

Prevalence and etiology of epistaxis in dogs at Ludhiana

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Abstract

The study was conducted in dogs presented to Small Animal Clinics, GADVASU, Ludhiana. Out of 3720 dogs, 54 (1.45%) dogs were presented with the history of epistaxis. Highest prevalence of epistaxis was observed in autumn season (2.78%). Male dogs were affected more than female dogs. Dogs with 5-8 years (38.89%) age were found to be more affected with epistaxis. Long nosed and large breed dogs with body weight range of 30-40 kg were more prone to epistaxis. The diagnostic study was done on 43 cases of dogs with epistaxis. The prevalent aetiologies diagnosed were haemoparasitic diseases in 19/43 (44.19%) dogs followed by tumours 11/43 (25.58%), idiopathic rhinitis 5/43 (11.63%), systemic hypertension 4/43 (9.30%), trauma and coagulopathy 2/43 (4.35%) each. Systemic causes of epistaxis were more prevalent (65.1%) than local causes (34.9%).

Key words: Epistaxis, Prevalence, Breeds, Etiology

Epistaxis is derived from Greek words *epi* which means “on” and *stazo* which means “to fall in drops”. It is defined as origination of bleeding from nasal cavity (Gieger and Northrup, 2004). Nasal cavity is heavily supplied by blood vessels such as internal and external carotid arteries. Therefore, blood loss can occur suddenly from nose. Nasal bleeding can occur due to local or systemic causes. Local causes included as intranasal obstruction of foreign object, intranasal tumours, idiopathic rhinitis, oronasal fistula, periapical abscess etc. Systemic causes included as haemoparasitic diseases, thrombocytopenia, coagulopathy, systemic hypertension etc (Mylonakis *et al.*, 2008). Nasal bleeding can be unilateral or bilateral. Unilateral epistaxis is more common in local causes and systemic causes often result in bilateral epistaxis. Epistaxis can be acute in case of trauma and chronic in case of intranasal tumours (Gieger and Northrup, 2004). Epistaxis is one of the nasal disorders in dogs included in this study. The purpose of this study was to assess the prevalence of epistaxis in dogs and to investigate the various aetiologies of epistaxis in dogs.

Material and Methods

The study was conducted from September 2020 to June 2021 during which 3720 dogs were presented at Small Animal Clinics at Guru Angad Dev Veterinary Sciences University (GADVASU) Ludhiana, Punjab. Total of 54 dogs presented with epistaxis were included in the study and complete diagnostic study was conducted

in 43 cases. Patient specific data was included as age, breed, sex, weight, vaccination and deworming status. This helped to sort out the age, sex, breed and month susceptibility to calculate prevalence. Detailed history was taken and physical examination was done as rectal temperature, heart rate, respiration rate, pulse rate, lymph node palpation, mucus membranes, blood pressure monitoring and electrocardiography. Dogs presented with history of epistaxis along with dull or depressed condition or with other systemic signs were included as systemic cause of epistaxis. Dogs with epistaxis along with active and alert status or having sneezing or facial deformity were included as local cause of epistaxis.

Severity of epistaxis was classified as mild, moderate and severe. Mild epistaxis was considered as outcome of few drops of blood or dog was having history of single episode of epistaxis. Moderate was considered, if bleeding did not stop spontaneously and got stopped by local administration of epinephrine. Severe epistaxis was considered if, bleeding was not stopped even after administration of haemostatic drugs, due to heavy bleeding >10 % of PCV also got reduced.

Detailed history of epistaxis was taken to evaluate the duration and frequency of epistaxis. Duration of epistaxis was classified as chronic or acute. Acute epistaxis was considered if epistaxis was present from less than 1 month period or only 2-3 episodes of epistaxis occurred in more than 1 month period. Chronic epistaxis was considered if epistaxis was present for more than one month period with several episodes.

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Table 1: Season wise percent prevalence of epistaxis in dogs (n=54).

Season	Total cases	Cases of Epistaxis	Percent Prevalence
Rainy (Sept)	182	1	0.55
Autumn (Oct-Nov)	431	12	2.78
Winter (Dec-Feb)	1110	16	1.44
Spring (Mar-Apr)	1217	14	1.15
Summer (May-Jun)	780	11	1.41
Total	3720	54	1.45

Diagnosis was done by collection of blood sample for hematology, biochemistry and coagulation profile. Nasal swabs were collected for cytology and fungal cultures. Radiography was done to check nasal growths/tumours and rhinoscopy was done to visualize the nasal lesions.

Results and Discussion

During the period of study from September 2020 to June 2021, out of 3720, 54 dogs with epistaxis were presented in Small Animal Clinics, Medicine OPD. Overall, prevalence of epistaxis among the total 3720 cases presented was calculated as 1.45 percent. In the study, it was observed that occurrence of epistaxis was maximum in autumn season (2.78%) followed by winter season (1.44%), summer (1.41%), spring (1.15%) and least number of cases were observed in rainy season (Table 1). According to the study of Bisset *et al.*, (2007), maximum cases (32%) were observed in summer season and minimum in period in fall, whereas Albert (2007) recorded 0.56% prevalence of epistaxis out of 16428 cases. More number of cases was observed in summer season (45.65%), as compared to rainy and winter season. In the present study, prevalence of epistaxis was maximum in autumn season (more humidity); epistaxis could have occurred in autumn season due to more occurrence of *Rhipicephalus sanguineus* ticks in humid environment.

In the present study, out of 54 dogs with epistaxis, 43 (79.63%) were males, 10 (18.52%) were females and one (1.85%) was hermaphrodite. Epistaxis was found to be more prevalent in males as compared to females. Similarly, Mylonakis *et al.* (2008) and Bisset *et al.* (2007) reported higher occurrence of epistaxis in males as compared to females. Higher percentage of males with epistaxis in this study could be due to more presentation of males as compared to female dogs in the hospital.

