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Incidence of Dermatological Disorders in Dogs at Leo Animal & Bird Clinic, Vastral, Ahmedabad (Gujarat)

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Abstract

Dogs have established their identity as a pet or companion in rural as well as urban areas of India and the world. General well-being of pet dogs has direct relationship with knowledge and adoption of management practices amongst dog-owners. Pet dogs, breeds and small animal veterinary clinics are also increasing in numbers throughout the country. Pet dogs suffer from various systemic diseases and disorders where dermatological afflictions are more frequently encountered at privately-owned or government veterinary hospitals. It has been perceived that assessment of incidence and prevalence of canine dermatological disorders is not conducted at private veterinary clinics on regular basis. The present paper places special emphasis on condition-wise, gender-wise and age-wise incidence of dermatological disorders in 177 dogs brought to Leo Animal & Bird Clinic, Ahmedabad (Gujarat) between February to August-2020 (*i.e.*, during COVID-19 pandemic period). The database generated through the study will encourage private veterinary practitioners for regular assessment of incidence and prevalence of canine dermatological disorders to generate target-specific preventive strategies in future.

Keywords: Incidence, Dermatological Disorders, Dog, Ahmedabad, Gujarat

Introduction

The domestic dog has established its existence and status as a pet or companion in the society throughout the world. It plays different roles (e.g., hunter, gatherer, guard, aid to handicaps etc.) and it has been described as 'Man's best friend' in literature. Positive benefits associated with dog-keeping have also been described at length; however, basic husbandry and management is very important for general well-being of dogs (Bhadesiya and Raval, 2014).

The increasing number of pet dogs and increasing number of improved breeds (indigenous or exotic) in India clearly indicates that canine veterinary practice will demand tremendous efforts from veterinarians with regards to development of advanced diagnostic modalities and use of effective advanced therapeutic agents. Moreover, it is also important for veterinary practitioner to assess existing prevalence or incidence of different types of diseases in dogs before implementing newer concepts. Having a knowledge on types of healthcare issues in dogs residing in surrounding areas of a veterinary clinic surely helps a veterinary practitioner to create a clinical setup efficient enough to cope with ongoing health issues.

A long list of disease conditions in dogs exist which include diseases caused by bacteria, viruses, fungus, hemoprotozoa, endoparasites, ectoparasites, poisoning, toxicity, tumors, man-animal conflicts, injuries, systemic illnesses etc. Out of all, dermatological disorders remain one of the major systemic clinical ailments encountered at veterinary hospitals and private veterinary clinics. Dermatological afflictions in dogs include superficial or deep canine pyoderma, dermatophytosis, canine scabies, canine demodicosis, tick infestation, flea infestation, lice infestation, atopic dermatitis, warts, burns, tumors, dermal injuries etc.

Extensive documentation is available on prevalence of dermatological diseases in hospital population of an established veterinary hospital; however, published literature on incidence or occurrence of such diseases at private veterinary clinics is sparse. Therefore, an attempt has been made to record incidence of dermatological disorders in dogs presented at Leo Animal & Bird Clinic, Ahmedabad (Gujarat) during February to August-2020 (*i.e.*, during COVID-19 pandemic period).

Materials and Methods

The incidence of different dermatological disorders in dogs brought to Leo Animal & Bird Clinic, Vastral, Ahmedabad (Gujarat) was recorded during February to August-2020 (*i.e.*, 07 months). All dogs were subjected to general clinical examination. A total of 177 cases observed with clinical signs of dermatological disorders were identified separately and their records were evaluated for target-specific investigation.

Dermatological afflictions were categorized based on skin lesions. Epiluminoscopy or Dermoscopy was performed by use of Handheld Microscope (Heathrow Scientific) as per suggestions given by Moriello *et al.* (2017). Impression smear examination was performed in cases presented with specific skin lesions (e.g., pustules in canine pyoderma, lesions of demodicosis etc.) as per methods described by Scott *et al.* (2000). Trichography or Hair Plucking Microscopy (HPM) was performed as per methods described by Scott *et al.* (2000) in relevant cases. The Deep Skin Scrapping Examination (DSSE) was performed to rule out underlying etiology of mange (*i.e.*, mites) as per methods described by Scott *et al.* (2000). Identification of common mites and other ectoparasites (e.g., ticks) was performed based on descriptions given by Soulsby (1982). The incidence was recorded after confirmatory diagnosis and clinical dermatological symptoms (*viz.*, alopecia and dermatitis) with unknown etiology were prefixed with NS (*i.e.*, Non-specific).

