



Prevalence of allergic dermatitis in dogs

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Abstract. The relevance of this study was driven by the significant increase in cases of allergic dermatitis in dogs, the dependence of its manifestation on geographical regions, and the conflicting and incomplete data regarding the prevalence of this condition. The study aimed to identify the aetiological, breed, age, and seasonal predispositions to allergic dermatitis in dogs in Vinnytsia (Ukraine). Contemporary methods were employed to examine 6,230 patient records with dermatological conditions from the "Vet House" Veterinary Centre over a three-year period. The availability of comprehensive data for each patient in the ENOTE database enabled a thorough investigation of the prevalence of allergic dermatitis among dogs in this

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geographical area during the 2021-2023 timeframe. The results of the analysis indicated a high incidence of allergic dermatitis in dogs, with no significant correlation to sex. It was found that allergic dermatitis was most frequently diagnosed in dogs aged 1 to 3 years, with acral dermatitis being more prevalent in those aged 3 to 7 years. It was established that the incidence of allergic dermatitis increased sharply during the summer. The most prevalent conditions in dogs during warmer months were atopic and flea dermatitis, while acral dermatitis was more common in colder seasons. Dogs of certain breeds, including Yorkshire Terrier, German Shepherd, Maltese, American Cocker Spaniel, and their crossbreeds, were found to be the most susceptible to flea dermatitis. A higher predisposition to atopic dermatitis was identified in French Bulldogs, Labradors, Pugs, and American Cocker Spaniels, while Labradors and Drahthaars were more prone to acral dermatitis. The findings of this study are of practical significance for general practice veterinary clinicians and dermatologists, who can benefit from incorporating the observed patterns of aetiological, breed, age, and seasonal predispositions, as well as the influence of various factors, into their approach to diagnosing and managing allergic dermatitis in dogs

Keywords: skin diseases; allergic reactions; atopic dermatitis; flea dermatitis; contact dermatitis; prevalence by aetiological factors; age, breed, seasonal, and sex predispositions

Introduction

Among the various diseases affecting dogs, allergic dermatitis of diverse origins is frequently reported, significantly impacting the quality of life of these animals. Given that allergic skin conditions arise due to a wide range of aetiological factors, conducting an in-depth analysis of territorial, sex, breed, age, and other predispositions to allergic skin inflammation in dogs is of great relevance. Such analyses should be considered by practising veterinarians when implementing preventive measures and improving treatment protocols for dermatological conditions.

According to I. Tizard (2022), allergic dermatitis with secondary infections and chronic changes to the skin and ears is the most common condition in dogs with dermatological pathologies. A study by A. Di Martino Frezza *et al.* (2023) identified the primary types of allergic dermatitis as atopic dermatitis, flea allergy dermatitis, food hypersensitivity-related dermatitis, acral dermatitis, insect bite hypersensitivity dermatitis, and contact dermatitis. Skin diseases in dogs are relatively common,

accounting for 30-45% of all reported conditions in this species. Research by I. Bos *et al.* (2020) found that dermatological cases represented 20.7% of the total number of patients at veterinary clinics. Similarly, V. Telnov & N. Vovkotrub (2021) observed skin diseases in 24.6% of dogs examined during 2019-2020 in a veterinary clinic, with atopic dermatitis accounting for the largest proportion (21.8%), followed by flea dermatitis (9.4-13.3%), dermatophytosis (12.1-19.2%), and acarine dermatitis (9.5-15.5%).

O. Stotska (2023) identified atopic dermatitis in male and female dogs aged five to eight years, accounting for nearly 30% of dermatological cases. B. el Hamzaoui *et al.* (2020) observed that the prevalence of flea allergy dermatitis depends on the geographical region, ranging from the most common skin disease to its complete absence in areas where fleas are not present. Dermatitis linked to adverse food reactions is relatively rare, affecting approximately 1% of dogs and cats, as reported by

T. Suici *et al.* (2021). However, I. Tizard (2022) noted that the true prevalence of food allergies in dogs remains unknown.

A. Kale & A. Gaspari (2021) highlighted a significantly higher prevalence of food allergies in humans, with 6% of children and 3% of adults reported to have food hypersensitivity. In dogs, the incidence of dermatitis generally ranged from 1% to 7%, with food allergies believed to account for 5-20% of all allergic skin conditions. Despite these findings, specific data on the prevalence of dermatitis by geographical region are currently lacking, underscoring the need for further research in this area.

A. Bogdanova *et al.* (2024) reported that in Mykolaiv (Ukraine), dermatitis accounted for 19.5% of all cases, with a higher prevalence observed in females. Flea and atopic dermatitis each comprised 11% of cases. The majority of dermatitis cases were attributed to food allergies (56%), while contact dermatitis accounted for 22%. According to S. Gupta *et al.* (2022), the prevalence of acral dermatitis was 7.27% among all dermatological cases. Young animals aged one to three years were found to be more frequently affected, with a noted sex predisposition favouring males and a seasonal pattern, as acral dermatitis was more common in winter.

