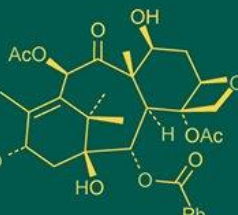
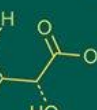
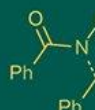


International Journal of Advanced Biochemistry Research



ISSN Print: 2617-4693
ISSN Online: 2617-4707
NAAS Rating (2026): 5.29
IJABR 2026; 10(9): 520-523
www.biochemjournal.com
Received: 26-06-2026
Accepted: 29-07-2026

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Occurrence and clinical epidemiological profile of Urolithiasis in Bovines in Hassan, Karnataka

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DOI: <https://www.doi.org/10.33545/26174693.2026.v10.i9g.10048>

Abstract

The present study on occurrence of urolithiasis in bovines was carried out in clinical cases of bovines presented to the Department of Veterinary Surgery and Radiology, Veterinary College, Hassan during twelve months of period (September 2025 to August 2026). The higher occurrence of urolithiasis was recorded in cattle (78.57%) followed by buffalo (21.42%). Young (1-2 years), male cattle had higher occurrence of urolithiasis. Obstructive urolithiasis were more common type of urolithiasis noticed during study. Feeding an imbalanced ration was common cause observed for the urolithiasis.

Keywords: Bovines, imbalanced ration, urolithiasis

Introduction

Urolithiasis in country like India presents an important economic repercussion where cattle-based agriculture is strongly linked with the livelihood of an important segment of the population (Parah *et al.*, 2010) [7]. Urinary Calculi form in both castrated and uncastrated males and also in females but obstructive urolithiasis is primarily observed in castrated adult male bovines. The obstruction in flow of urine due to calculi might occur in any part of urinary tract but most commonly it is in urethra (Sharma and Singh., 2001) [9]. The occurrence study of urolithiasis help us to know the frequency of urolithiasis with respect to different aspects such as species, age, castration, season, duration of illness and feeding habit, also to plan and standardize the treatment protocol. This information helps veterinary surgeons to be prepared for possible emergency and to treat the urolithiasis with greater efficiency.

Materials and Methods

The present study was conducted on bovine clinical cases presented to the Department of Veterinary Surgery and Radiology, Veterinary College, Hassan, during the period from September 2025 to August 2026. During the study period, bovine cases diagnosed with urolithiasis were recorded. The available case information was analysed with respect to species, age, castration status, duration of illness, season and feeding practices. The age of affected bovines was classified into five groups: 0-1 year, 1-2 years, 2-3 years, 3-4 years and 4-5 years. Duration of illness was classified into three groups: less than 2 days, 2-3 days and more than 3 days. The cases were also categorized according to season and feeding practices recorded during case presentation. The occurrence of urolithiasis was expressed as the proportion of urolithiasis cases presented to the department during the study period.

Results

A total of 8611 cases presented to Veterinary Clinical Complex (VCC), Veterinary College, Hassan, in twelve months period (September 2025 to August 2026). Among these, 3506 cases were presented to Department of Surgery and Radiology for various ailments. Out of these 3506 cases, 1214 belonged to bovine category. The urolithiasis cases were 14 out of 1214 bovine cases. The occurrence rate of urolithiasis in bovines was approximately 1.15 percent. The overall occurrence of the clinical cases was depicted in Table 1 and Figure 1.

Table 1: Occurrence of urolithiasis in bovine

Sl. No.	Number of cases	Total
1	Cases presented to VCC	8611
2	Cases presented to Dept. of VSR	3506
3	Bovine cases presented to Dept. of VSR	1214
4	Bovine urolithiasis	14

Species-wise occurrence

Among 14, bovine species of urolithiasis in the study, cattle accounted highest constituting for an about 78.57 percent (n = 11) followed by buffalo with 21.42 percent (n = 3) occurrence in the present study (Table 2, Figure 2). The species wise occurrence of urolithiasis in bovines were provided in the Table 2 and Figure 2.

