine exfoliative Dermatitis ist bei Katzen als paraneoplastische Hauterkrankung im Zusammenhang mit einem Thymom beschrieben. Es gibt anekdotische Evidenz von Fällen ohne Thymom, mit unterschiedlichen Ätiologien.

Hypothese/Ziele – Eine Beurteilung von ähnlichen Merkmalen, zugrundeliegenden Ursachen, Reaktion auf Therapie und Endergebnisse bei exfoliativer Dermatitis von Katzen, die nicht mit einem Thymom im Zusammenhang standen.

Methoden – Es wurde eine retrospektive Analyse an Fällen, die in einem Hautüberweisungszentrum vorgestellt wurden oder an Fällen, die zur histopathologischen Untersuchung eingesendet wurden, durchgeführt. Es wurden detaillierte anamnestische und klinische Daten erhoben und statistisch ausgewertet. Die Histopathologie wurde in geblindeter Form von drei Dermatopathologen untersucht und eine PCR auf Herpesvirus wurde durchgeführt.

Ergebnisse – Achtzehn Katzen erfüllten die Einschlusskriterien. Es bestand keine Geschlechts-, Alters- oder Rassenprädisposition. Alle Katzen wurden mit einer hochgradigen generalisierten (77%) oder multifokalen Exfoliierung (23%) vorgestellt; 12 Katzen waren apathisch. Bei allen Katzen wurde ein Thymom radiologisch ausgeschlossen und ein Bluttest auf felines Leukose Antigen war negativ. Weder zusätzliche bildgebende Diagnostik bei 14 Katzen sowie postmortem Untersuchungen bei zwei weiteren Katzen zeigten eine Neoplasie. Die histopathologische Untersuchung zeigte eine Interface Dermatitis, eine murale Interface Follikulitis und eine Talgdrüsenentzündung, die von Hautfällen mit Thymomen nicht zu unterscheiden waren. Ein PCR auf Herpes DNA war negativ. Es konnte keine Ätiologie identifiziert werden. Die Behandlung bestand bei 12 Fällen aus immunsuppressiven Dosen von Steroiden und/oder Ciclosporin; eine Katze verbesserte sich mit Antibiotika, eine mit Shampoo, zwei erholten sich spontan und zwei Katzen wurden nicht therapiert und euthanasiert.
Schlussfolgerungen und klinische Bedeutung – Eine nicht mit Thymomen im Zusammenhang auftretende exfoliative Dermatitis bei Katzen ist klinisch und histopathologisch nicht von Thymom-assoziierten Fällen zu unterscheiden. Die meisten Fälle profitieren von immunsuppressiver Therapie; folglich wird eine immunpathologische Antwort auf einen unbestimmten Auslöser vermutet.

要約
背景 – 表皮剥脱性皮膚炎はネコにおいて胸腺腫と関連する腫瘍随伴性皮膚疾患として説明されている。胸腺腫の認められない逸話的な症例報告も存在し、様々な病因が疑われている。
仮説/目的 – ネコにおける非胸腺腫関連性表皮剥脱性皮膚炎の一般的な特徴、根本的な原因、治療への反応、および転帰を特定すること。
方法 – 皮膚病センターに来院したあるいは病理組織検査に提出された症例の回顧的な解析を実施した。詳細な病歴および臨床データを入手し、統計学的に評価した。病理組織学は3人の皮膚病理学者によって盲検的に再調査され、ヘルペスウイルスに対するPCRを実施した。
結果 – 18頭のネコが試験対象患者基準すべてを満した。性別、年齢あるいは品種の傾向は認められなかった。すべてのネコは重度の全身性(77%)あるいは多病巣性の剥離(22%)を呈しており、12頭のネコは重度に消耗していた。すべてのネコで胸腺腫はX線写真上除外され、ネコ白血病ウイルス検査は陰性であった。14頭のネコで追加した画像検査および2頭のネコでの死後の検査で腫瘍は検出されなかった。病理組織学は胸腺腫に関連した症例でみられる所見と鑑別することができない境界部皮膚炎、壁性境界部毛包炎、および脂腺炎が明らかになった。ヘルペスDNAに対するPCRは陰性であった。病因は特定できなかった。12頭の症例における治療は免疫抑制量のコルチコステロイドおよび/あるいはシクロスポリンで行い、1頭は抗生物質に、1頭はシャンプーに反応、2頭は自然に寛解し、2頭は何も治療されずに安楽死された。
結論および臨床的な重要性 – ネコにおける非胸腺腫関連性表皮剥脱性皮膚炎は臨床的、および病理組織学的に胸腺腫関連性の症例と鑑別することができなかった。ほとんどの症例では免疫抑制療法に効果がみられたため、特定されない要因に対する免疫病理学的な反応が疑われる。

摘要
背景 – 猫胸腺瘤的副肿瘤性皮肤疾病表现为脱皮性皮炎。这里经验性报告一些不是胸腺瘤,而是其他多样病因的病例。
假设/目的 – 本次研究的目的是为确定无胸腺瘤的脱皮性皮炎患猫的共同特点、潜在病因、治疗反应和结果。
方法 – 回顾性分析皮肤专科医院转诊病例,或组织病理学检查送检结果。取得详细病史和临床数据并分析评估。随机回顾三例病理学结果并做疱疹病毒PCR检测。
结果 – 18只患猫均符合入选标准。没有性别、年龄或品种易感性。所有患猫表现出严重的全身病变(77%)或多病灶病变(23%);12只患猫精神严重沉郁。所有猫,经过放射学检查排除了胸腺瘤,并且猫白血病病毒测试阴性。14只患猫做过影像学检查,2只患猫做过尸检均未发现肿瘤。组织病理学显示均有界面性皮炎、界面性毛囊壁炎和皮脂腺炎,与胸腺瘤病例没有区别。PCR检测疱疹病毒DNA为阴性。未能确认病因。12只患猫使用免疫抑制剂糖皮质激素和/或环孢菌素治疗;一只抗生素治疗有所缓解;一只香波治疗;两只自愈;还有两只没有治疗,并被实施安乐死。
总结与临床意义 – 没有胸腺瘤的脱皮性皮炎患猫,在临床和组织病理学上与胸腺瘤导致的病例无区别。大多数病例通过免疫抑制治疗得以缓解;因此怀疑是未确定的原因诱发的免疫病理反应。