The analysis of the structure of dermatitis prevalence from available literature reveals discrepancies and, at times, contradictions. Studies on the prevalence of dermatitis in dogs require further clarification and regional synthesis within Ukraine. Therefore, determining the structure of dermatitis prevalence among dogs in Vinnytsia (Ukraine) is a pertinent issue. This includes investigating sex, breed, and age-related characteristics, as well as the impact of various aetiological factors. This study aimed to ascertain the prevalence of allergic dermatitis in dogs in Vinnytsia (Ukraine), considering age, sex, breed, and the influence of diverse aetiological factors.

Literature Review

J. Pieper (2020) noted that atopic dermatitis is the most common manifestation of atopic disease in dogs. It presents as an allergic condition and is a multifactorial pathology, defined as a “genetically predisposed inflammatory and pruritic allergic skin disease, often associated with the production of immunoglobulin E against environmental allergens”. According to available studies (Fernandes *et al.*, 2023), the prevalence of atopic dermatitis in the USA ranges from 3.3% to 27%, whereas in the United Kingdom, this figure is approximately 5%.

M. Arcique & J. Bajwa (2020) highlighted that, when compared to human medicine, there is a noticeable increase in the prevalence of atopic dermatitis, especially in children. This trend has led to the formulation of the “hygiene hypothesis”. This theory suggests that excessive hygiene practices, such as frequent bathing and the use of antimicrobial agents, reduce exposure to microbes and parasites, thereby weakening the skin’s barrier function and potentially contributing to the rising prevalence of atopic dermatitis in humans.

In recent years, C. Cain (2019) and P. Hensel *et al.* (2024) have noted the need to clarify the trend of increasing prevalence of atopic dermatitis in dogs, indicating this remains a pertinent topic for future research. According to M.A. Fouda *et al.* (2021), food allergies can occur in dogs at any age, from recently weaned puppies to older animals that have been fed the same diet for years. However, approximately 30% of dogs diagnosed with food allergies are under one year old. Clinical signs may include non-seasonal pruritus, recurrent pyoderma, and symptoms mimicking atopic dermatitis. Some dogs may also exhibit concurrent gastrointestinal disturbances.

Among allergic dermatitis types, in addition to flea allergy dermatitis (Anderson, 2018), according to A. Shumaker (2019) documented

acral lick dermatitis. This condition is characterised by chronic skin irritation and granuloma formation due to excessive licking of specific skin areas, typically on the limbs. While allergies are the most common underlying cause, acral lick dermatitis may also be associated with psychogenic triggers.

K. Mason & M. Ruutu (2023) indicated that contact dermatitis is an allergic skin condition characterised by itching and maculopapular rashes in areas of skin that are not well protected by hair. In their research, J. Kim *et al.* (2023) noted that plants (grasses, weeds), medications (creams, ointments, sprays, shampoos, ear lotions, insecticidal and calming collars, etc.) can cause contact dermatitis. A. Kale & A. Gaspari (2021) proved that external factors such as woollen bedding, cat litter, chemical cleaning agents, and laundry detergents can also be causes of contact allergy.

B. Abdulkareem *et al.* (2019) and M.A. Fou-da *et al.* (2021) described the prevalence of allergic dermatitis in various countries and continents. They noted that the prevalence varied significantly depending on the region studied, as factors such as climate, ecology, gene pool, and economic prosperity had a significant impact. Available contemporary Ukrainian sources (Bos *et al.*, 2020; Dotsenko *et al.*, 2022; Bogdanova *et al.*, 2024) provide information on the prevalence of allergic dermatitis among dogs in the cities of Bila Tserkva, Zhytomyr, Konotop, and Mykolaiv. Thus, currently, there are only a few studies on the prevalence of allergic dermatitis in dogs in Ukraine, and their age, gender, and breed structure require further supplementation and generalisation.

Materials and Methods

A database of patients from ENOTE and the outpatient journal of the “Vet House” Veterinary Centre (Vinnytsia, Ukraine) was analysed for the period from June 1, 2020, to June 1, 2023.

During this period, owners (from Vinnytsia and Vinnytsia Region) sought treatment for 6,230 animals, of which 812 dogs with skin and ear diseases were referred to the dermatology department of the Veterinary Centre. 311 medical records of dogs exhibiting symptoms of allergic dermatitis were selected for detailed analysis of clinical cases. These records contained complete information about the patients (owner and pet data, medical history, clinical examination data, additional tests, treatment regimen, as well as records of patient feedback during and after treatment).

Based on the preliminary diagnosis, six groups of patients were formed: the first group with flea allergic dermatitis; the second group with dermatitis caused by adverse food reactions; the third group with atopic dermatitis; the fourth group with acral dermatitis; the fifth group with contact dermatitis; and the sixth group with allergic dermatitis of unknown origin (due to the discontinuation of diagnostics or the interruption of communication with the pet owners).

