SHORT COMMUNICATION

Canine Anal Gland Affections and its Successful Surgico-Therapeutic Management

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Abstract

A total 87 dogs, aged 2-15 years, presented at Veterinary Clinical Complex of the College in Anand with history of severe pain and straining during defecation, scooting, chronic diarrhea, anal gland fistula, maggot wound of anal glands, or tumour of anal glands were included in the study. Bilateral anal gland affections were highest followed by left side and right anal gland, in Labrador retriever followed by other breeds. The anal gland impaction was highest (36.78%) followed by abscess (32.18%), maggot infestation, fistula and tumours. Incidence was more in males (73.56%, 64/87) than in females (26.44% (23/87), and in age group of 2-10 years (85%). Among isolated bacteria from 61 samples of impacted materials and pus from the anal gland abscess *Staphylococcus* spp. (19) was the highest followed by *Streptococcus* spp. (18) and Gram-negative rods (18), *Proteus* spp. (4) and *Klebsiella* spp. (2). Ceftriaxone and amoxiclav were found most sensitive against *Staphylococcus* spp., and gentamicin against by *Streptococcus* spp. The dogs with different anal gland affections were treated with standard protocols including parenteral antibiotics according to sensitivity for five days. The mean values of TLC, neutrophils, and platelets count decreased significantly ($p<0.05$), while lymphocytes count increased ($p<0.01$) by day 7 of treatment over day 0 values. Majority of the dogs with anal gland abscess and impaction responded well, however the owners of dogs with anal gland tumors and fistula were reluctant for surgical management.

Keywords: Anal gland abscess, Dog, Fistula, Impaction, Therapeutic management.

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Introduction

The perianal region of dogs contains multiple structures and glands, some of which are unique to the area. Anal sacs or perianal sinuses are paired, lateral, cutaneous, anal diverticula lined by a cornified, stratified squamous epithelium. Dogs have apocrine tubular anal sac glands that open into the anal sacs (Esplin *et al*., 2003). Anal gland disease is a common problem in dogs and cats which can become impacted, infected, and abscessed. Affected pets may lick the anal area, 'scoot' along the floor, or have problems with defecation. This behaviour is most commonly linked to anal glands. The diagnosis of the anal sac diseases, other than anal sac abscesses is difficult and available literature with detailed study for anal gland affections is very less documented. In view of above the present study was undertaken on anal gland affections in dogs.

Materials and Methods

A total 87 dogs were presented at Veterinary Clinical Complex, College of Veterinary Science and Animal Husbandry, Kamdhenu University, Anand (India) with history of severe pain and straining during defecation, scooting, chronic diarrhea, anal gland fistula, maggot infestation and tumour of anal glands. The age, sex and breed of the dogs were recorded. All dogs were subjected for detail investigations and also screened for anal gland affections. The stool samples of all dogs were screened for presence of parasitic ova or parasites, if any.

In all, 53 dogs were subjected for detailed haematological examinations on day '0' and day 7 post-treatment, *viz.*, haemoglobin, total leukocyte count, and differential leukocyte count by collecting 2 mL of whole blood in K_3EDTA by adopting the standard laboratory technique. Total 61 swab samples of impacted materials from anal glands and pus from the anal gland abscess were collected aseptically

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by digital pressure from either both the affected glands or single affected gland of 46 dogs, and subjected for the bacterial culture and antibiotic sensitivity testing of isolates adopting standard procedures.

The dogs with anal gland impaction and abscess were treated with evacuation of anal glands by digital pressure along with Inj. Meloxicam @ 0.1 mg/kg s/c. The dogs were given parenteral antibiotics according to sensitivity for five days. All the owners of dogs were advised to apply lignocaine gel in the anus. The re-examination of anal glands was carried out one week later. The dogs presented with maggot infestation were treated with manual removal of maggots, Inj. Meloxicam @ 0.1 mg/kg and Inj. Ceftriaxone and Tazobactam @ 15 mg/kg i/v, along with antiseptic dressings and maggoticidal and fly repellent spray till healing. The dogs with anal gland fistula were treated with Inj. Meloxicam @ 0.1 mg/kg and Inj. Ceftriaxone and Tazobactam @ 15 mg/kg i/v, along with antiseptic dressings till healing. Tumours of anal glands were treated similar to fistula, and advised for surgical removal.

The data obtained was analyzed using descriptive statistics to find out the age, sex and breed-wise incidence of anal gland affections, percentage of bacterial isolates and their antibiotic sensitivity pattern (Snedecor and Cochran, 1994).