Table 2: Species-wise occurrence of bovine urolithiasis

Sl. No.	Species	Total Number	Percent
1	Cattle	11	78.57
2	Buffalo	3	21.42

Age-wise occurrence

The occurrence of bovine urolithiasis based on age were classified into five distinct groups: 0-1 year, 1-2 years, 2-3 years, 3-4 years and 4-5 years. The highest occurrence was observed in the 1-2 years age group, 35.71 percent (n = 5), followed by the age group of 2-3 years accounting 28.57 percent (n = 4), bovines that are aged 0-1 year accounted for 21.42 percent (n = 3), while those in 3-4 years category comprised to 7.14 percent (n = 1). Bovines that are aged more than 4-5 years accounted 7.14 percent (n = 1). The age wise urolithiasis in bovines represented in the Table 3 and Figure 3.

Table 3: Age-wise occurrence of bovine urolithiasis

Sl. No.	Age of the bovine	Total cases	Percent
1	0-1 Year	3	21.42
2	1-2 Years	5	35.71
3	2-3 Years	4	28.57
4	3-4 Years	1	7.14
5	4-5 Years	1	7.14

Castration-wise occurrence

In the present study the occurrence of bovine urolithiasis was comparatively higher in castrated bovines which accounted for 71.43 percent (n = 10) while in uncastrated bovines, the occurrence was 28.57 percent (n = 4). Castration wise occurrence of urolithiasis were presented in Table 4 and Figure 4.

Table 4: Castration-wise occurrence of bovine urolithiasis

Sl. No.	Castration status	Total number	Percent
1	Castrated	10	71.43
2	Uncastrated	4	28.57

Duration of illness-wise occurrence

The occurrence of bovine urolithiasis based on duration of illness were classified into three distinct groups: Less than 2 days, 2-3 days, >3 days. The highest occurrence was observed in the 2-3 days group, 57.14 percent (n = 8), followed by the duration illness group of <2 days accounting 28.57 percent (n = 4) while those in >3 days category comprised to 14.28 percent (n = 2). The duration of illness wise occurrence of urolithiasis in bovines provided in the Table 5 and Figure 5.

Table 5: Duration of illness-wise occurrence of bovine urolithiasis

Sl. No	Duration of illness	Total Number	Percent
1	<2 days	4	28.57
2	2-3 days	8	57.14
3	>3days	2	14.28

Season-wise occurrence

Season specific analysis of occurrence of urolithiasis revealed the highest numbers of bovine affected in winter comprising of 64.28 percent (n = 9). This followed by summer accounting for 28.57 percent (n = 4) while rainy had least occurrence accounting for 7.14 percent (n = 1). The season wise occurrence of urolithiasis in bovines represented in the Table 6 and Figure 6.

Table 6: Season-wise occurrence of bovine urolithiasis

Sl. No	Season	Total Number	Percent
1	Winter	9	64.28
2	Summer	4	28.57
3	Rainy	1	7.14

Feeding habit-wise occurrence

In the present study imbalanced ration was the primary cause for bovine urolithiasis among feeding of green fodder, horse gram and concentrate mixture accounting for 57.14 percent (n = 8), followed by green fodder and concentrate mixture at 35.71 percent (n = 5), while green fodder and maize accounted for 7.14 percent (n = 1). The feeding habit wise occurrence of urolithiasis in bovines provided in the Table 7 and Figure 7.

Table 7: Feeding habit-wise occurrence of bovine urolithiasis

Sl. No.	Type of feeding	Total number	Percent
1	Green fodder and Maize	1	7.14
2	Green fodder and concentrate mixture	5	35.71
3	Green fodder, horse gram and concentrate mixture	8	57.14