The group with the preliminary diagnosis of “Flea allergic dermatitis” included dogs in which live parasites (imago fleas) or flea faeces were detected during clinical examination, accompanied by the classic symptoms of flea allergic dermatitis (moderate to severe itching, scratches, and excoriations, particularly located dorsally and dorsocaudally along the spine, in the croup area, at the base of the tail, and on the caudal surfaces of the thighs). Also included were dogs exhibiting the classic symptoms of flea allergic dermatitis but showing no direct signs of flea infestation during the examination. However, these animals had overdue flea prevention treatments, making flea bites highly probable. In such cases, the diagnosis was confirmed by a positive response to trial treatment for flea dermatitis and the absence of recurrences with regular preventive treatments for flea infestations.

The group “Dermatitis caused by adverse reactions to food (or food allergies)” included dogs diagnosed through a comprehensive approach: based on anamnesis, an analysis of the animal’s diet, combined with a characteristic clinical picture (itching, redness, scratches, rashes); prior exclusion of parasitic infections; and confirmation through the results of an elimination diet. The diagnosis was considered confirmed (positive) if, after 6-8 weeks on the diet (a food based on hydrolysed protein), the symptoms disappeared, and upon reintroducing the previous diet, symptoms reappeared. When returning to the hydrolysed protein diet, the symptoms disappeared again.

The group of animals with the diagnosis “Atopic dermatitis” was divided into two sub-groups: the first – “Atopic dermatitis with seasonal manifestations” (including animals with sporadic/seasonal flare-ups of allergy that alternated with periods of self-healing); and the second – “Atopic dermatitis with stable year-round manifestations”. The latter included animals with a stable presentation of allergy symptoms, regardless of the season. The diagnosis was made comprehensively, considering anamnesis, the results of clinical examination, and the exclusion of other causes of itching (parasites, food allergies). The “Acral dermatitis” group included animals in which allergic dermatitis was accompanied by self-induced alopecia, erosions, ulcers, and granulomas in the area of the forelimbs. The “Contact allergic dermatitis” group comprised dogs in which the symptoms of allergic dermatitis appeared following confirmed direct contact with various potential allergens (including plants, topical medications, lotions, shampoos, etc.).

Given the wide age range of patients presenting with signs of allergic dermatitis at the Veterinary Centre, a decision was made to divide these patients into age groups. The following

age groups were created: under 6 months (40 animals); 6 months to 1 year (64 animals); 1 year to 3 years (128 animals); 3 to 7 years (13 animals); and over 7 years (20 animals).

The study adhered to the ARRIVE guidelines and was conducted following the principles outlined in EU Directive 2010/63/EU on the protection of animals used for scientific purposes (Percie du Sert *et al.*, 2020; Directive 2010/63/EU, 2010). Statistical data analysis was performed using the Numbers Mac and Excel computer programmes. The relative frequencies of animals in each group were expressed as percentages (%) and calculated relative to the total number of animals with signs of allergic dermatitis.

Results and Discussion

Over a three-year period (2020-2023), 812 patients with signs of skin and ear diseases were referred to the dermatology department of a veterinary institution in Vinnytsia, Ukraine. This represented 13% of the total number of dog owners seeking treatment during this period (6,230 animals). Dogs with manifestations of allergic dermatitis accounted for 38% of these cases, equating to 311 patients. I. Bos *et al.* (2020) noted that in Zhytomyr, Ukraine, during 2019-2020, 20.7% of patients presented to the veterinary clinic of Polissya National University with skin pathologies, with dogs suffering from allergic dermatitis accounting for 15.7% of these cases. V. Telnov & N. Vovkotrub (2021) reported that at the “Pride” veterinary clinic in Bila Tserkva during 2019-2020, 24.6% of dogs were diagnosed with skin diseases. O. Stotska (2023) mentioned that at the “Alpha-vet” veterinary clinic in Konotop (Sumy Region) during 2021-2022, 538 dogs were registered with allergic dermatitis. Meanwhile, according to research by A. Bogdanova *et al.* (2024) at the “Veles” veterinary

clinic in Mykolaiv, Ukraine, during the period from December 22, 2023, to January 19, 2024 (one month), 19.5% of dogs were diagnosed with dermatitis from the total number of patients with dermatological pathologies during this period.

According to the analysis of available literature from various Ukrainian cities, dermatological patients among dogs accounted for 19.5% to 24.6% of cases. However, A. Iovenko *et al.* found that in 2020, dermatological conditions ranged from 30% to 45% of cases, with the lowest rate of 13% obtained from the study in Vinnytsia. This variation may be attributed to differences in diagnostic approaches, the number of patients seen annually, and

the qualifications of dermatologists, which can reduce the accuracy of studies. In contrast, according to Y. Drechsler *et al.* (2024), the prevalence of dermatitis patients was 18.8% in Canada and 25.65% in Brazil.