Results and Discussion

Overall, 177 dogs were found to be affected with different dermatological disorders. Condition-wise, breed-wise, gender-wise and age-wise incidence of dermatological disorders in dogs has been described hereunder;

(A) Condition-wise distribution of cases

The condition-wise highest incidence was reported for dogs with coat shedding (33.90%; 60/177) as major complaint followed by dermatophytosis (31.64%; 56/177); tick infestation (13.56%; 24/177); canine pyoderma and non-specific dermatitis (05.08%; 09/177, each); allergic dermatitis (03.95%; 07/177); canine scabies (02.82%; 05/177); canine demodicosis (02.26%; 04/177) and non-specific alopecia (01.69%; 03/177) [Table-1].

The condition-wise incidence of dermatological disorders varies greatly from the reports published by various scientists. Lund *et al.* (1999) reported highest cases of otitis externa (13.00%) followed by dermatitis (04.90%), flea infestation (04.40%), pyoderma (03.40%), atopic/allergic dermatitis (03.10%), moist dermatitis (02.20%), fungal otitis externa (02.00%) and pruritus (01.60%). Scott and Paradis (1999) recorded higher prevalence of bacterial folliculitis and furunculosis (25.30%) followed by skin allergy (23.30%), endocrinal issues associated skin disorders (08.60%) and immune-mediated dermatitis (04.80%). Kumar *et al.* (2006) reported highest prevalence of clinical tick infestation (31.37%) followed by others (23.51%), scabies (23.47%), lice infestation (18.20%) and demodicosis (03.45%) while Narang *et al.* (2015) recorded highest prevalence of fungal infections (30.94%) followed by clinical tick/flea/lice infestation (20.44%), pyoderma of bacterial infection (13.81%), mange and non-specific dermatitis or allergy (11.60%, each). The reason behind such variations could be due to difference in purpose of study; methodologies implemented for diagnosis; variation in observation recording protocols; geographic distribution; awareness among owners regarding common dermatological disorders and strategies for prevention; bathing practices; feeding practices; purpose of keeping dogs; difficulties in transport or referral due to travel restrictions implemented during the COVID-19 pandemic etc.

Table-1: Condition-wise incidence of dermatological disorders

Condition	Total	Percentage (%)
Canine Pyoderma	09	05.08%
Dermatophytosis	56	31.64%
Canine Demodicosis	04	02.26%
Canine Scabies	05	02.82%
Tick infestation	24	13.56%
NS Alopecia	03	01.69%
NS Dermatitis	09	05.08%
Allergic dermatitis	07	03.95%
Coat shedding	60	33.90%
Total	**177**	**100.00**%

(B) Breed-wise distribution of cases

The breed-wise distribution of dermatological disorders is shown in Table-2. Among dogs diagnosed with different dermatological disorders (N=177) at Leo Animal & Bird Clinic, Ahmedabad, the overall breed-wise incidence was higher in Labrador Retriever (33.33%; 59/177) followed by German Shepherd dog (20.90%; 37/177); Non-descript dog and Pug (06.78%; 12/177, each); Rottweiler (04.52%; 08/177); Doberman Pinscher (03.95%; 07/177); Golden Retriever, Saint Bernard dog and Spitz (03.39%, each); Pomeranian and Lhasa Apso (02.82%; 06/177, each); Beagle (02.26%; 04/177); Pitbull and Great Dane (01.13%; 02/177, each); Dachshund, Chihuahua, American Bully, Shih Tzu, Boxer and Mudhol Hound (00.56%; 01/177, each).

