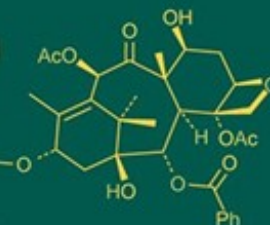
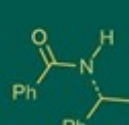
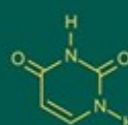


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Study on prevalence of ascites in dogs in Tirupati, Andhra Pradesh

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ABSTRACT

The present study was carried out at Veterinary Clinical Complex, College of Veterinary Science, Tirupati from May 2024 to November 2024. In the present study a total of 2948 dogs were screened. The prevalence was recorded based on etiology, age, breed, gender. The overall prevalence of ascites was 0.95 per cent. The most common cause of ascites recorded was hepatic origin (53.57%). The prevalence of ascites was highest in 1 to 4 years aged dogs (39.29%) followed by 4 to 8 years, above 8 years and < 1 year age groups. Breed wise prevalence revealed highest prevalence in Labrador Retriever breed (39.28%) and gender wise prevalence revealed higher prevalence (53.57%) in male dogs. Age-wise prevalence of ascites in the present study revealed highest prevalence in 1-4 years age group (39.29 %) followed by 4-8 years age group (28.57 %), > 8 years age group (21.43%) and least prevalence was observed in < 1 year age group (10.71%)

Keywords: Ascites, Prevalence, Etiology, Age, Breed, Gender

Introduction

The term ascites originates from Greek words “ASKOS” which means bag or sac and “ites” which means “like a”. It is also referred as “hydroperitoneum drops”. True ascites is defined as collection of serous or serosanguinous fluids in the peritoneal cavity (Ettinger *et al.*, 2005) [1]. Normally a minimal quantity of lubricating fluid (less than 1 ml/ kg body weight) is present in the peritoneal cavity originating from the adjacent tissues and blood vessels. This fluid aids in moistening the surfaces in contact and helps to minimize the friction among the abdominal organs (Alleman, 2003) [2]. The development of ascites is associated with changes in Starling's forces which involve an increase in hydrostatic pressure within the venous or lymphatic systems and a reduction in oncotic pressure of capillaries (Richter, 2003 and Singh *et al.*, 2019b) [3]. Ascites due to hepatic origin occurs more frequently when compared to instances involving a single affected organ or a combination of the two or more organs (Kumar *et al.*, 2003 and Dixit *et al.*, 2018) [4]. The insufficient understanding of the precise causes and clinic-pathological changes presents challenges in the therapeutic management of ascites cases. Hence the current study was proposed to know the prevalence and etiology of ascites.

Materials and Methods

The dogs presented to the Veterinary Clinical Complex, College of Veterinary Science, Tirupati with the clinical signs of abdominal distension, dyspnoea, exercise intolerance and limb oedema were selected for the study and further confirmation is done by imaging techniques like ultrasonography and radiography for the presence of abdominal effusion. In the present study a total of 2948 dogs were screened. The prevalence was recorded based on etiology, age, breed, gender. The dogs were classified in to different age groups < 1 year, 1-4 years, 4-8 years and, >8 years.

Results and Discussion

A total of 2948 dogs were screened during the study period from May to November 2024. In the present study, the overall prevalence of ascites was found to be 0.95 per cent (28/2948) among all the dogs throughout the study period (Table 1 and Fig 1). The current findings were in close agreement with findings of Ihedioha *et al.* (2013) [5]; Behara *et al.* (2017) [6]; Apurva (2022) [7] and Kumar *et al.* (2022) [8] who recorded 0.78 per cent, 0.50 per cent, 0.82 per cent and 0.68 per cent occurrence of ascites in dogs, respectively.

Based on detailed clinical examination along with a complete blood count, serum biochemical analysis and imaging modalities the underlying causes were identified in 28 dogs with ascites which were subsequently classified into various groups according to their etiology. (Table 2 and Fig 2). In the current study, a higher prevalence of ascitic cases were observed in association with hepatic origin in 15 dogs accounting for 53.57

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per cent and this was followed by cases of cardiac origin in four dogs representing 14.29 per cent. These findings were in agreement with the findings of Kumar *et al.* (2003) [4]; Behera *et al.* (2017) [6] and Bhatti (2020) [9] who recorded the higher prevalence of ascites due to hepatic origin in dogs as 85 per cent, 58 per cent, 36.2 per cent and 74.46 per cent respectively. Ascites resulting from the involvement of multiple organs was recorded in five dogs accounting for 17.86 per cent and this was in agreement with Prathibha *et al.* (2022) [10] who reported 16.67 per cent of ascites cases due to multiple organ involvement. Hypoproteinaemia was observed in one dog and ascites due to neoplastic origin was observed in three dogs and similar findings were reported by Bota *et al.* (2016) [11] and Nwoha (2019) [12].