Based on the study of etiological factors causing allergic dermatitis in dogs between 2021 and 2023, the following were established: atopic dermatitis – 173 cases (56%), flea allergic dermatitis – 68 cases (22%), dermatitis caused by adverse reactions to food (or food allergies) – 16 cases (5%), acral dermatitis – 13 cases (4%), contact allergy – 9 cases (3%), insect bite hypersensitivity – 9 cases (3%), and in 23 cases (7%) the cause was undetermined (Fig. 1 (a-i), Table 1).

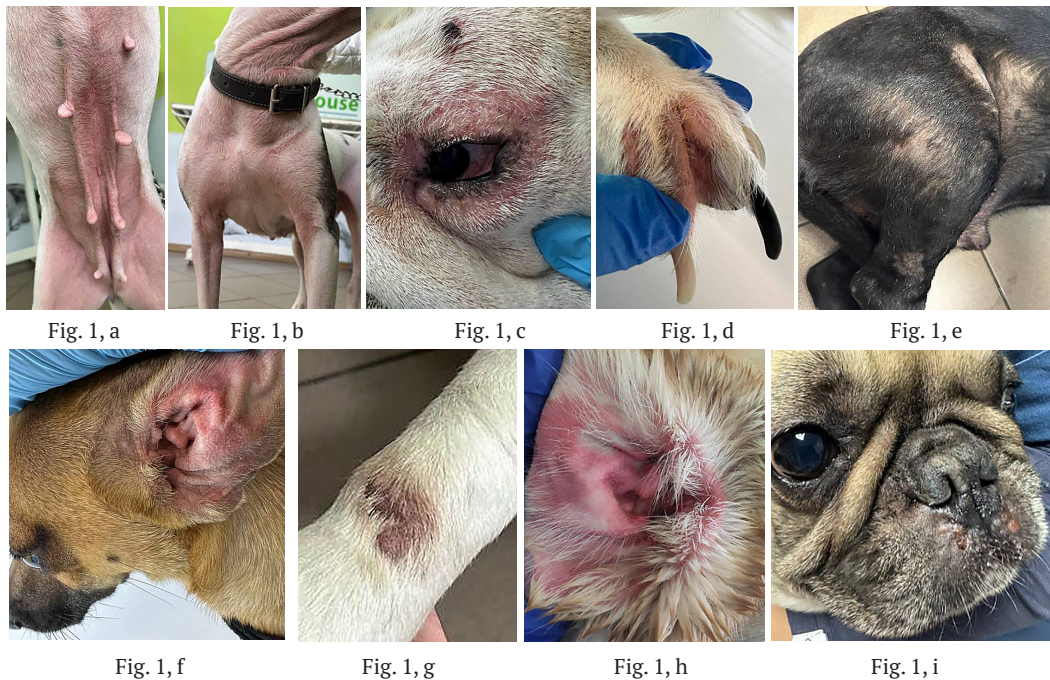


Figure 1. Allergic dermatitis in dogs affected by various etiological factors

Note: a – atopic dermatitis; b – atopic dermatitis; c – allergic blepharitis, a symptom of atopic dermatitis; d – pododermatitis, a symptom of atopic dermatitis; e – flea allergy dermatitis (self-induced hypotrichosis on the pelvic limbs, in the area of the croup, and laterally on the knee folds); f – allergic otitis in a dog with food allergy; g – acral dermatitis; h – contact allergic reaction to ear lotion; i – insect bite hypersensitivity

Source: authors' development

Table 1. Prevalence of allergic dermatitis in dogs at the Veterinary Centre in Vinnytsia (Ukraine) for the period 2021-2023

Disease diagnosis	Number of cases per year			Mean statistical value, M ± m
	2021	2022	2023	
Flea allergic dermatitis	22	23	23	22.7 ± 0.4
Atopic dermatitis	57	61	55	57.7 ± 1.9
Dermatitis caused by adverse reactions to food (or food allergies)	6	5	5	5.3 ± 0.4
Acral dermatitis	5	4	4	4.3 ± 0.4
Contact allergic dermatitis	3	3	3	3.0 ± 0.0
Hypersensitivity to insect bites	2	4	3	3.0 ± 0.6
Aetiology of the allergy could not be determined for various reasons	7	7	9	7.7 ± 0.8

Note: the most common causes of dermatitis in dogs are shown

Source: authors' development

I. Bos *et al.* (2020) reported that, in terms of etiological structure, 28.0% of dogs were diagnosed with pyoderma, 28.2% with parasitic dermatitis, 15% with fungal dermatitis, 15.7% with allergic dermatitis, 3.5% with endocrine disorders, 1.7% with immune-mediated disorders, and 7.9% with other conditions. A. Iovenko *et al.* (2020) found that 10% of the dog population suffered from atopic dermatitis. V. Telnov & N. Vovkotrub (2021) also indicated that the primary causes of skin diseases were atopic dermatitis (21.8%), flea dermatitis (9.4-13.3%), dermatophytosis (12.1-19.2%), and acarine dermatitis (9.5-15.5%). According to the research of A. Bogdanova *et al.* (2024), among patients with dermatitis, 22% were diagnosed with dermatomycosis, 19.5% with dermatitis, 9.8% with *Malassezia* dermatitis and eczema, and 7.3% with pododermatitis. Dermatitis was most commonly of food-allergic origin in 56% of cases, contact dermatitis in 22%, and flea dermatitis and atopic dermatitis in 11% of cases each.