Table-2: Breed-wise incidence of dermatological disorders

Condition	Breed									
	LR	DP	GSD	ROT	GR	SPT	ND	POM	PB	PUG
Canine Pyoderma	4	0	1	2	0	0	1	0	0	1
Dermatophytosis	23	1	11	1	1	1	3	0	1	7
Canine Demodicosis	1	3	0	0	0	0	0	0	0	0
Canine Scabies	1	2	1	0	0	0	1	0	0	0
Tick infestation	4	1	10	1	0	1	2	0	0	1
NS Alopecia	1	0	2	0	0	0	0	0	0	0
NS Dermatitis	3	0	1	1	0	0	0	0	0	2
Allergic dermatitis	3	0	0	0	1	1	0	1	1	0
Coat shedding	19	0	11	3	4	3	5	4	0	1
Total	**59**	**7**	**37**	**8**	**6**	**6**	**12**	**5**	**2**	**12**
Percentage (%)	**33.33**	**3.95**	**20.90**	**4.52**	**3.39**	**3.39**	**6.78**	**2.82**	**1.13**	**6.78**

Condition	Breed									
	LH	SBD	GD	DSH	CHUA	AMB	BGL	STZU	BOX	MH
Canine Pyoderma	0	0	0	0	0	0	0	0	0	0
Dermatophytosis	0	3	1	0	0	0	2	0	0	1
Canine Demodicosis	0	0	0	0	0	0	0	0	0	0
Canine Scabies	0	0	0	0	0	0	0	0	0	0
Tick infestation	2	1	1	0	0	0	0	0	0	0
NS Alopecia	0	0	0	0	0	0	0	0	0	0
NS Dermatitis	0	1	0	1	0	0	0	0	0	0
Allergic dermatitis	0	0	0	0	0	0	0	0	0	0
Coat shedding	3	1	0	0	1	1	2	1	1	0
Total	**5**	**6**	**2**	**1**	**1**	**1**	**4**	**1**	**1**	**1**
Percentage (%)	**2.82**	**3.39**	**1.13**	**0.56**	**0.56**	**0.56**	**2.26**	**0.56**	**0.56**	**0.56**

LR=Labrador Retriever; DP=Doberman Pinscher; GSD=German Shepherd Dog; ROT=Rottweiler; GR=Golden Retriever; SPT=Spitz; ND=Non-descript; POM=Pomeranian; PB=Pit Bull; PUG=Pug; LH=Lhasa Apso; SBD=Saint Bernard Dog; GD=Great Dane; DSH=Dachshund; CHU=Chihuahua; AMB=American Bully; BGL=Beagle; STZU=Shih Tzu; BOX=Boxer; MH=Mudhol Hound

In the present study, highest breed-wise incidence was recorded in Labrador Retriever while Sarma *et al.* (2013), Kumar and Haque (2015) and Thapa and Sarkar (2018) have recorded highest breed-wise prevalence in Spitz. On the other hand, Sharma *et al.* (2015) recorded highest breed-wise prevalence in German Shepherd Dog while Katariya *et al.* (2018) recorded higher prevalence of dermatological disorders in Non-descript/Mongrel dogs. The variations in the breed-wise incidence of dermatological disorders in dogs could be due to preference of breeds by owners in different regions; purpose of keeping dogs; difference in behavior of different breeds; higher or lower number of dogs belonging to different breeds in a particular area etc.

(C) Gender-wise distribution of cases

The overall gender-wise incidence [Table-3] was higher in males (54.80%; 97/177) as compared to female dogs (45.20%; 80/177). These findings are in correlation with the observations recorded by Sarma *et al.* (2013), Kumar and Haque (2015), Narang *et al.* (2015), Khurana *et al.* (2016) and Katariya *et al.* (2018). Higher occurrence in males could have been associated with greater number of owners preferring males over females; preference and purpose of dog-keeping; difference in market values; perceived notions on health issues in females etc.

Table-3: Gender-wise incidence of dermatological disorders

Condition	Gender		
	Male	Female	Total
Canine Pyoderma	5	4	9
Dermatophytosis	29	27	56
Canine Demodicosis	3	1	4
Canine Scabies	3	2	5
Tick infestation	14	10	24
NS Alopecia	3	0	3
NS Dermatitis	7	2	9
Allergic dermatitis	3	4	7
Coat shedding	30	30	60
Total	**97**	**80**	**177**
Percentage	**54.80%**	**45.20%**	**100.00%**

(D) Age-wise distribution of cases

The overall age-wise incidence [Table-4] was higher in dogs >1 year to <5 years of age (50.85%; 90/177) followed by dogs ≤1 year of age (35.59%; 63/177) and dogs ≥5 years of age (13.56%; 24/177).

