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Hepatic Disorder in Dogs: Incidence report

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Abstract
The study was undertaken in 9925 clinical cases presented to the Teaching Veterinary Clinical Complex, WBUAFS, Belgachia, Kolkata. The diagnosis was done using preliminary examination along with haematological and serum biochemical tests. A group of 10 healthy control dogs were studied for the trial. 72 (0.73%) dogs were diagnosed with hepatic disorders. A higher rate of incidence was seen in males (61.11%). The age group of 4 to <8 years of age showed highest incidence at 38.61%. The most commonly affected breed was found to be Labrador Retriever (22.22%). Dogs with clinical signs showing inappetance, vomiting, yellowish tinge in skin and mucus membrane, depriciating body condition, diarrhoea, anorexia, weight loss, pale mucus membrane, hepatomegaly, abdominal pain, ascites, constipation, pyrexia, darker color of urine, polydipsia and polyuria were considered for the study.

Keywords: Dogs, age, breed, sex, hepatic disorder, incidence

1. Introduction
Globally, thirty three percent of the households have dogs as pets. As the times are changing, more and more of these pets are seen to have been acquiring various forms of ailments that could be directly or indirectly associated with their modernized life style. One of these ailments is the insufficiency in functioning of the organ "Liver". 5% of the non-communicable diseases that occur in dogs are liver diseases. 70% of these diseases again are chronic diffuse liver diseases (Belza *et al*., 2017; Popova *et al*., 2020; Smirnova *et al*., 2018; Vatnikov *et al*., 2019 and Watson, 2017) [2, 8, 12, 16, 18]. Often, over indulgence in diet, the desire to feed processed-human-food, or unawareness regarding proper pet care, side effects of miscalculated dosage of prescribed/ over the counter drugs given to the animals are to be blamed. Although, equally responsible are inherent and acquired causes.

2. Materials and Methods
The present investigation was carried out in the Department of Veterinary Medicine, Ethics and Jurisprudence, Faculty of Veterinary Science, West Bengal University of Animal and Fishery Sciences, Kolkata from 15th September, 2019 to 15th March, 2022. Ten apparently healthy dogs presented to the Veterinary Clinical Complex (Belgachia) were considered as controls. The animals with complaints of lethargy, weakness, yellowish skin, mucus membrane and eyeball coloration, pale or whitish mucus membrane and gums, vomition, diarrhea, constipation, inappetance leading to anorexia, melena, distended abdomen, yellowish urine coloration, polydipsia, polyuria, dehydration represented by sunken eyeballs and congested mucus membranes and gradual weight loss were considered for the study. Dogs with these symptoms were however exempted from the study if they were tested positive for any kind of bacterial, viral or protozoal infection or parasitic infestation of the gut. The animals were subjected to radiography and ultrasonography along with haemato-biochemical parameters for confirmation of diagnosis indicating hepatobiliary disorder.
Data were analyzed by one-way analysis of variance (ANOVA), with post hoc analysis using Duncan's multiple comparison tests using SPSS 20.0 software and expressed as mean ± SE with $p<0.05$ considered statistically significant (Snedecor and Cochran, 1994) [13].

3. Results and Discussion

3.1. Incidence: In the present study the incidence of hepatic disorders in dogs was 0.73%. Among the 9925 cases presented to the West Bengal University of Animal and Fishery Sciences Veterinary Clinic of Belgachia campus, in the period from 15th September 2019 to 15th March 2022, 72 cases were suffering from hepatic disorders. This incidence with respect to breed, sex and age is represented in Table 1.

0.75% incidence was reported by Sumathi, (2012) [14] while Telagar, (2017) [15] recorded 0.15% cases of hepatic disorders. The varying incidence rates across studies could perhaps be attributed to the different populations being studied, the different periods of study and the varying geographical locations.

Table 1: Percentage of dogs with and without hepatic disorders among the screened population

	% of Dogs	Number of Dogs
% dogs without hepatic disorders	99.27	9853
% dogs with hepatic disorders	0.73	72
Total No of Dogs Screened	100	9925

3.2 Breed wise occurrence of hepatic diseases

In this study occurrence of hepatic diseases was found to be highest in Labrador Retriever (22.2%) followed by German Spitz (18.06%), German Shepherd (16.67%), Golden retriever (11.11%), Mongrel (8.33%), Pug (6.94%), Pomeranian (6.94%), Non-descript/ Cross bred dogs (5.56%) and Rottweiler (4.17%). Earlier studies have also reported highest cases of hepatic disorders in Labrador Retrievers (Anderson and Sevelius, 1991; Puja *et al*., 2010 and Telagar, 2017) [1, 10, 15]. The higher incidences of hepatic disorders in Labradors is a manifestation of hereditary mechanism (Hoffman *et al*., 2006) [4]. In the present study, another explanation for the most affected breed being Labrador Retriever is that it is also the most represented in the population presented for the study as it is one of the most popular pet breeds in this geographical location.

Table 1: Breed wise representation of dogs with hepatic disorders

Breed	No. of cases	Percentage of cases
Labrador Retriever	16	22.22
German Spitz	13	18.06
German Shepherd	12	16.67
Golden Retriever	8	11.11
Mongrel	6	8.33
Pug	5	6.94
Pomeranian	5	6.94
Non-descript/ Cross Bred	4	5.56
Rottweiler	3	4.17
Total	72	100.00

3.3 Sex wise occurence of dogs with hepatic disorders

In the study it was found that hepatic disorders were less common among females compared to male dogs. The percentage of females with hepatic disorders was 38.89% while that of males was 61.11%. The observations were in compliance with those of Sumathi (2012) [14] and Anderson and Sevelius (1991) [1]. A few studies however reported contrasting results showing dominance of female gender in cases of acquiring hepatic disorders (Dixit *et al*., 2010; John, 2008; Rutgers and Haywood, 1998 and Vijayakumar *et al*., 2003) [3, 5, 11, 17]. The over representation of males in the current study could be held responsible for the results obtained while studying age predilection of hepatic disorders in dogs.

Table 2: sex wise representation of dogs with hepatic disorders

Sex	No. of cases	% of dogs
Female	28	38.89
Male	44	61.11
Total	72	100

3.4 Age wise distribution of dogs with hepatic disorders

The animals considered for the present study were divided into 4 groups as per their age. The first group of animals aged less than 4 years, consisted of 23.6% of the cases. 38.9% cases were in the age group of 4 to <8 years which was the highest recorded in the present study. This was followed by 27.8% cases in the age group of 8 to <12 years. 9.7% dogs of 12 and above 12 years had hepatic disorders. The results of this study were in accordance with the other authors (Anderson and Sevelius, 1991; Mandigers *et al*., 2004; Poldevaart *et al*., 2009; Pradeep, 2016 and Sumathi, 2012) [1, 6, 7, 9, 14]. The number of cases being highest in the age group of 4 to <8 years was likely due to the fact that the cases presented at the centre of study were mostly of that age group.

Table 3: Age wise representation of dogs with hepatic disorders

Age (years)	No. of cases	% of cases
< 4 years	17	23.6
4 to <8 years	28	38.9
8 to <12 years	20	27.8
12 years and above	7	9.7
Total	72	100.0

4. Conclusion

The incidence rate of hepatic disorder in dogs was found to be 0.73%. The percentage of occurrence in males was 61.11% (higher than females). Labrador retrievers were the highest affected breed (22.22%). The age group of 4 to <8 years had the highest incidence rate (38.61%).

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