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Incidence and clinical signs associated with respiratory infections in goats

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Abstract

The present study examined the occurrence of respiratory affections and related clinical signs in goats at the Department of Veterinary Surgery and Radiology, NTR College of Veterinary Science, Gannavaram. Out of the 76 cases analyzed, thoracic affections were predominantly found in goats aged between 6 months to 1 year, with 22 cases reported. This was followed by goats aged 1-2 years (20 cases), over 2 years (18 cases), and those less than 6 months old (16 cases). Among the 76 goats, there were 32 males and 44 females, suggesting a higher prevalence of thoracic afflictions in females. The clinical evaluation of these 76 goats revealed a variety of clinical signs, each with differing frequencies and severities. The most frequently observed sign was reduced appetite, noted in 58 animals, closely followed by coughing in 55 animals and nasal discharge in 54. Other symptoms included fever, difficulty breathing, increased respiratory rate, congested mucous membranes, sneezing, ocular discharge, and postural changes such as head-down posture and reluctance to move.

Keywords: Incidence, Clinical signs, respiratory affections, goats

Introduction

In India, goat rearing constitutes a vital component in enhancing the socio-economic status of small and marginal farmers. Owing to their low maintenance cost, adaptability to diverse environmental conditions, compact body size, and ease of management, goats are traditionally regarded as the “poor man’s cow.” However, with the shift towards intensive farming practices, several stress-inducing factors such as overcrowding, transportation, reduced immunity, and abrupt environmental fluctuations have emerged as significant challenges to goat health. These adverse conditions predispose animals to various respiratory disorders, thereby leading to considerable economic losses (Kattimani *et al.*, 2020) ^[1]. Several environmental and management-related factors play a significant role in predisposing goats to respiratory disorders. These included exposure to cold air within animal housing, poor hygienic conditions, poor ventilation inadequate drainage, elevated humidity levels, and stress associated with transportation (Islam *et al.*, 2006) ^[2]. Radiographic examination of the thoracic cavity serves as an essential diagnostic modality for the evaluation of respiratory and cardiovascular disorders and aids in their early detection. It provides a rapid and informative assessment of the trachea, lungs, cardiac silhouette, and associated vascular structures (Makungu and Paulo, 2014 ^[3]; Azevedo *et al.*, 2016 ^[4] and Patel *et al.*, 2025 ^[5]).

Materials and methods

The present study entitled “Incidence and clinical signs associated with respiratory infections in goats” was conducted at the Department of Veterinary Surgery and Radiology and the Department of Veterinary Clinical Complex, NTR College of Veterinary Science, Gannavaram. The investigation involved goats of varying age groups, comprising both clinically healthy individuals and those presenting with thoracic ailments to the respective departments for diagnostic and clinical evaluation. The investigation was carried out over a twelve-month period, from January, 2025 to December, 2025. The study population comprised

native goat breeds of varying age groups, ranging from three months to six years

The afflicted group comprised goats exhibiting respiratory symptoms such as coughing, nasal discharge, depression, lethargy, and varying degrees of respiratory distress. Thoracic radiographs of these animals were obtained and systematically analyzed to identify pathological changes and deviations from normal thoracic structures.

Results: A total of 236 goats were presented during the study period from January, 2025 to December, 2025. Of these, 76

cases (32.2%) exhibited clinical signs suggestive of respiratory affections. Among the 76 cases, thoracic affections were most commonly observed in goats aged six months to one year (22 cases, 28.94%), followed by those aged 1-2 years (20 cases, 26.31%), more than two years (18 cases, 23.68%), and less than six months (16 cases, 21.05%) (Table 1 and Fig. 1).

Among the 76 cases, 32 were male goats (42.1%) and 44 were female goats (57.89%), indicating a higher incidence of respiratory affections in female goats (Table 2 and Fig. 2).