These findings are slightly different from the reports of Sharma *et al.* (2015) and against the observations of Khurana *et al.* (2016) and Thapa and Sarkar (2018) who reported higher prevalence in dogs <1 year of age. The variation in incidence amongst age-groups could have been due to early or late reporting of a patient with dermatological disorders; duration of treatment provided at different veterinary clinics before bringing the case to an institutional veterinary hospital; lack of knowledge and awareness among owners regarding prevention of dermatological disorders; improper grooming practices; lack of knowledge on use of products (e.g., shampoos) for bathing dogs etc.

Table-4: Age-wise incidence of dermatological disorders

Condition	Age-groups			
	≤1Y	>1Y-<5Y	≥5Y	Total
Canine Pyoderma	6	3	0	9
Dermatophytosis	14	29	13	56
Canine Demodicosis	0	4	0	4
Canine Scabies	0	5	0	5
Tick infestation	10	9	5	24
NS Alopecia	2	1	0	3
NS Dermatitis	6	2	1	9
Allergic dermatitis	5	2	0	7
Coat shedding	20	35	5	60
Total	**63**	**90**	**24**	**177**
Percentage (%)	**35.59%**	**50.85%**	**13.56%**	**100.00%**

It is perceived that veterinarians more frequently prefer small animal practice for a living as compared to large animal practice. The number of private veterinary clinics are also increasing. It is also possible that a single developed city such as Ahmedabad may have more than 10 private veterinary clinics practicing small animal veterinary medicine. The present paper has highlighted condition-wise, breed-wise, gender-wise and age-wise incidence of dermatological disorders in dogs brought to a private veterinary clinic. But, there is a huge lack of documentation on actual incidence of dermatological disorders from all privately-owned veterinary clinics of the region. Moreover, veterinarians without established setup prefer to provide mobile veterinary care or door-to-door healthcare services which would also affect assessment of actual incidence and prevalence. Additionally, the present study was carried out during February to August-2020 which is a period when the government had implemented travel restrictions due to the COVID-19 pandemic. This factor could also have affected the actual incidence because some dog-owners may have preferred guidance from veterinarians by telemedicine and avoided travel to a veterinary clinic. Increasing use of telemedicine or telehealth may also affect incidence at a veterinary clinic which is generally recorded on the basis of registered cases and physical examination of patients.

Undoubtedly, the therapeutic regimen for different canine dermatological disorders are well-established and it generally takes weeks to months for complete clinical recovery. Having a basic and updated knowledge of existing dermatological disorders will enable veterinarians to use advanced diagnostic modalities. Moreover, having updated information on incidence will also encourage them to use effective and advanced therapeutic agents to manage such diseases. Regular assessment of diseases and changing of treatment strategies may also help veterinarians to avoid possibilities of resistance development against commonly used drugs. Therefore, the authors encourage frequent (e.g., yearly) assessment of existing dermatological disorders in dogs brought to all privately-owned veterinary clinics. Similar observations should also be recorded at government veterinary hospitals on regular basis. Generating a large database by compiling such information will help the veterinary fraternity to develop and implement target-specific preventive strategies against dermatological disorders in dogs.

Conclusion

Coat shedding was recorded as the chief complaint in dogs followed by other diseases such as dermatophytosis, tick infestation, canine pyoderma, non-specific dermatitis, allergic dermatitis, canine scabies, canine demodicosis and non-specific alopecia at Leo Animal & Bird Clinic, Ahmedabad during the study period. The breed-wise, gender-wise and age-wise incidence was higher in Labrador Retriever breed, males and dogs >1 to <5 years of age, respectively. Similar investigations should be conducted at all private veterinary clinics and data should be shared with scientific/academic institutes to generate target-specific preventive strategies in future.

Conflict of Interest

Authors declare no conflict of interest with regards to funding. The present work is a part of M.V.Sc. research work of first author. Necessary permissions were received before initiating the work.

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