Age-wise prevalence

Age-wise prevalence of ascites in the present study revealed highest prevalence in 1-4 years age group (39.29 %) followed by 4-8 years age group (28.57 %), > 8 years age group (21.43%) and least prevalence was observed in < 1 year age group (10.71%). (Table 3 and Fig 3). Bhatti (2020) [9] and Apurva (2022) [7] also reported highest occurrence of ascites in dogs aged between 1 to 4 years. Where as higher prevalence of ascites of 71.4 per cent and 50 per cent was recorded in dogs above 3 years age group by Ihedioha *et al.* (2013) [5] and Prathibha *et al.* (2022) [10] respectively. The highest prevalence of ascites observed in the younger dogs may be attributed to the indiscriminate administration of medications such as antibiotics and de-

worming drugs without appropriate consultation with a veterinarian (Behera *et al.*, 2017) [6].

Breed-wise prevalence

Breed-wise prevalence of ascites in the present study revealed highest in Labrador Retriever (39.28 %) followed by Non-descript (28.60%), Pomeranian (10.70%), German shepherd (7.14%) and (3.57%) in each Golden Retriever, Rottweiler, Saint Bernard and Shih tzu (Table 4 and Fig 4). The present findings were in close agreement with Bhatti (2020) [9]; Apurva (2022) [7]; Prathibha *et al.* (2022) [10]; Kumar *et al.* (2022) [8]; Sharma *et al.* (2023) [13] and Meena *et al.* (2024) [14]. The differences in the breed wise incidence of ascites may be explained by the preferences of dog owners for specific breeds within their communities (Behera *et al.*, 2017) [6].

Gender wise prevalence

Gender-wise prevalence of ascites in the present study revealed prevalence of ascites was higher in males (53.57 %) than female dogs (46.43 %) (Table 5 and Fig 5). This was in agreement with the findings of Ihedioha *et al.* (2013) [5]; Sarvanan *et al.* (2014b) [15]; Zoia *et al.* (2017) [16]; Singh *et al.* (2019a) [17]; Bhatti (2020) [9]; Shima *et al.* (2015) [18] and Meena *et al.* (2024) [14]. The higher prevalence of ascites recorded in male dogs in this study may be linked to the preference of male dogs over the female dogs by pet owners (Saravanan *et al.*, 2012) [19].

Table 1. Overall prevalence of ascites in dogs

S. No	No. of dogs screened	No. of dogs with ascites	Prevalence (%)
1.	2948	28	0.95%

Table 2. Prevalence of ascites based on etiology

S. No	Etiology	No of dogs with ascites	Percentage (%)
1.	Hepatic origin	15	53. 57
2.	Cardiac origin	4	14.29
3.	Mixed origin (Cardiac+ Hepatic)	5	17.86
4.	Neoplastic origin	3	10.71
5.	Hypoproteinaemia	1	3.57
	Total	28	

Table 3. Age-wise prevalence of ascites in dogs

S. No	Age of the ascitic dog	No. of ascitic dogs	Prevalence (%)
1.	< 1year	3	10.71
2.	1-4 years	11	39.29
3.	4-8 years	8	28.57
4.	> 8 years	6	21.43
	Total	28	

(continued on next page)

Table 4. Breed wise prevalence of ascites in dogs

S. No	Name of the breed	Number of ascitic dogs	Prevalence (%)
1.	Labrador Retriever	11	39.28
2.	Non-descript	8	28.60
3.	Pomeranian	3	10.70
4.	German Shepherd	2	7.14
5.	Golden Retriever	1	3.57
6.	Rottweiler	1	3.57
7.	Saint Bernard	1	3.57
8.	Shih tzu	1	3.57
Total		28	