According to studies by Ukrainian researchers, the causes of allergic dermatitis in dogs include atopic dermatitis (11% to 21.8%), acarine dermatitis (9.5% to 28.2%), flea dermatitis (9.4% to 13.3%), food allergies (56%), and

contact dermatitis (22%). Data on the prevalence of acral dermatitis and hypersensitivity to insect bites in dogs was not found in the available literature. In a study by D. Santoro (2019), it was noted that up to 58% of dogs suffering from skin diseases had atopic dermatitis. B. Fernandes *et al.* (2023) reported that up to 30% of the dog population is prone to atopic dermatitis. According to Y. Drechsler *et al.* (2024), the prevalence of atopic dermatitis among dogs with dermatological diagnoses was 3-15% in the USA and 12.7% in Canada.

When investigating the occurrence of allergic dermatitis about the sex of dogs, it was found that females accounted for 53% of cases, while males accounted for 47%. In the "Flea allergic dermatitis" group, females predominated at 59% (40 cases), with males accounting for 41% (28 cases). In the "Atopic dermatitis" group, the predominance was slightly less, but females still outnumbered males at 52% (90 cases) versus 48% (83 cases). Conversely, in the group "Dermatitis caused by adverse reactions to food", males predominated at 62.5% (10 cases), while females accounted for 37.5% (6 cases). In the group of dogs where the aetiology of allergy could not be determined for various reasons,

males also slightly outnumbered females at 52% (13 cases) versus 48% (10 cases). In other groups, females predominated: hypersensitivity to insect bites was 56% (5 cases) in females and 44% (4 cases) in males; contact dermatitis was 67% (6 cases) in females and 33% (3 cases) in males; and acral dermatitis was 62% (8 cases) in females and 38% (5 cases) in males. The research by O. Stotska (2023) and Y. Drechsler *et al.* (2024) did not establish a sexbased dependence on the frequency of allergic dermatitis. A. Bogdanova *et al.* (2024) noted that males have dermatological diseases more often compared to females, while dermatitis is more frequently recorded in females, which is consistent with the results of the research described in this article.

An analysis of the structure of allergic dermatitis incidence by age in dogs revealed the following findings: in the group of animals “under 6 months”, the diagnosis of “Flea allergic dermatitis” was recorded in 30% of cases; “atopic dermatitis” in 65% of cases; dermatitis caused by adverse reactions to food (or food allergies) in 2.5% of cases; aetiology of allergy could not be determined for various reasons in 0% of cases; dermatitis associated with hypersensitivity to insect bites in 0% of cases; contact allergic dermatitis in 2.5% of cases; and acral dermatitis in 0% of cases (Table 2). Overall, the group of dogs “under 6 months” accounted for 13% of all allergic dermatitis cases recorded during the entire study period.

Table 2. Incidence of allergic dermatitis in dogs at different age stages based on data from the Veterinary Centre in Vinnytsia (Ukraine) for the period 2021-2023

Disease diagnosis	Number of cases during the period 2021-2023				
	Group of dogs “under 6 months”	Group of dogs “6 months to 1 year”	Group of dogs “1 to 3 years”	Group of dogs “3 to 7 years”	Group of dogs “over 7 years”
Flea allergic dermatitis	12	10	24	12	10
Atopic dermatitis	26	40	72	30	5
Dermatitis caused by adverse reactions to food (or food allergies)	1	4	6	4	1
Acral dermatitis	0	0	5	6	2
Contact allergic dermatitis	1	1	5	2	0
Hypersensitivity to insect bites	0	2	3	3	1
Aetiology of the allergy could not be determined for various reasons	0	7	13	2	1
Total in group	40	64	128	59	20

Source: authors' development

A detailed analysis of allergic dermatitis incidence in the group of dogs aged “6 months to 1 year” revealed the following: flea allergic dermatitis was found in 16% of the animals; atopic dermatitis in 63%; dermatitis caused by adverse reactions to food (or food allergies) in 6%; allergic dermatitis with an unidentified

aetiology (undiagnosed cases for various reasons) in 11%; dermatitis associated with hypersensitivity to insect bites in 3%; contact allergic dermatitis in 1%; and acral dermatitis in 0%. Overall, the group of dogs “6 months to 1 year” accounted for 21% of all allergic dermatitis cases recorded during the study period.

A detailed analysis of allergic dermatitis incidence in the group of dogs aged “1 to 3 years” revealed flea allergic dermatitis in 19% of the animals; atopic dermatitis in 56%; dermatitis caused by adverse reactions to food (or food allergies) in 5%; allergic dermatitis with an unidentified aetiology (undiagnosed cases for various reasons) in 10%; dermatitis associated with hypersensitivity to insect bites in 2%; and contact allergic dermatitis and acral dermatitis in 4% of cases each. Overall, the group of dogs aged “1 to 3 years” accounted for 41% of all allergic dermatitis cases registered during the study.