Results and Discussion

Among 87 dogs presented, 64 dogs were male (73.56%) and 23 were female (26.44%). The age wise distribution of the affections of anal glands was found highest in 2-5 years of age (43.68%) followed by 5-10 years of age (41.37%) and 10-15 years of age (14.95%) (Table 1). The breed wise incidence of anal gland affections was highest in Labrador retriever (n=23, 26.45%) followed by Pomeranian (n=21, 24.13%), German shepherd (n=10, 11.50%), Pug (n=07, 8.04%), Beagle, Rottweiler, Non-descript, Doberman and Saint Bernard (n=04, 4.50%, each), Golden retriever, Lhasa apso and Dachshund (n=02, 2.30, each%) (Chart 1).

Of the 87 dogs, 46 (52.87%) dogs had bilateral anal glands affections, 22 (25.28%) dogs had left side and 19 (21.84%) dogs had right side anal gland affections. Among the anal gland affections, the incidence of anal gland impaction was found to be highest 32 (36.78%), followed by anal gland abscess 28 (32.18%) (Fig. 1), maggot infestation 16 (18.40 %) (Fig. 2), anal gland fistula 8 (9.20%) and tumour of anal glands 3 (3.45%) (Fig. 3) (Table 2).

Table 1: Age and sex wise incidence of anal gland affections in dogs

Age Group	Male	Female	Total
2-5 year	29	09	38 (43.68%)
5-10 year	26	10	36 (41.37%)
10-15 year	09	04	13 (14.95%)
Total	**64 (73.56 %)**	**23 (26.43%)**	**87**

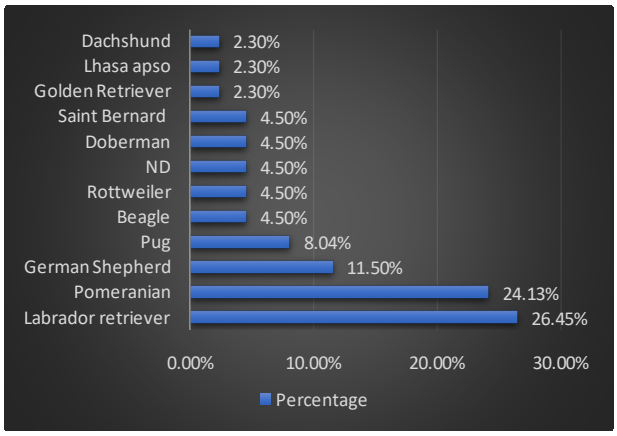

Chart 1: Breed wise incidence of anal gland affections in dogs

Fig. 1: Anal gland abscess

Fig. 2: Maggot infestation on anal gland

Fig. 3: Anal gland tumour

Table 2: Incidence of anal gland affections

Affections	Total
Anal gland impaction	32 (36.78%)
Anal gland abscess	28 (32.18%)
Maggot infestation	16 (18.40%)
Anal gland fistula	08 (9.20%)
Anal gland tumour	03 (3.45 %)
Total	**87**

All the dogs were dewormed regularly by owners, except non-descript dogs. The faecal samples of these dogs were negative for presence of any ova or worms. Corbee *et al*. (2022) reported 15.70% anal sac disease, consisting of 8.90% anal sac impaction, 4.05% anal sac inflammation and 2.75% anal sac abscess in dogs, and breed wise incidence was highest in Chihuahua (14.53%), followed by Labrador Retriever (12.79%), Lhasa Apso (8.14%) Beagle (6.40%) ,German Shepherd (5.23%), Boomer (4.07%), and Cocker Spaniel (3.49%). Carolyn *et al*. (2022) also reported tumour of anal gland in dogs, 4 were females, and 12 were males. There were 8 mixed-breed dogs, 2 Golden Retrievers, and 1 each of 6 other breeds underwent surgical management.

53 dogs evaluated for haematology before and after treatment revealed that, the mean values of haemoglobin, eosinophils and monocytes were within normal limits and varied non-significantly, while mean values of total leucocytes count, neutrophils, and platelets count were decreased significantly ($p<0.05$), and lymphocytes count increased significantly ($p<0.01$) by day 7 of treatment over 0 day values (Table 3). The leucocytosis and neutrophilia observed initially in dogs indicate bacterial infections in the affected glands. On the contrary Singh *et al*. (2018) reported low Hb and PCV values and neutrophilia in 3 dogs out of 4 dogs affected with anal gland affections.