Table 5. Gender-wise prevalence of ascites in dogs

S. No	Gender	No. of ascitic dogs	Prevalence (%)
1.	Male	15	53.57
2.	Female	13	46.43
Total		28	

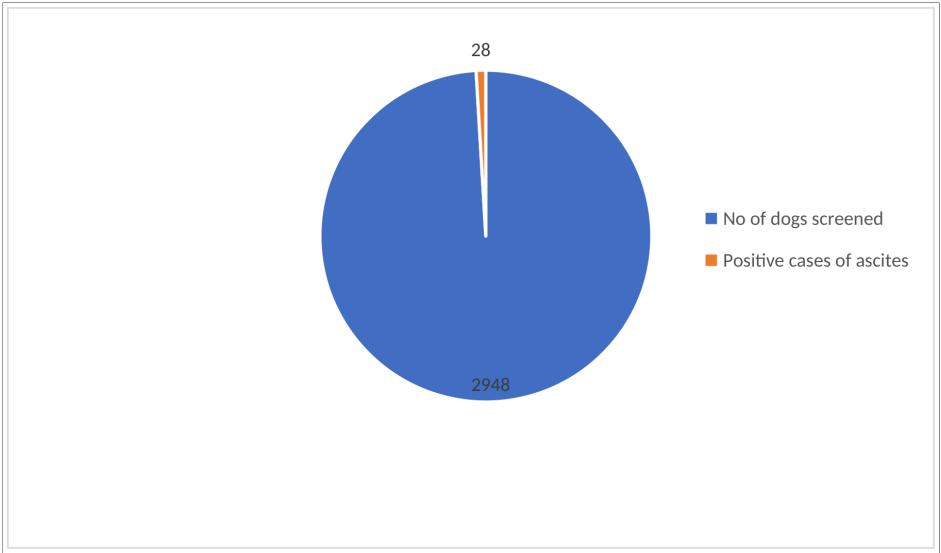


Figure 1. Overall prevalence of ascites in dogs

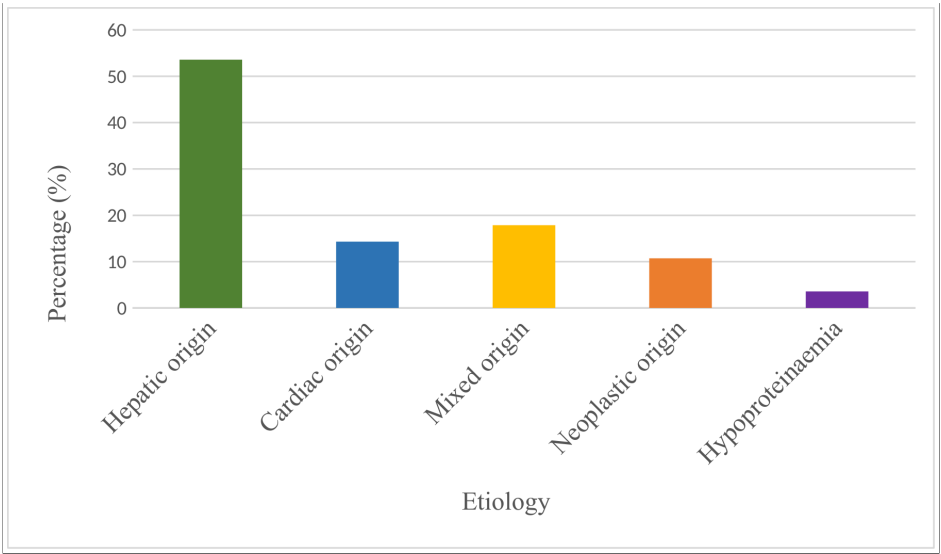


Figure 2. Prevalence of ascites based on etiology

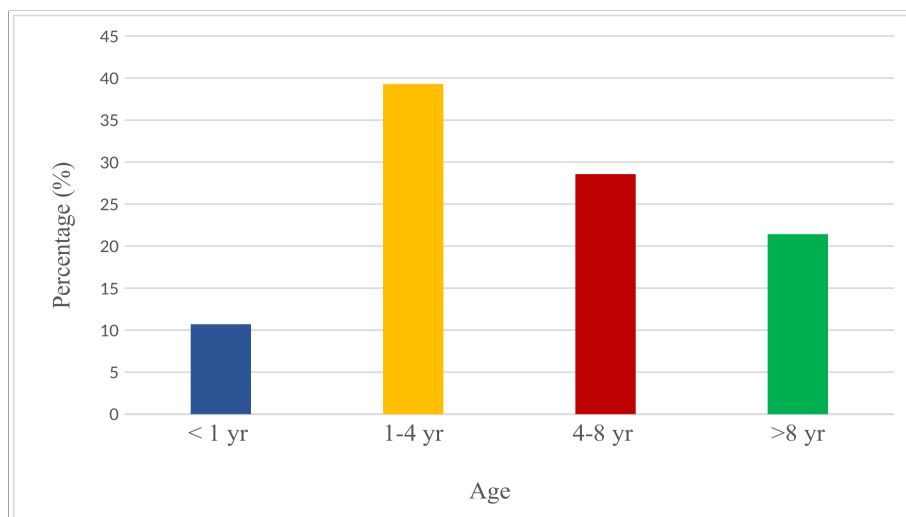


Figure 3. Age-wise prevalence of ascites in dogs

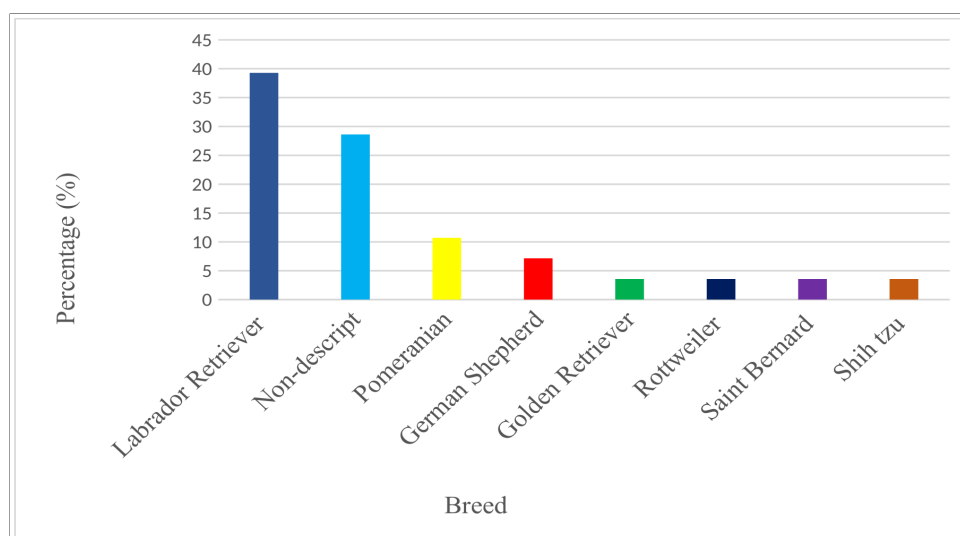