An analysis of the structure of allergic dermatitis incidence in the group of dogs aged “3 to 7 years” revealed the following distribution: flea allergic dermatitis was diagnosed in 20% of cases; atopic dermatitis in 51%; dermatitis caused by adverse reactions to food (or food allergies) in 7%; allergic dermatitis with an unidentified aetiology (undiagnosed for various reasons) in 3%; dermatitis associated with hypersensitivity to insect bites in 5%; contact allergic dermatitis in 3%; and acral dermatitis in 10% of cases. Overall, the group of dogs aged “3 to 7 years” accounted for 19% of all allergic dermatitis cases recorded during the study.

In the group of dogs aged “over 7 years”, the distribution of allergic dermatitis cases was as follows: flea allergic dermatitis accounted for 50% of cases; atopic dermatitis for 25%; dermatitis caused by adverse reactions to food (or food allergies) for 5%; allergic dermatitis with an unidentified aetiology (undiagnosed for various reasons) for 5%; dermatitis associated with hypersensitivity to insect bites for 5%; contact allergic dermatitis was absent (0%); and acral dermatitis was observed in 10% of cases. Overall, dogs in the “over 7 years” group represented 7% of all allergic dermatitis cases recorded during the study. It was determined

that the most prevalent age group for the initial manifestation of allergic dermatitis was “1 to 3 years”. Dogs in this group exhibited the highest prevalence of all investigated dermatitis types by aetiology, except for acral dermatitis. Additionally, it is noteworthy that the majority of dogs diagnosed with acral dermatitis belonged to the “3 to 7 years” age group. In this group, acral dermatitis was recorded in 6 (46%) out of 13 (100%) cases.

I. Bos *et al.* (2020) observed that the peak incidence of interdigital dermatitis (with atopic dermatitis accounting for 25% of cases) occurred in dogs aged between 8 months and 2 years, and a second peak was seen in dogs aged 5 to 8 years. A. Iovenko *et al.* (2020) described a characteristic onset age for atopic dermatitis in dogs, ranging from 6 months to 3 years. A. Bogdanova *et al.* (2024) indicated that the highest number of dermatological diagnoses in dogs occurred in the age group between 3 and 4 years. T. Suici *et al.* (2021) used patients with atopic dermatitis aged between 8 months and 7 years in their study. The research by Y. Drechsler *et al.* (2024) demonstrated that the incidence of atopic dermatitis was observed in dogs aged between 4 months and 3 years. Conversely, according to K. Hnilica & A. Patterson (2017), middle-aged and older large-breed dogs were more frequently affected.

C. Outerbridge & T. Jordan (2021) found that allergic dermatitis is often accompanied by secondary bacterial infections. H. Jackson & R. Marsella (2021) and S. Hobi *et al.* (2024) demonstrated that the most common secondary infections are caused by *Staphylococcus pseudintermedius* and *Malassezia pachydermatis*, which pose additional challenges in both treatment and the accurate recording of allergic skin diseases. The findings regarding the age-related prevalence of allergic dermatitis in dogs at

the research facility in Vinnytsia, Ukraine, were consistent with broader trends, with the highest number of recorded cases occurring in dogs under three years old, as reported in the literature. Additionally, the study analysed the seasonal incidence of skin conditions, categorising cases by the time of year when owners first sought dermatological consultations. A clear seasonality was observed for atopic dermatitis and flea allergic dermatitis. Atopic dermatitis was diagnosed most frequently in summer (98 cases, 57%) and spring (33 cases, 19%). Similarly, flea allergic dermatitis was recorded more often in summer (27 cases, 40%) and spring (16 cases, 24%). Cases of contact allergic dermatitis and hypersensitivity to insect bites were predominantly observed in summer (6 cases of contact allergy, 67%; 6 cases of hypersensitivity to insect bites, 89%). In contrast, acral dermatitis was more frequently recorded during colder months, with 8 cases in winter (62%) and 3 in autumn (23%). Furthermore, it was established that atopic dermatitis with continuous manifestation, regardless of season, occurred more often (112 cases) compared to seasonal atopic dermatitis with exacerbations (61 cases) (Fig. 2). This observation suggests the influence of additional factors during warmer periods.