Table 1: Age-Wise incidence of Goats with Thoracic Affections (n = 76)

Sl. No.	Age	No. of animals	Percent
1	< 6 months	16	21.05%
2	6 months -1 year	22	28.94%
3	1-2 years	20	26.31%
4	< 2 years	18	23.68%
Total		76	100.0%

Table 2: Sex-Wise incidence of Goats with Thoracic Affections (n = 76)

SS. No	Sex	No. of animals	Percent
1	Male	32	42.11
2	Female	44	57.89
Total		76	100.0

A total of 76 goats presented with thoracic affections were clinically evaluated, and the observed signs varied in frequency and severity. Decreased appetite was the most common clinical manifestation, recorded in 58 animals (76.31%). Coughing was observed in 55 animals (72.36%), nasal discharge was observed in 54 goats (71.05%), followed by pyrexia in 50 animals (65.78%). Laboured breathing (dyspnoea) was evident in 48 goats (63.18%), while rapid breathing (tachypnoea) was noted in 46 cases (60.52%).

Congested mucous membranes were recorded in 44 animals (57.89%). Sneezing was noticed in 18 animals (23.68%), whereas ocular discharge was recorded in 10 goats (13.15%). Postural abnormalities such as head down posture and reluctance to move were observed in 14 (18.42%) and 9 (11.84%) goats, respectively. The overall distribution and frequency of the clinical signs observed in goats affected with thoracic affections are presented in Table 3 and Figures 3 to 7.

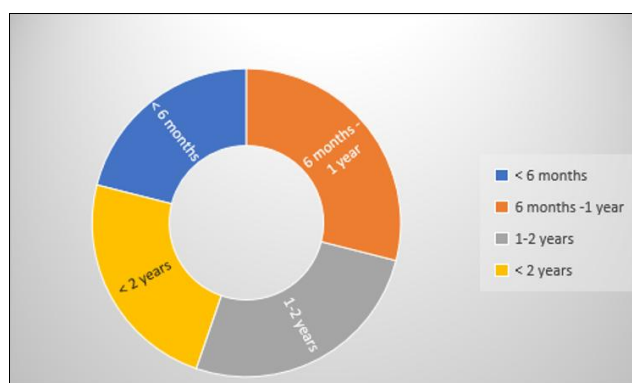


Fig 1: Pie diagram illustrating the age-wise distribution of goats affected with thoracic affections.

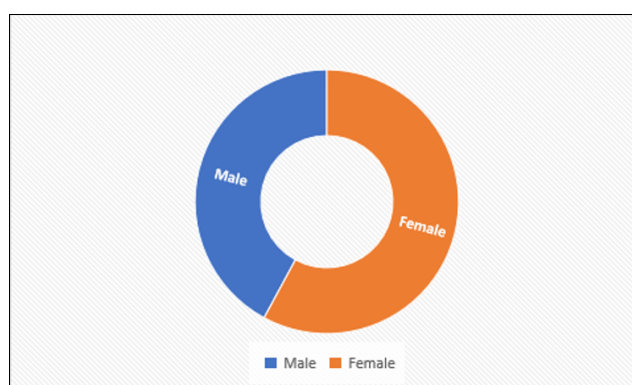


Fig 2: Pie diagram illustrating the sex-wise distribution of goats affected with thoracic affections.

Table 3: Clinical signs recorded in affected goats (n=76)

S. No.	Clinical Symptoms	No. of Goats affected	Percentage%
1	Coughing	55	72.36
2	Dyspnoea	48	63.15
3	Nasal discharges	54	71.05
4	Sneezing	18	23.68
5	Pyrexia	50	65.78
6	Decreased appetite	58	76.31
7	Tachypnoea	46	60.52
8	Head down posture	14	18.42
9	Ocular discharge	10	13.15
10	Congested mucous membrane	44	57.89
11	Reluctance to move	9	11.84

Discussion

In the present investigation, the selected animals were categorized into apparently healthy and ailing groups based on detailed routine clinical examination. Goats exhibiting respiratory manifestations such as coughing, nasal discharge, dyspnea, and pyrexia were included in the diseased group, and their thoracic radiographs were subsequently evaluated. During the study period, a total of 236 goats were examined, of which 76 cases (32.2%) showed clinical signs indicative of respiratory affections. All such cases were subjected to thoracic radiographic examination to assess the presence of thoracic lesions.

