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Original Research

Incidence of Hip Disorders in Dogs

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Abstract

A total of 198 clinical cases of hip disorders were reported during the study period the hip disorders include hip dysplasia, subluxation, luxation of hip, osteoarthritis, fracture of femoral head and neck, etc. The breed wise incidence was more in Labrador retriever (28.28%), sex wise occurrence of hip disorders was more in males (62.12%) than female (37.87%) dogs, age wise hip disorders were more recorded in above 5-year-old dogs (47.47%) followed by 0-1 years (31.31%); and more than 1-5 years (21.21%).

Keywords: Hip Disorders, Hip Dysplasia, Luxation of Hip

Introduction

The hip disorders include hip dysplasia, subluxation, luxation of hip, osteoarthritis, fracture of femoral head and neck etc. Canine Hip Dysplasia is defined as a disease that stems from a varying degree of laxity of hip joint permitting sublimation during early life, giving rise to varying degrees of shallow acetabulum and flattening of femoral head, finally inevitably leading to osteoarthritis (Smith *et al.*, 2012). The prevalence of hip disorders were increasing in all breeds of dogs starting from toy to giant breeds due to inbreeding, obesity and nutritional causes. It was a multifactorial disorder with both genetic and environmental factors influencing the outcome of disease (Lust, 1997). This paper reports the prevalence of hip disorders in dogs.

Materials and Methods

The retrospective study was undertaken in dogs for the period of past five years (2013 to 2018) at Department of Surgery & Radiology, NTR College of Veterinary Science, Gannavaram to know the incidence of hip disorders. The total number of canine orthopedic cases recorded was 3064 which included lameness, fractures, neurological disorders, trauma etc., among which 13.31% (408 / 3064) cases were hip disorders. A total of 198 cases of hip disorders were reported during the study period (from January 2016 to December 2018) at Department of Surgery & Radiology, NTR College of Veterinary Science, Gannavaram.

Results and Discussion

CHD was a highly prevalent disease (Kapatkin *et al.*, 2002) and was up to 19.3 % of the total canine population and its prevalence was even under estimated (Rettenmaier *et al.*, 2002). Maruthi (2016) reported 28.09% of orthopedic cases and out of which 9.09% cases were hip dysplasia.

The breed and sex wise incidence of hip dysplasia was recorded and shown in Table 1. Among 198 hip disorder cases, percentage of breed wise incidence of hip dysplasia in Labrador Retriever (28.28%); Non-descriptive (17.68%); German Shepherd (8.00%); Spitz (9.09%); Pomeranian (6.57%); Great Dane (1.52%); Rottweiler (3.54%); Saint Bernard (1.01%); Pitbull (1.52%); Pug (3.03%); Chihuahua (1.01%); Doberman (4.04%); Golden retriever (5.05%); Dalmatian; (3.54%); Dachshund (1.52%) and Boxer (4.55%) were observed. In the present study, among breeds, the highest incidence of hip dysplasia was recorded in Labrador retriever followed by German Shepherd and Non-descript dogs whereas, the lowest incidence was in Chihuahua followed by Saint Bernard, Dachshund and Pit-bull breeds of dogs. Breed wise distribution of dog with hip dysplasia was highest in giant breeds which could be due to fast growth during development in large breeds than small breeds.

Table 1: Sex and breed wise incidence of hip dysplasia in dogs (N=198)

S. No.	Breed	Sex		Total
		Male	Female	
1	Labrador	40 (71.47)	16 (28.57)	56(28.28)
2	Nondescript	21 (60)	14 (40)	35(17.68)
3	German shepherd	09 (56.25)	07 (43.75)	16(8.0)
4	Spitz	11 (61.11)	07 (38.88)	18(9.09)
5	Pomeranian	08 (61.53)	05 (38.46)	13(6.57)
6	Greatdane	02 (66.66)	01 (33.33)	3(1.52)
7	Rottweiler	04 (57.14)	03 (42.85)	7(3.54)
8	Saint Bernard	01 (50)	01 (50)	2(1.01)
9	Pitbulll	02 (66.66)	01 (33.33)	3(1.52)
10	Pug	04 (57.14)	02 (42.85)	6(3.03)
11	Chihuahua	02 (100)	-	2(1.01)
12	Doberman	03 (37.50)	05 (62.50)	8(4.04)
13	Golden Retriever	05 (50)	05 (50)	10(5.05)
14	Dalmatian	04 (57.15)	03 (42.85)	7(3.54)
15	Dachshund	03 (100)	-	3(1.52)
16	Boxer	04 (44.44)	05 (55.55)	9(4.55)
	Total	**123 (62.12)**	**75 (37.87)**	**198**

Figures in parentheses are percentages (%)

Denny and Butterworth (2000), Shiju *et al.* (2010), Samir *et al.* (2014) and Syrcle (2017) also observed more prevalence in giant breeds as observed in the present study. In addition, small breeds of dogs were also affected, but were less likely to show symptoms (Krontveit *et al.,* 2012). German Shepherd, Labrador Retrievers, Rottweilers, Great Dane, Golden Retriever and Saint Bernard appear to have a higher incidence; however, these are all very popular breeds and may be over represented because of their popularity (Butler and Gambino, 2017). Among different breeds the sex wise incidence of hip dysplasia in male and female was 71.47% and 28.57% in Labrador; 60% and 40% in Non-descript dog; 56.25% and 43.75% in German Shepherd; 61.11% and 38.88% in Spitz breed; 61.53% and 38.46% in Pomeranian; 66.66% and 33.33% in Great Dane; 57.14% and 42.85% in Rottweiler; 50% and 50% in Saint Bernard; 66.66% and 33.33% in Pitbul; 57.14% and 42.85 in pug; 37.50% and 62.50% in Doberman; 50% and 50% in Golden Retriever;57.15% and 42.85% in Dalmatian; 44.44% and 55.55% in Boxer;100% male in Chihuahua and Dachshund.

