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Epidemiological assessment of Gastrointestinal disorders in Horses

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Abstract
The present investigation was undertaken to determine the incidence of gastrointestinal disorders in horses and their association with age and sex. Out of 89 horses screened, the overall incidence of gastrointestinal disorders was 34.83%. The highest prevalence was recorded in horses aged 5-10 years (58.33%), followed by horses below 5 years of age. A markedly higher incidence of colic was observed in female horses (87.10%) compared to males (12.90%). Among the gastrointestinal disorders diagnosed, colic was the predominant condition, followed by diarrhea. Predisposing factors associated with gastrointestinal disorders included sudden changes in feed, exclusive stable feeding, reduced water intake, alterations in housing and management practices, and changes in physical activity. The findings indicate that gastrointestinal disorders, particularly colic, represent a significant health concern in horses, with age and sex influencing disease occurrence.

Keywords: Gastrointestinal disorders, Horses, Incidence, Colic, Epidemiology

Introduction
Gastrointestinal (GI) disorders are among the most frequently encountered health problems in horses and represent a major cause of morbidity and economic loss in equine practice. Disorders of the gastrointestinal tract, particularly colic and diarrhea, account for a substantial proportion of veterinary consultations and emergency interventions in horses [2, 14]. The incidence of GI disorders varies widely across geographic regions, management systems, and horse populations, reflecting differences in feeding practices, housing, workload, and preventive healthcare. Equine colic is the most commonly reported manifestation of gastrointestinal disease and remains a leading cause of mortality in horses worldwide. Previous studies have documented colic incidence ranging from 20% to over 80% in different equine populations, emphasizing the multifactorial nature of the condition and the influence of environmental and management-related risk factors [12, 3]. In comparison, diarrhea is reported less frequently in adult horses but can be associated with significant morbidity when it occurs [5].

The present study was undertaken to determine the incidence of gastrointestinal disorders in horses and its association with age and sex.

Materials and Methods
The study was conducted at the Department of Veterinary Medicine, College of Veterinary Science and Animal Husbandry, Kamdhenu University, Sardarkrushinagar, Gujarat, India. A total of 89 horses of varying ages and both sexes, presented to the Veterinary Clinical Complex, were screened for gastrointestinal disorders. Based on clinical signs, the affected horses were further categorized into two groups: colic (Group 1) and diarrhea (Group 2). Data related to age, sex, and type of gastrointestinal disorder were recorded. Additionally, a detailed history sheet was prepared to record the clinical history of each horse affected with gastrointestinal disorders Age was categorized into less than 5 years, 5-10 years, and more than 10 years.

Results and Discussion

Out of 89 horses screened, 31 horses were diagnosed with gastrointestinal disorders, yielding an overall incidence of 34.83%. Among the affected horses, colic was recorded in 20 cases (64.52%), while diarrhea was observed in 11 cases (35.48%) [Figure-01]. The predominance of colic observed in the present study is in agreement with earlier reports identifying colic as the most common gastrointestinal disorder in horses [13, 16]. The vast majority of our GI cases appeared in the abdominal parts of the GI tract.

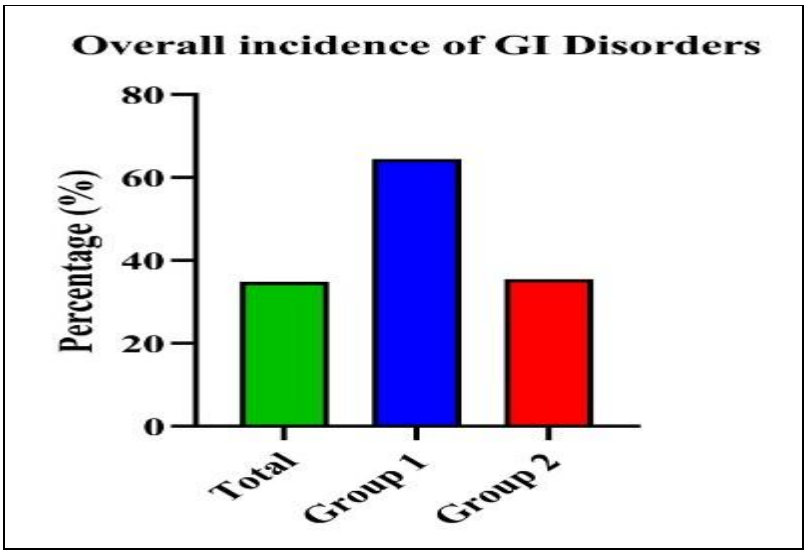

Fig 1: Distribution of the overall incidence of gastrointestinal disorders in horses

Age-wise distribution showed the highest incidence in horses aged 5-10 years (54.84%), followed by horses below 5 years (38.71%) and those above 10 years (6.45%) [Figure-02]. Similar age-related trends have been reported, with middle-aged horses being at greater risk of colic and other GI disorders [15, 11]. Noninfectious gastrointestinal diseases were the predominant cause of death in adult horses, with a median age of 10 years. This finding is comparable to the median age (8.5 years) of horses undergoing colic surgery reported in a retrospective study from Finland [7] and in South Africa [18]. The highest occurrence of colic has been reported in horses aged 5-10 years (58.33%), followed by those younger than 5 years (33.33%) and those older than 10 years (8.33%) [10]. Horses younger than 2 years were found to be at a lower risk of colic compared with those aged 2-10 years [17]. The predominance of colic cases in the 2-10-year age group, accounting for approximately 80% of cases, has also been documented [11].