In the present study, out of the 76 cases exhibiting respiratory symptoms, thoracic affections were most frequently observed in goats aged between six months and one year, accounting for 28.94% (22/76) of the cases. This was followed by animals aged 1-2 years (26.31%; 20/76), those older than two years (23.68%; 18/76), and goats below six months of age (21.05%; 16/76). The comparatively higher incidence of thoracic affections in younger goats might be attributed to the gradual decline of passive immunity, rendering them more susceptible to microbial infections, particularly in the presence of predisposing environmental and managemental factors. In contrast, Venkatesh (2018) [6] reported a higher prevalence of bacterial pneumonia in sheep older than four years (6.73%; 20/297), which was attributed to physiological stress associated with pregnancy, lambing, and lactation, thereby increasing their vulnerability to respiratory tract infections.

In the present study, among the 76 cases evaluated, 32 were male goats (42.11%), while 44 were female goats (57.89%). This observation indicates a higher incidence of respiratory affections in female goats compared to males. The increased susceptibility in females might be attributed to reduced immune competence during physiological stress conditions such as pregnancy and lactation, whereas male goats were often maintained under better management practices and provided with a higher plane of nutrition for fattening purposes, as reported by Alemneh and Tewodros (2016) [7].

In the present study, 76 goats affected with thoracic affections were clinically evaluated, and the observed clinical manifestations showed marked variation in both frequency and severity. Decreased appetite emerged as the most prominent systemic finding, being recorded in 76.31 per cent

of the cases. Respiratory involvement was evident in the majority of animals, with coughing identified as the most frequent clinical sign (72.36%), followed by nasal discharge (71.05%) and pyrexia (65.78%). Laboured breathing (dyspnoea) and increased respiratory rate (tachypnoea) were observed in 63.18% and 60.52% of the animals, respectively, indicating significant respiratory compromise. Congested mucous membranes were also recorded in 57.89 per cent of the cases, reflecting the severity of the underlying pathology. Less commonly observed signs included sneezing (23.68%) and ocular discharge (13.15%). Postural changes, such as head-down posture and reluctance to move, were noted in 18.42 per cent and 11.84 per cent of the animals, respectively. The overall pattern of clinical findings suggests that thoracic affections in goats were predominantly characterized by a combination of respiratory distress and systemic illness, with variations in presentation depending on the severity and nature of the disease condition. The findings of the present study were in close agreement with earlier reports of Brogden *et al.* (1998) [8], Pugh (2002) [9], Mondal *et al.* (2004) [10], Goel and Kumar (2006) [11], and Hussein *et al.* (2006) [12], who documented similar clinical manifestations associated with respiratory disorders. Comparable observations have also been reported by Franco *et al.* (2019) [13], who described abnormal lung sounds on auscultation along with tachypnoea, dyspnoea, coughing, mucopurulent nasal discharge, and elevated rectal temperature. In addition, Abdulla *et al.* (2022) [14] reported clinical features such as dyspnoea, anorexia, depression, recumbency, congested mucous membranes, a moist painful cough, mucopurulent to purulent nasal discharge, and abnormal lung sounds on percussion accompanied by various rales. Likewise, Wilson and Lakritz (2015) [15] observed coughing, nasal discharge, tachypnoea, and dyspnoea in sheep affected with bacterial pneumonia. Pezzanite *et al.* (2009) [16] also described similar manifestations, including high fever (above 104°F), a distressing moist cough, dyspnoea, anorexia, and depression in pneumonic animals. Furthermore, Mahmoud *et al.* (2005) [17] reported elevated body temperature (39.5-40°C), depression, ocular and nasal discharges, inappetence, and increased respiratory rate as principal clinical signs. On auscultation, exaggerated vesicular sounds, moist rales, and frictional sounds were also noted in certain cases.



Fig 3: Photograph depicting watery discharges in a goat, **Fig 4:** Photograph depicting thick and dried mucopurulent discharges.



Fig 5: Photograph depicting mucoid discharges, **Fig 6:** Photograph depicting dullness and depressed goat.



Fig 7: Photograph depicting congested mucous membranes.

Conclusion

This research highlights that goats aged between 6 months and 1 year exhibit the highest prevalence of thoracic conditions, particularly among females. The clinical signs observed varied in both frequency and severity.

- **Conflict of Interest:** Not available
- **Financial Support:** Not available

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