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Study on prevalence of ruminal acidosis in goats of Jabalpur

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Abstract

An epidemiological study was conducted on goats to know the prevalence of ruminal acidosis in Jabalpur during the period of August 2018 to April 2019. A total of 1249 goats were screened from various organized and unorganized sectors of Jabalpur for the presence of digestive disorders. Rumen fluid was collected and presence of ruminal acidosis was confirmed by measuring pH of rumen fluid using digital pH meter and analysis of data of prevalence studies was done by using Chi square test. Out of 1249 goats, 368 were found positive for digestive disorders and out of 368, 42 were positive for ruminal acidosis. The overall prevalence of ruminal acidosis in goats was 3.36 per cent and among the digestive disorders, the prevalence was 11.41 per cent. No significant difference were recorded in age wise, gender wise and breed wise prevalence of ruminal acidosis in Jabalpur.

Keywords: Acidosis, prevalence, goat, rumen fluid pH

Introduction

Goat serves as one of the important means of livelihood and nutritional security for small marginal farmers and landless rural households. The main constraints hindering the productivity of livestock sector in most of the countries are diseases, poor nutrition, breeding policies and management. The functional health of the rumen is an essential requirement for productive behavior, encompassing livestock health and animal welfare [1]. Majority of health problems encountered in goats are rumen related and among rumen disorders, ruminal acidosis is a fairly common affection in ruminants which occurs due to many reasons such as change in feed, feeding habits, poor managerial practices etc. Ruminal acidosis is a common metabolic disorder in goats which occurs due to abrupt feeding of large amount of highly fermentable diet leading to change in the rumen pH (<6). The damage of the pH reduction to the ruminal mucosa allows fluid from the bloodstream to enter the rumen, causing severe dehydration [2] and worsening metabolic acidosis [3]. Clinically, this disorder can have mild to severe manifestations which may even lead to death. Diagnosis can be made primarily on the basis of clinical observations such as ruminal movement, temperature, pulse, respiration rate, heart rate and rumen fluid analysis. It is considered as one of the most important clinical emergencies in small ruminants which results in high mortality [4]. As the literature of prevalence of ruminal acidosis in clinical cases and its nature of occurrence with respect to age, gender and breed was scanty, the present paper reports the prevalence of ruminal acidosis in goats for a period of 9 months from August 2018 to April 2019 in Jabalpur.

Materials and Methods

For this study, a total of 1249 goats were screened from August 2018 to April 2019. The goats belonged to Goat farm, Amanala, clinical cases brought to TVCC, College of Veterinary Science & A.H., Jabalpur, clinical cases brought to District Vety. Hospital, Omti and goats of unorganized sectors of Sadar, Ranjhi, Adhartal and Panagar, Jabalpur. Goats were screened on the basis of history of ingestion of large amount of grains or fermented feed, anorexia, indigestion, abdominal distension, diarrhoea, dehydration, laminitis etc.

Out of 1249 goats screened, a total of 368 goats showing signs of digestive disorders were selected for the study. Rumen fluid was collected from 368 goats and presence of ruminal acidosis was confirmed by measuring pH of rumen fluid using digital pH meter. Analysis of data of prevalence studies was done by using Chi square test.

Results

Out of 1249 goats, 368 were found positive for digestive disorders and out of 368, 42 were positive for ruminal acidosis. The overall prevalence of ruminal acidosis in goat during August 2018 to April 2019 was 3.36 per cent and among the digestive disorders, the prevalence was 11.41 per cent (Table 01).

Table 1: Overall prevalence of ruminal acidosis in goats

Goat	No. examined	No. affected	Prevalence (%)
Total screened	1249	42	3.36
With digestive disorders	368	42	11.41

Age wise prevalence

To know the age wise prevalence of ruminal acidosis, goats of varying ages were studied and categorized into three categories. The highest prevalence of ruminal acidosis was recorded in goats between 1 to 2 years of age group i.e. 13.03% followed by more than 2 years of age group i.e. 9.78% and lowest prevalence was recorded in goats of less than 1 year of age group i.e. 5.26%. No significant difference was observed in age wise prevalence of ruminal acidosis in goats (Table 02).

Table 2: Age wise prevalence of ruminal acidosis in goats

Age group	No. examined	No. affected	Prevalence (%)
≤ 1 year	38	2	5.26
1-2 year	238	31	13.02
≥ 2 year	92	9	9.78
$X^2 = 1.871$ df= 2 p=.392385			

Gender wise prevalence

Out of 368 goats studied, 106 were male and 262 were female. The prevalence of ruminal acidosis was 12.26% in male and 11.06% in female. No significant difference was observed in gender wise prevalence of ruminal acidosis in goats (Table 03).

Table 3: Gender wise prevalence of ruminal acidosis in goats

Gender	No. examined	No. Affected	Prevalence (%)
Male	106	13	12.26
Female	262	29	11.06
$X^2 = 0.0844$ df= 1 p=.771375			

Breed wise prevalence

The prevalence of ruminal acidosis was studied in different breeds of goats at Jabalpur. Highest prevalence was recorded in non descript breed i.e. 18.81% followed by Jamunapari breed i.e. 11.25%, Barbari breed i.e. 8.98% and lowest being in Sirohi breed i.e. 6.12%. No significant difference was observed in breed wise prevalence of ruminal acidosis in goats (Table 04).