The overall incidence of hip dysplasia was highest in males than female dogs except in Doberman and Boxer breeds in which the incidence was more in females than males. Incidence was equally distributed among male and female dogs of Saint Bernard breed. Coopman *et al.* (2008) Arunprasad *et al.* (2012) and Srinivasamurthy (2015) observed higher incidence of hip dysplasia in males than females. Mele (2007) and Stanin *et al.* (2011) observed equal incidence in both sexes. In the present study, higher incidences in males could be attributed to preference of people to keep males as companion animals than females, aggressiveness and tendency to wander are more conspicuous in males than female dogs. The age wise incidence of hip dysplasia was recorded and shown in Table 2. The percentage of incidence of hip dysplasia in dogs between 0-1 years; between 1-5 years and more than 5 years was 31.31; 21.21 and 47.47 respectively.

Table 2: Age and breed wise incidence of hip dysplasia in dogs (N=198)

S. No.	Breed	Age Group			
		0-1 yrs	**1-5yrs**	**>5**	**Total**
1	Labrador	14 (25%)	7 (12.5%)	35 (62.5%)	56
2	Nondescript	8 (22.86%)	7 (20%)	20 (57.14%)	35
3	German shepherd	6 (37.5%)	4 (25%)	6 (37.5%)	16
4	Spitz	4 (22.22%)	6 (33.33%)	8 (44.44%)	18
5	Pomeranian	5 (38.46%)	3 (23.08%)	5 (38.46%)	13
6	Great Dane	3 (100%)	0 (0%)	0 (0%)	3
7	Rottweiler	3 (42.86%)	1 (14.29%)	3 (42.86%)	7
8	Saint Bernard	1 (50%)	0 (0%)	1 (50%)	2
9	Pitbulll	2 (66.67%)	1 (33.33%)	0 (0%)	3
10	Pug	3 (50%)	2 (33.33%)	1 (16.67%)	6
11	Chihuahua	0 (0%)	1 (50%)	1 (50%)	2
12	Doberman	3 (37.5%)	3 (37.5%)	2 (25%)	8
13	Golden Retriever	4 (40%)	2 (20%)	4 (40%)	10
14	Dalmatian	1 (14.29%)	2 (28.57%)	4 (57.14%)	7
15	Dachshund	1 (33.33%)	1 (33.33%)	1 (33.33%)	3
16	Boxer	4 (44.44%)	2 (22.22%)	3 (33.33%)	9
		62 (31.31%)	**42 (21.21%)**	**94 (47.47%)**	**198**

The percentage of incidence of hip dysplasia in 0-1 years of age group among breeds was 25.00 (Labrador Retriever); 22.86 (Non-descript); 37.50 (German Shepherd); 22.22 (Spitz); 34.86 (Pomeranian); 100.00 (Great dane); 42.86 (Rottweiler); 50.0 (Saint Bernard); 66.67 (Pitbul); 50.0 (Pug); 0 (Chihuahua); 37.5 (Doberman); 40.0 (Golden Retriever); 14.29 (Dalmatian); 33,33 (Dachshund) and 44.44 (Boxer) was recorded. The percentage incidence of hip dysplasia between 1- 5 years of age group in Labrador Retriever (12.50%); Non-descript (20.00%); German Shepherd (25.00%); Spitz (33.33%); Pomeranian (23.08%); Great Dane (00.00%); Rottweiler (14.29%); Saint Bernard (00.00%); Pitbul (33.33%); Pug (33.33%); Chihuahua (50.00%); Doberman (37.5%).

The percentage of incidence of hip dysplasia in more than 5 years of age in Labrador retriever (62.50%) Non-descript (57.14%); German Shepherd (37.50%); Spitz (44.44%); Pomeranian (38.46%); Great Dane (00.00%); Rottweiler (42.86%); Saint Bernard (50.00%); Pitbul (00.00%); Pug (16.67%); Chihuahua (50.00%); Doberman (25.00%); Golden retriever (40.00%); Dalmatian (57.14%); Dachshund (33.33%) and Boxer (33.33%) was recorded. Arunprasad *et al.* (2012) observed higher incidence in young dogs (45%) than adult dogs (36%) and

attributed to active period during 4-8 month. Srinivasamurthy (2015) observed different findings as more incidence in age group of less than one year followed by eight years.

Conclusion

In the present study higher incidence observed in aged dogs might be due to cartilage wear and tear, owners presenting the dogs in advanced stage and confirmation by radiography after conservative treatment.

Conflict of Interests

There is no conflict of interest.

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