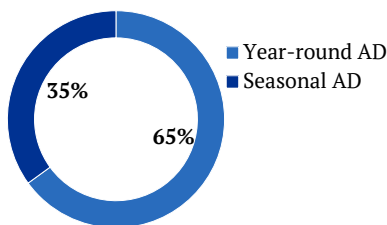


Figure 2. The course of atopic dermatitis in dogs throughout the year

Note: blue represents the prevalence of atopic dermatitis (AD) throughout the year, while red indicates the prevalence of seasonal dermatitis in dogs

Source: authors' development

I. Bos *et al.* (2020) reported that cases of interdigital dermatitis increased during the warmer months, with the highest prevalence observed in June (19%), followed by August (15.5%), July and May (12% each), while in other months the prevalence ranged from 1.7% to 5.1%. Findings from research conducted at a Veterinary Centre in Vinnytsia, Ukraine, on the prevalence of allergic dermatitis in dogs by breed revealed the following distribution: flea allergic dermatitis: mixed breed – 43%; German Shepherd – 13%; Yorkshire Terrier – 12%; Pug – 9%; Maltese – 6%; Beagle, Drahthaar, and French Bulldog – 3% each; Labrador and Poodle – 1% each. Atopic dermatitis: French Bulldog – 24.9%; Labrador – 13.9%; Pug – 11%; American Cocker Spaniel – 9.2%; German Shepherd – 6.9%; Staffordshire Terrier – 6.3%; Yorkshire Terrier – 5.2%; mixed breed – 4.6%; Akita Inu, Maltese, Maltipoo, and Dachshund – 2.3% each; American Bully, Bull Terrier, West Highland White Terrier, Golden Retriever, Poodle, Shih Tzu, and Bichon Frise – 1.2% each; Cane Corso – 0.6%. Dermatitis caused by adverse reactions to food (or food allergies): mixed breed and Pug – 18.8% each; Labrador, Cane Corso, and German Shepherd – 12.5% each; Akita Inu, Staffordshire Terrier, Toy Terrier, and French Bulldog – 6.2% each. Acral dermatitis: Drahthaar and Labrador – 23% each; Beagle – 14%; Alabai, Jack Russell Terrier, Cane Corso, German Shepherd, and Great Dane – 8% each. Contact allergic dermatitis: Welsh Corgi Pembroke – 33%; West Highland White Terrier and Labrador – 22% each; Maltipoo and French Bulldog – 11% each. Hypersensitivity to insect bites: Labrador, Great Dane, and Dachshund – 22% each; Jack Russell Terrier, Drahthaar, and Pug – 11% each (Table 3).

Table 3. Prevalence of allergic dermatitis in dogs by breed at a Veterinary Centre in Vinnytsia, Ukraine (2021-2023)

Breed	Group of animals					
	Flea allergic dermatitis	Atopic dermatitis	Dermatitis caused by adverse reactions to food (or food allergies)	Acral dermatitis	Contact allergic dermatitis	Hypersensitivity to insect bites
Mixed breed	29	8	3	-	-	-
French Bulldog	2	43	1	-	1	-
Pug	6	19	3	-	-	1
Labrador	1	24	2	3	2	2
Beagle	2	-	-	2	-	-
Yorkshire Terrier	8	9	-	-	-	-
Maltese	4	4	-	-	-	-
Poodle	1	2	-	-	-	-
American Cocker Spaniel	4	16	-	-	-	-
Drahthaar	2	-	-	3	-	1
German Shepherd	9	12	2	1	-	-
Golden Retriever	-	2	-	-	-	-
Dachshund	-	4	-	-	-	2
Maltipoo	-	4	-	-	1	-
West Highland White Terrier	-	2	-	-	2	-
Cane Corso	-	1	2	1	-	-
Staffordshire Terrier	-	11	1	-	-	-
Bull Terrier	-	2	-	-	-	-
American Bully	-	2	-	-	-	-
Akita Inu	-	4	1	-	-	-
Shih Tzu	-	2	-	-	-	-
Bichon Frise	-	2	-	-	-	-
Toy Terrier	-	-	1	-	-	-
Great Dane	-	-	-	1	-	2
Alabai	-	-	-	1	-	-
Jack Russell Terrier	-	-	-	1	-	1
Welsh Corgi Pembroke	-	-	-	-	3	-
Total	68	173	16	13	9	9

Note: the table illustrates the breed-specific distribution of allergic dermatitis in dogs

Source: authors' development

I. Bos *et al.* (2020) noted a breed predisposition to interdigital pododermatitis in American and English Bulldogs (25%), Boxers (20%), Labradors (15%), Shar-Peis (10%), Great Danes and German Shepherds (14%), Pekingese (8%), and Basset Hounds (5%). A. Iovenko *et al.* (2020) reported a predisposition to atopic dermatitis in Labradors, Pugs, Scottish Terriers, French Bulldogs, and Shar-Peis. According to data from the Olenyatko Veterinary Clinic (Kherson, Ukraine), the condition was most frequently observed in Shar-Peis, Pugs, French Bulldogs, Labradors, and their mixed breeds.

O. Stotska (2023) demonstrated that allergic dermatitis was diagnosed in Chow Chows (30%), Shar-Peis (25%), Great Danes, and Pekingese (20% each). A. Bogdanova *et al.* (2024) indicated that mixed-breed dogs (32%), Yorkshire Terriers (21%), French Bulldogs, and Spaniels (11% each) were most susceptible to dermatoses. Romanian researchers T. Suici *et al.* (2021) identified the breeds most affected by atopic dermatitis as French Bulldogs and mixed breeds (14% each), German Shepherds (11.5%), Golden Retrievers (9.25%), Maltese (9.25%), Labrador Retrievers (7.4%), and Chow Chows (5.5%).