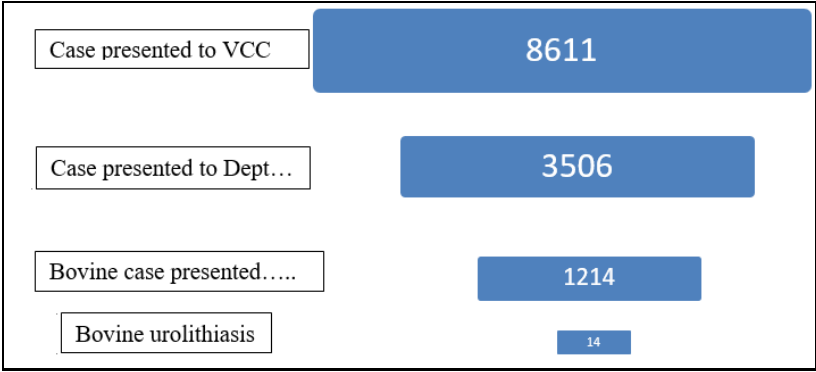


Fig 1: Occurrence of urolithiasis in bovine

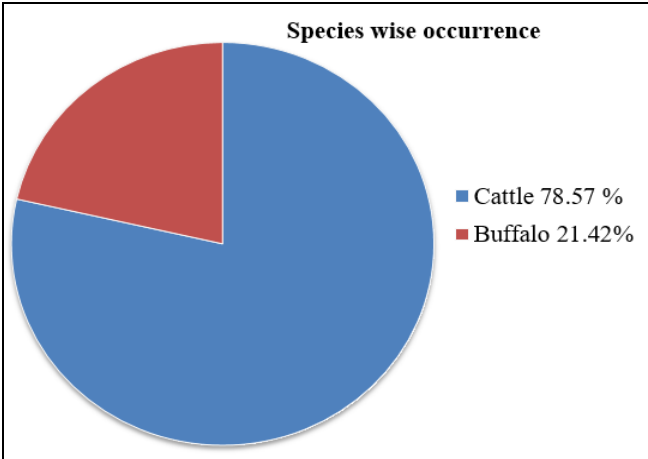


Fig 2: Species wise occurrence

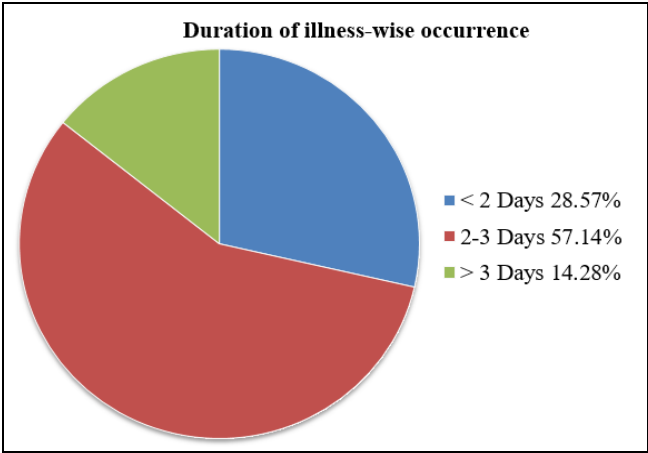


Fig 5: Duration of illness wise occurrence

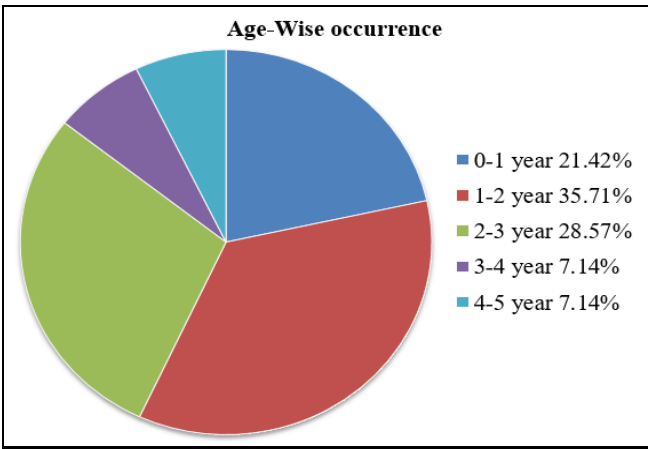


Fig 3: Age-Wise occurrence

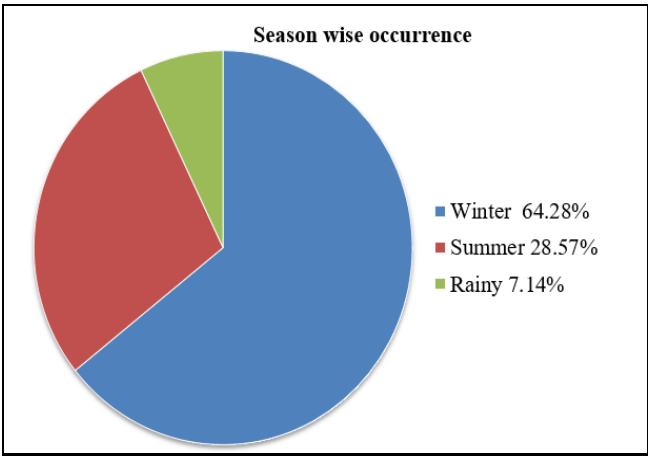


Fig 6: Season wise occurrence

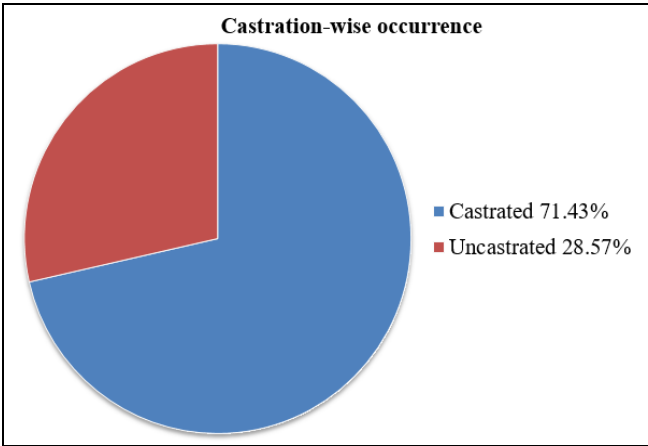


Fig 4: Castration wise occurrence

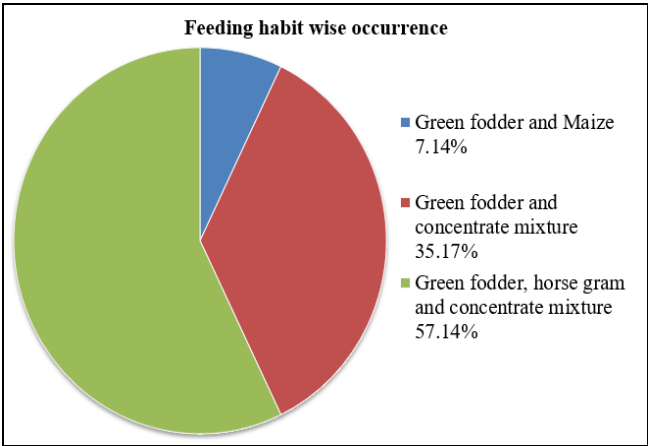


Fig 7: Feeding habit wise occurrence of bovine urolithiasis

Discussion

Species-wise occurrence

Among various species urolithiasis in the study, higher occurrence was recorded in cattle (78.57%), followed by buffalo (21.42%). The observed pattern aligns with Amarpal *et al.* (2013) ^[1] and Kumari (2018) ^[6]. The species wise occurrence of urolithiasis varies across the geographical regions, which might be partly due to the difference in the population of different species in different localities.

Age-wise occurrence

The occurrence of bovine urolithiasis based on age revealed that the highest occurrence was observed in the 1-2 years age group, 35.71 percent (n = 5), followed by the age group of 2-3 years accounting 28.57 percent (n = 4), bovines that are aged 0-1 year accounted for 21.42 percent (n = 3). These findings are in accordance with Amarpal *et al.* (2013) ^[1], Bhat (2021) ^[3]. In the present study, most of the animals were raised in the semi urban and rural areas as backyard farming and owners were involved in faulty management practices like feeding of concentrate ration and protein rich grain in excess might be the cause for the urolithiasis in the age group between 1-2 years.

Castration-wise occurrence

The castration specific analysis of occurrence of bovine urolithiasis revealed the highest number of affected bovines were castrated category (71.43%) followed by uncastrated (28.57%). This aligns with findings from Mahajan *et al.* (2017) ^[5]. The results of this study may be attributed to the fact that most of the intact animals fell within the age range of 1-2 years. At this age, animals were typically considered for castration and were primarily raised for drought purposes.