Table 4: Breed wise prevalence of ruminal acidosis in goats

Breed	No. Examined	No. affected	Prevalence (%)
Non descript	101	19	18.81
Jamunapari	80	9	11.25
Barbari	89	8	8.98
Sirohi	98	6	6.12
$X^2 = 6.7644$ df= 3 p=.079799			

Discussion

The results of the overall prevalence of ruminal acidosis

correlates well with the findings of Rahman *et al.* [5] and Ningadalli *et al.* [6]. However, comparatively higher prevalence of ruminal acidosis was reported by Rasal [7] who reported an overall prevalence of ruminal acidosis as 10.74 per cent. Similarly, Panchsheel [8] also found higher prevalence of ruminal acidosis (11.12%) in goats at Bidar, Karnataka. Many scientists have also documented varying rates of prevalence of ruminal acidosis in goats [9-11]. The results of present study indicated the presence of ruminal acidosis in goats of Jabalpur, although there is variation in the prevalence rates with the results of previous workers. These differences might be attributed to the variation in feeding habits, management practices and environmental conditions at different places. Differences in study design and methodology may also account for differences in estimating the prevalence rate. In the present study, no significant difference was reported in age wise prevalence of ruminal acidosis which is in accordance with the findings of Alam *et al.* [9] who reported non significant difference between different age groups of goat suffering from ruminal acidosis. On the contrary, Ningadalli *et al.* [6] reported higher prevalence in 1-2 years of age group as compared to other age groups. No significant difference was reported in the gender wise prevalence in the present study which correlates well with the findings of Alam *et al.* [9]. On the contrary, Rahman *et al.* [5] recorded higher prevalence of ruminal acidosis in female goats. The ruminal acidosis was recorded more in the non descriptive breed of goats (18.81%) in comparison to that of Jamunapari (11.25%), Barberi (8.98%) and Sirohi (6.12%). The results of present study correlates with the findings of Alam *et al.* [9] who observed no significant difference of ruminal acidosis between different breeds in goats. On the contrary, Rahman *et al.* [5] and Ningadalli *et al.* [6] recorded higher prevalence of ruminal acidosis in indigenous breed of goats. In the present study, no significant difference in the age wise, gender wise and breed wise prevalence of ruminal acidosis in goats could be attributed to the fact that the occurrence of ruminal acidosis depends upon the feeding habits, managemental practices and environmental conditions and thus all age groups, both the genders and all the breeds are equally susceptible to ruminal acidosis [4].

Conclusions

In the present study it was concluded that ruminal acidosis is caused by improper feeding practices. The Overall prevalence of ruminal acidosis in goats of Jabalpur was 3.36% while in goats having digestive disorders, the prevalence was 11.41%. No significant difference were recorded in age wise, gender wise and breed wise prevalence of ruminal acidosis in Jabalpur.

References

1. Vuuren ADV, Calsamiglia S, Udén P. Rumen health: A 360° analysis. *Animal Feed Science Techniques*. 2012; 172:1-3.
2. Aschenbach JR, Gabel G. Effect and absorption of histamine in sheep rumen: significance of acidotic epithelial damage. *Journal of Animal Science*. 2000; 78:464-470.
3. Braun U, Rih T, Schefer U. Ruminal lactic acidosis in sheep and goats. *Veterinary Records*. 1992; 130(16):343-349.
4. Constable PD, Hinchcliff KW, Done SH, Grunberg W. *Veterinary Medicine: A textbook of the diseases of cattle*,

- horses, sheep, pigs and goats. 11th Edn., Elsevier., Missouri, 2017, 461-472.
5. Rahman MD, Islam MS, Adam GO, Alam MDR, You MJ. Prevalence of ruminal lactic acidosis and clinical assessment of four therapeutics in goats of Bangladesh. *Journal of Veterinary Clinics*. 2014; 31(3):0-6.
 6. Ningadalli BB, Usturge SM, Bhari SV, Desai D, Kasaralika VR, Pawar A *et al.* Prevalence of ruminal acidosis in goats- A five year retrospective study. *International Journal of Livestock Research*. 2017; 7(12):224-230.
 7. Rasal TD. Studies on indigestion with special reference to lactic acidosis in goats. Ph.D. (Veterinary Medicine), MAU, Parbhani, 2001.
 8. Panchasheel. Clinicopathological and therapeutic studies in acute ruminal acidosis of goats. M.V. Sc. thesis (Veterinary Medicine), KVAFSU, Bidar, Karnataka, 2013.
 9. Alam M, Das BC, Hassan MM, Ahaduzzaman M, Faruk SA, Hasanuzzaman M. Ruminal acidosis- A case compilation study in SAQ Teaching Veterinary Hospital, Bangladesh. *Veterinary World*. 2014; 7:38-43.
 10. Ullah HA, Khan JA, Khan MS, Sadique U, Shah M, Idrees M *et al.* Clinico-therapeutical trials of lactic acidosis in small ruminants. *Journal of Animal and Plant Sciences*. 2013; 23(1):80-83.
 11. Kasaralika VR, Alaha NA, Singari K, Kumari N, Kumar SP. Incidence of Acute Ruminal Acidosis in Goats in and around Bidar: A four year review. *Frontier Journal of Veterinary and Animal Sciences*. 2012; 1:92-94.