Figure 4. Breed-wise prevalence of ascites in dogs

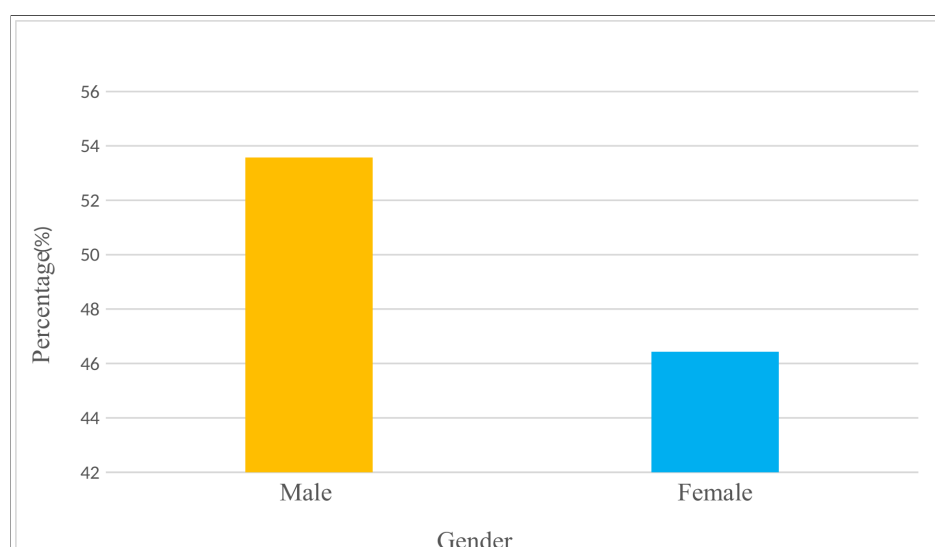


Figure 5. Gender-wise prevalence of ascites in dogs

Conclusion

In the present study overall prevalence of ascites was 0.95 per cent and hepatic origin was the most common cause of ascites. Ascites was most frequently observed in 1-4 years age group dogs, in Labrador Retriever breed and in male dogs.

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