Table 3: Haematological parameters of affected dogs before and 7 days after treatment (n=53)

Parameters	Day '0'	Day 7
Haemoglobin (g/dL)	11.35 ± 0.18	11.56 ± 0.12
TLC (x10^3/µL)	12.40 ± 1.80	9.86 ± 2.07*
Neutrophils (%)	59.40 ± 1.47	52.00 ± 0.70**
Lymphocytes (%)	37.44 ± 0.79	45.05 ± 0.62**
Eosinophils (%)	1.30 ± 0.06	1.20 ± 0.05
Monocytes (%)	1.86 ± 0.21	1.30 ± 0.19
Platelets (x 10^5/µL)	2.38 ± 1.08	1.08 ± 0.78*

*p<0.05; **p<0.01

The results of 61 swab samples cultured from 46 dogs for bacterial isolates and ABST are presented in Table 4. Among the isolated bacteria the *Staphylococcus* spp. was the highest (n=19, 31.15%), followed by *Streptococcus* spp. and Gram-negative rods (n=18, 29.51%, each), *Proteus* spp. (n=4, 6.56%) and *Klebsiella* spp. (n=2, 3.28%). Bergeron *et al*. (2021) reported the predominant genera found in the left and right anal sacs of dogs as Enterococcus, Bacteroides and Proteus in healthy dogs. Pappalardo *et al.* (2002) also isolated seven bacterial species from anal sacs of normal dogs and dogs with pyoderma.

Amongst the antibiotics tested, overall Ceftriaxone (27.87%) was found most sensitive drug followed by Gentamicin (22.95%), Amoxicillin-clavulanic acid (Amoxiclav, 21.31%), Amikacin (18.03%), Ampicillin (4.92%) and Cefotaxim, Tetracycline and Chloramphenicol (1.64%, each). The *Staphylococcus* spp. was found highly sensitive to the Ceftriaxone (47.36%) followed by Amoxiclav (31.57%), Gentamicin (10.53%) and Ampicilin and Cefotaxim (5.26%. each). *Streptococcus* spp. was highly sensitive to Ceftriaxone (44.45%), Amoxiclav (33.34%), Ampicilin (11.11%), and Gentamicin and Amikacin (5.55%, each). Gram negative rods were found sensitive to only Gentamicin and Amikacin (50%, each). *Proteus* spp. was found sensitive to Gentamicin (50.00%) followed by Amoxiclav and Amikacin (25.00%, each), while *Klebsiella* spp. was found sensitive to only Tetracycline and Chloramphenicol (50.00%, each). However, no reference could be searched in the available literature regarding the antibiotic sensitivity based therapeutics of the anal gland affections in dogs.

The dogs affected with particular types of anal gland affections were medicinally treated as detailed earlier and majority of the dogs responded well. The re-examinations of anal glands were carried after one week of therapy, which revealed recollection of pus only in three dogs which were treated with the same line. Tumour of anal glands were treated similar to fistula and advised for surgical removal, but the owners of the most dogs were reluctant for surgical management. Durmus (2006) and Lundberg *et al*. (2022) found topical application of 80% aqueous phenol solution effective for the treatment of anal gland sacculitis. Local antibiotics and steroid combinations were also suggested by Schneider *et al*. (1994). The tumours of anal glands are to be treated with surgical removal, but there is no literature available for the treatment of the other affections of anal glands. The owners of the pets were advised to get regular periodical check up of anal glands of their pets and maintain the hygiene of the perineum to avoid further diseases of the anal glands.

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Table 4: Types of isolates and antibiotic sensitivity testing in dogs with anal gland impaction and abscess

Drugs tested	Isolates					
	***Staphylococcus* spp.**	***Streptococcus* spp.**	**Gram negative rods**	***Proteus* spp.**	***Klebsiella* spp.**	**Total**
Ceftriaxone	09 (47.36%)	08 (44.45%)	-	-	-	17 (27.87%)
Gentamicin	02 (10.53%)	01 (5.55%)	09 (50.00%)	02 (50.00%)	-	14 (22.95%)
Amoxiclav	06 (31.58%)	06 (33.34%)	-	01 (25.00%)	-	13 (21.31%)
Amikacin	-	01 (5.55%)	09 (50.00%)	01 (25.00%)	-	11 (18.03%)
Ampicillin	01 (5.26%)	02 (11.11%)	-	-	-	03 (4.92%)
Cefotaxim	01 (5.26%)	-	-	-	-	01 (1.64%)
Tetracycline	-	-	-	-	01 (50.00%)	01 (1.64%)
Chloramphenicol	-	-	-	-	01 (50.00%)	01 (1.64%)
Total	**19 (31.15%)**	**18 (29.51%)**	**18 (29.51%)**	**04 (6.56%)**	**02 (3.28%)**	**61**

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