Labrador (37.04%) breed was more commonly presented with epistaxis followed by Pomeranian

(14.81%), German shepherd (12.96%), Non-descript (11.11%), Pug (7.41%), Rottweiler and Golden Retriever (3.70% each) and Belgian shepherd, American bully, Pitbull, Daschund and Lhasa Apso (1.85% each) (Table 2). Similarly, a study had been conducted in TANUVAS in which, Spitz (34.7%) and German shepherd (21.7%) breeds of dogs were found to be most susceptible breeds for epistaxis (Albert, 2007). Variation in breed specificity could be due to presence of different breeds in different geographical regions. In the present study, dolichocephalic and mesocephalic breeds were more commonly affected with intra nasal tumours. Tumours occurred most commonly in long nosed dogs, because long nose provides more surface area and extra turbulence for inhaled particles, which causes more contact time for nasal mucosa with inhaled particles.

Epistaxis was found to be most prevalent in the age group of 5-8 years (38.89%) and 0-1-year(5.56%)

Table 2: Breed wise percent prevalence of epistaxis in dogs

Breeds	Percent prevalence	Cases of epistaxis (n=54)
Labrador	37.04	20
Pomeranian	14.81	8
German shepherd	12.96	7
Non-descript	11.11	6
Rottweiler	3.70	2
Pug	7.41	4
Golden Retriever	3.70	2
Belgian Shepherd	1.85	1
American Bully	1.85	1
Pitbull	1.85	1
Daschund	1.85	1
Lhasa Apso	1.85	1
Total	100	54

Table 3: Prevalent etiology of epistaxis in dogs

Etiology	Number of cases	Prevalence
Tumours	11	25.58%
Idiopathic rhinitis	5	11.63%
Trauma	2	4.65%
Haemoparasitic diseases	19	44.19%
Coagulopathy	2	4.65%
Systemic hypertension	4	9.30 %
Total	43	

age group was found to be least presented with epistaxis. In the 5-8 years age category, dogs were found most commonly affected with tumours. Similarly, Strasser and Hawkins (2005) found older dogs with intranasal diseases with the mean of 8.6 years. Large breed dogs with body weight ranged 30-40 kg (37.04%) were found to be more affected with epistaxis. Tumours mostly occur in old age, due to its slow advancement.

Unilateral epistaxis (55.56%) was more commonly observed in comparison to bilateral epistaxis (44.44%); unilateral epistaxis was found mostly in intranasal tumour cases and in two cases of intra nasal tumours unilateral epistaxis progressed to bilateral epistaxis. On the other hand, Varshney (2016) reported that bilateral epistaxis (38/45) was more prevalent than unilateral epistaxis (7/45) in a study on 45 dogs with epistaxis. Unilateral epistaxis was found most commonly in dogs with local causes. Unilateral epistaxis was further categorised as left sided and right sided. Left sided epistaxis (60.87%) was more common in comparison with right sided epistaxis (34.78%). Similarly, Bisset *et al.*, (2007) categorised unilateral epistaxis as right and left sided and left sided epistaxis was found to be more compared to right sided. In a human study, Oreilly *et al.*, (1996) hypothesised that, if there was any damage or stress on the nasal mucosa or nasal septum of either side of nose, it would lead to rupture of blood vessels of that side which could result in epistaxis. Moderate epistaxis (68.52%) was found to be most common, followed by mild epistaxis (24.07%) and severe epistaxis (9.30%). Similarly, Bisset *et al* (2007) observed prevalence of mild to moderate epistaxis in 155/176 (88%) dogs with epistaxis and 21 cases (12%) were suffering with severe epistaxis.

Acute epistaxis (77.78%) was found to be more prevalent than chronic epistaxis (22.22%) because more

cases were found with systemic diseases in comparison with local diseases.

Forty-three cases of epistaxis were diagnosed completely in the present study. Local causes of epistaxis (15dogs; 34.88%),were categorised as tumours, idiopathic rhinitis and trauma. Systemic causes (28 dogs; 65.12%) were categorised as haemoparasitic diseases, systemic hypertension and coagulopathy and tumours of other than nasal origin. Dogs with metastasis of local tumours also included in systemic diseases.

The most prevalent etiology of epistaxis found in the present study was haemoparasitic diseases; 19/43 (44.19%) [canine ehrlichiosis 15/19 (78.95%), canine babesiosis 3/19 (15.79%) and canine anaplasmosis 1/19 (5.26%)] followed by tumours ;11/43 (25.58%) [intranasal squamous cell carcinoma (5), squamous cell carcinoma with adenoid pattern (1), one case was diagnosed with squamous cell carcinoma along with peripheral lymph node lymphoma (1), intranasal TVT (2) and pharyngeal TVT (1)], idiopathic rhinitis; 5/43 (11.63%) [purulent rhinitis (2), fibrinopurulent rhinitis (1), lymphocytic rhinitis (1) and chronic active rhinitis (1)], systemic hypertension; 4/43 (9.30%), trauma and coagulopathy; 2/43 (4.35%) each (Table 3). Hypertension was also recorded with babesiosis (1 case) and ehrlichiosis (1 case). One case was diagnosed with intra nasal transmissible venereal tumour along with coagulopathy.

Conclusions

Overall prevalence of epistaxis is 1.45%. Epistaxis occurs more in autumn season. Male dogs are more affected than female dogs. Category of 5-8 years (38.89%) of dogs is more affected with epistaxis. Long nosed and large breed dogs with body weight range of 30-40 kg are more prone to epistaxis. Systemic causes of epistaxis are more prevalent (65.1%) than local causes (34.9%).

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