Duration of illness-wise occurrence

Among various duration of illness of bovine urolithiasis the higher occurrence was observed in the 2-3 days group, 57.14 percent (n = 8), followed by the duration illness group of <2 days accounting 28.57 percent (n = 4) while those in >3 days category comprised to 14.28 percent (n = 2). The observed pattern aligns with Balappanavar (2017) ^[2], Gugjoo *et al.*, (2013) ^[4]. The delay in seeking treatment for urolithiasis could be due to several factors. These include, owners not recognizing the signs of the problem initially, lack of general awareness among owners about the available treatments. The owners initially prefer medication over surgery even in early stages, difficulty in carrying the animals to the hospital, where treatment is available, cost of animals and financial limitations or concerns about affording treatment and difficulty in caring for the animal after surgery due to time limitations.

Season-wise occurrence

Occurrence of bovine urolithiasis in winter season was more common in the present study representing 64.28 percent (n = 9), followed by summer season at 28.57 percent (n = 4). Rainy season urolithiasis were least common in the present study, which accounted for 7.14 percent (n = 1). The result accordance with Mahajan *et al.* (2017) ^[5] and Sarker *et al.* (2020) ^[8]. Higher incidence in winter season could be due to reduced water intake during cold season might concentrate the urine with a prolonged stay in bladder allowing for mineral crystallization and precipitation.

Feeding habit-wise occurrence

The occurrence of bovine urolithiasis with respect to feeding habit revealed higher occurrence observed in bovines fed

with ration of green fodder, horse gram and concentrate mixture category (57.14%) followed by bovines fed with green fodder and concentrate mixture (35.71%) and animals fed with, green fodder and maize (7.14%). This aligns with findings of Amarpal *et al.*, (2013) ^[1]. In the present study urolithiasis in bovines occurred might be due to feeding of excess concentrate ration and horse gram.

Conclusion

In the present study, urolithiasis accounted for 2.07 percent of the bovine clinical cases presented to the Department of Veterinary Surgery and Radiology during the period. Cattle constituted the majority of cases, while the highest proportion was observed in bovines aged 1-2 years. A greater proportion of cases recorded among castrated animals and during winter. Among the recorded feeding practices, animals receiving green fodder, horse gram and concentrate mixture constituted the largest proportion of affected cases. The findings provide useful clinical information regarding the distribution of bovine urolithiasis cases presented to the veterinary clinical complex. Further studies involving larger sample sizes, population-based assessment and detailed evaluation of dietary and management factors are required to establish specific risk factors associated with bovine urolithiasis.

References

1. Amarpal, Kinjavdekar P, Aithal HP, Pawde AM, Pratap, Gugjoo MB. A retrospective study on the prevalence of obstructive urolithiasis in domestic animals during a period of 10 years. *Adv Anim Vet Sci.* 2013;1(3):88-92.
2. Balappanavar BR. Evaluation of different tube cystostomy techniques along with urethrotomy and bladder repair for the urethral obstruction in bullocks [PhD dissertation]. Bidar, Karnataka, India: Karnataka Veterinary, Animal and Fisheries Sciences University; 2017.
3. Bhat AM. Foley's catheter versus malecot catheter for tube cystostomy in male ruminants [MVSc thesis]. Kashmir, India: Sher-e-Kashmir University of Agricultural Sciences and Technology; 2021.
4. Gugjoo MB, Zama MMS, Amarpal, Mohsina A, Saxena AC, Sarode IP. Obstructive urolithiasis in buffalo calves and goats: incidence and management. *J Adv Vet Res.* 2013;3(3):109-113.
5. Mahajan A, Gupta AK, Bhadwal MS, Bhat MA, Bhardwaj HR. Occurrence and management of obstructive urolithiasis in ruminants. *J Anim Res.* 2017;7(4):723-731.
6. Kumari S. Clinical management of urolithiasis in ruminants by tube cystostomy with special reference to oxidative stress evaluation [MVSc thesis]. Ranchi, Jharkhand, India: Birsa Agricultural University; 2018.
7. Parrah JD, Hussain SS, Moulvi BA, Singh M, Athar H. Bovine uroliths analysis: a review of 30 cases. *Israel J Vet Med.* 2010;65(3):103-107.
8. Sarker D, Akter MA, Rahman MS, Yesmin N, Alam MM. Clinicopathological consequences of urinary retention due to urolithiasis in indigenous goats. *PSM Vet Res.* 2020;5(2):28-37.
9. Sharma P, Singh BP. Studies on the incidence and aetiology of urolithiasis in buffaloes. *Indian J Anim Sci.* 2001;71(2):149-150.