In the USA, Y. Drechsler *et al.* (2024) highlighted a higher predisposition to atopic dermatitis in West Highland White Terriers, Golden Retrievers, Labrador Retrievers, German Shepherds, and French Bulldogs. In Australia, a greater risk was observed in male Bichon Frises and Pugs, while in Brazil, mixed breeds, Poodles, and Shih Tzus were more commonly affected. Thus, the breed predisposition to allergic dermatitis in dogs varies according to geographical region, breed preferences among owners in specific areas, and the genetic predisposition to atopy or allergy in particular breeds.

Conclusions

An analysis of medical records of dogs with skin pathologies in Vinnytsia (Ukraine) revealed that

atopic dermatitis was the most common allergic dermatitis, accounting for 56% of cases. No significant correlation between the sex of the animals and the diagnosis of allergic dermatitis was identified. Examination of age-related trends in dermatitis manifestations showed that the largest group of animals among all allergic dermatitis cases, except for acral dermatitis, was the “1 to 3 years” age group. This group included 128 cases of allergic dermatitis, representing 41% of all allergic dermatitis cases. Acral dermatitis was more commonly observed in older dogs at the early stage of the condition, with the largest group being those aged “3 to 7 years”, accounting for 46% of all acral dermatitis cases.

The seasonality of allergic dermatitis manifestations in Vinnytsia was most pronounced during the summer. This period recorded the highest number of allergic dermatitis cases – 155, accounting for 50% of all cases. The most seasonally dependent diagnoses were atopic dermatitis and flea allergy dermatitis, both peaking during the warmer months. Conversely, the majority of acral dermatitis cases were documented during the colder months. It was found that only 65% of atopic dermatitis cases exhibited seasonal manifestations, while 35% of patients displayed persistent symptoms. The overall prevalence of atopic dermatitis accounted for 2.8% of all primary consultations over three years, with skin disease consultations comprising 21.3% of total primary visits. Clinicians should consider that exacerbations of atopic dermatitis, even in the absence of recent therapeutic changes, warrant the exclusion of secondary skin infections or flea exposure. For animals with confirmed dietary components as triggers for allergic reactions, a thorough review of feeding routines and diet composition is essential.

The findings indicate differences in the prevalence of atopic dermatitis among dogs in

the USA and the United Kingdom compared to Ukraine. This highlights the need for further research into the impact of geographical location and environmental factors on the distribution of atopic dermatitis in dogs.

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Conflict of Interest

The authors declare no conflict of interest related to this study, including financial, personal, authorship, or other factors that could influence the research and its outcomes as presented in this article.

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Поширеність алергічних дерматитів у собак

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Анотація. Актуальність дослідження зумовлена суттєвим зростанням випадків дерматитів алергічного походження в собак, залежністю їх прояву від географічного регіону та суперечливими і неповними даними щодо поширеності цієї патології. У зв'язку з цим, мета роботи полягала у визначенні етіологічної, породної, вікової, сезонної схильності собак до дерматитів алергічного генезу в умовах міста Вінниця (Україна). Використані сучасні підходи щодо дослідження 6230 історій пацієнтів із дерматологічними хворобами клініки «Vet House» упродовж трьох років. Наявність повної інформації щодо кожного пацієнта в базі

даних ENOTE дозволила комплексно і в повному обсязі підійти до вивчення поширеності алергічних дерматитів серед собак у цій географічній місцевості в часовому проміжку за 2021-2023 роки. Результати проведеного аналізу свідчать про високу захворюваність собак на алергічні дерматити та відсутність статевої залежності. Виявлено, що найчастіше алергічні дерматити діагностували у собак віком від 1 до 3 років, у тому числі акральний дерматит у цього виду тварин віком від 3 до 7 років. Встановлено, що різке підвищення захворюваності на алергічні дерматити відбувалося влітку. Найпоширенішими в теплу пору року в собак були атопічний і блошиний дерматити, а в холодну – акральний дерматит. Найвразливішими до виникнення блошиного дерматиту були собаки таких порід, як йоркширський тер'єр, німецька вівчарка, мальтезе, американський кокер-спанієль та їх метиси. З'ясовано вищу схильність до атопічного дерматиту в собак порід французький бульдог, лабрадор, мопс і американський кокер-спанієль, а до акрального дерматиту – в собак порід лабрадор і дратгар. Результати проведеного дослідження становлять практичну цінність для лікарів ветеринарної медицини загальної практики та дерматологів, для яких важливо враховувати встановлені в цій роботі закономірності щодо етіологічної, породної, вікової, сезонної схильності та особливостей дії різних чинників на розвиток дерматитів алергічного генезу

Ключові слова: хвороби шкіри; алергічні реакції; атопічний дерматит; блошиний дерматит; контактний дерматит; поширеність за етіологічним фактором; вікова, породна, сезонна і статева схильність