Sex-wise analysis revealed a higher incidence in female horses (87.10%) compared to male horses (12.90%). Specifically, the incidence of colic was found higher in females, with 17 cases (85%), while only 3 cases (15%) were observed in males. Similarly, the incidence of diarrhea was higher in females, with 10 cases (90.91%), whereas only 1 case (9.09%) was reported in males [Figure 03]. Comparable sex-based variations have been documented in certain regional studies, suggesting that management practices and population structure may influence observed incidence patterns [12]. The current findings may be attributed to the owners' preference for keeping female horses for breeding and ceremonial purposes, during which they are often danced and trotted. This activity can potentially impact GI motility, and combined with potentially inadequate care, may increase susceptibility to GI issues.

Additionally, the higher incidence of colic in female horses may be attributed to their peak reproductive years, during which they undergo significant physiological and metabolic changes. These changes, coupled with suboptimal nutrition during pregnancy, lactation, or estrous cycles, can increase their susceptibility to colic. Furthermore, reproductive tract palpation and the anatomical changes associated with aging, such as a more pendulous reproductive tract in older mares, may contribute to their increased vulnerability to gastrointestinal issues [1, 9].

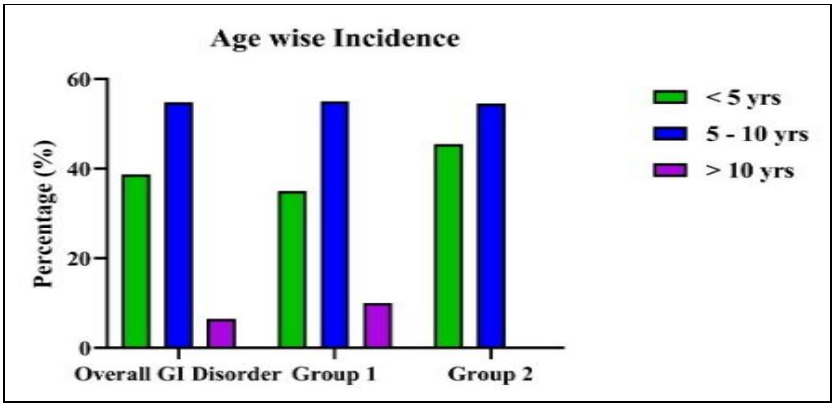

Fig 2: Age-specific Incidence of Gastrointestinal Disorders in Horses

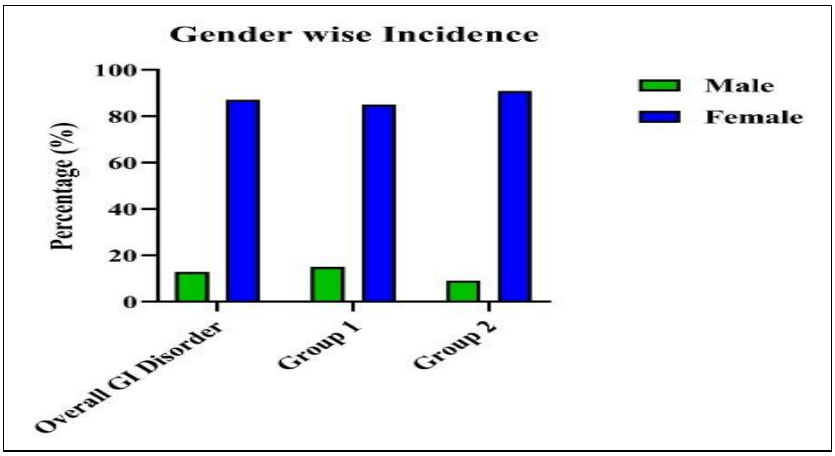

Fig 3: Sex -specific Incidence of Gastrointestinal Disorders in Horses

In line with the present findings, among 27 horses presented with signs of colic between November 2015 and March 2016, a higher proportion were adult females (15) compared with males (12) [4]. Similarly, of the 45 horses presented to the Veterinary Clinical Complex (VCC), Hisar, 16 were diagnosed with impactive colic, with a higher incidence observed in females (14/16) than in males (2/16) [6].
Predisposing factors associated with gastrointestinal disorders included sudden changes in feed, exclusive stable feeding, reduced water intake, alterations in housing and management practices, and changes in physical activity

Conclusion
The study revealed an overall incidence of 34.83% gastrointestinal disorders in horses, with colic being the predominant condition. The highest incidence was observed in horses aged 5-10 years and in females. These findings highlight gastrointestinal disorders as a significant health concern in equines and emphasize the need for effective preventive and management strategies.

Conflict of Interest & Ethical Approval
Authors declare no conflicts of interest with regards to funding.

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