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Research Article

Prevalence and Risk Factors for The Presentation of Colic in Three Breeds of Dancing School Horses

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Abstract

The domestic horse revolutionized the way of life in different cultures; currently, its functions are not only for work, but also in the presentation of shows, as dancing horses. These animals suffer from conditions that can seriously damage their integrity, one of the most common is what is known as equine colic. The objective of the study was to determine the prevalence of colic in a stable of dancing horses. In total, we used data from 52 horses of three different breeds that form the stable population. The total prevalence was 29%, the smallest number of cases occurred in the Iberoamerican breed, followed by the Spanish breed, while the most susceptible were the Friesian breed. The number of cases observed was 15, some of those horses presented only one case, while three horses repeated with two cases per year. Among the most common factors attributable to the cause of site colic are a change in diet, lack of water and overwork. Future studies are needed to further examine risk factors for colic in other show equine populations.

Keywords: Equus Caballus, Gastrontestinal Pain, Friesian, Iberoamerican and Spanish.

1. Introduction

The domestic horse revolutionized human mobility and warfare, changing economic and sociopolitical systems, ideologies, human gene pools, and the spread of languages [1]. In Mexico, the first horses were introduced by Hernán Cortéz in 1521, and this species initially was considered exotic, now is currently distributed throughout the national territory [2, 3]. The horse was used as a transport and draft tool, greatly influencing the transformation of pastoral subsistence, mobility, war, communications, commerce, agriculture, diseases, and biological exchange [4]. Over time, the use of the horse gave rise to an exceptional and closer human-animal relationship that includes emotional transfers [5]. Currently, horses are even used in leisure activities; such is the case of dancing horses [6, 7].

Among the most common conditions that affect horses, abdominal pain, better known as colic, stands out and is one of the most common causes of death [8]. Regarding its origin or cause, colic is classified into two types, true colic and pseudo colic. True colic, related to conditions of the digestive tract, which is usually caused by impaction of the colon, catarrhal enteralgia, flatulence and gastric distension. On the other hand, pseudo colic is triggered by affection in other organs of the abdominal cavity, and may be due to liver disease, kidney failure, myositis ossificans, tethering syndrome, uterine torsion, or urolithiasis [9].

Manifestations of colic can appear abruptly, causing behavioral abnormalities, affecting performance; Furthermore, its process can fluctuate between mild and severe depending on the cause and the effectiveness of the treatment [9]. Regardless of the etiology of colic, the most common signs in no order of importance include agitation, bulimia nervosa, spinning in circles, restlessness, staring, licking, or beating the belly, rolling in the grass, raking the legs, and excessive sweating [11]. Cramps can resolve spontaneously or in response to treatment; However, on some occasions they can cause serious physiological compromise which leads to death quickly [12]. Therefore, early recognition of colic and timely assistance. veterinary doctor is essential to increase the chances of a successful response [13]. This study aimed to investigate the prevalence and compare therapeutic management strategies for colic in a stable of dancing horses.

2. Materiales & Metodos

The data for the study was obtained from September 2022 to September 2023. The data corresponds to the Recreo block, located in the town of San Miguel Cuyutlán in Tlajomulco de Zúñiga, Jalisco (Figure 1). The municipality is located between parallels 20°21' and 20°37' north latitude and meridians 103°11' and 103°38' west longitude; at an altitude between 1500 and 2800 meters above sea level [14]. The region has a semi-warm semi-humid climate, with an average annual temperature of 19.8°C, the minimum temperature is

7.9°C and the maximum reaches 30.6°C. The month of January is the coldest, while the warmest is June. The average annual precipitation is close to 928 mm [15].

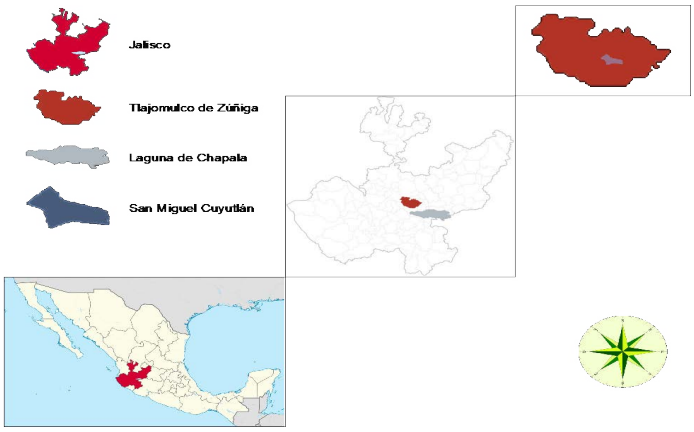

Figure 1: Location of the Study Area.

To obtain prevalence data, the record sheets of the animals that received care from the Veterinarian were analyzed. For the purposes of this study, only horses with a report of medical attention for colic were considered. The animals used in the study correspond to specimens whose zootechnical purpose is to be exhibited as high school dancing horses; in which, for their management, the welfare code for working equids is applied [16]. Within the stable facilities, the animals are kept in stables measuring 3.5x3x3 m long, wide, and high. The material in these areas corresponds to barilla and concrete columns and pillars, adobon and cement coating. Each one has an access door for entry and exit of animals and staff. The construction specifications of the stables comply with the provisions of the accommodation guidelines [17]. Water is offered freely, and food is offered in the morning and evening. The diet is made up of a mixture of alfalfa and concentrated commercial feed, to meet the nutritional requirements of the animals [18].

The management of the animals includes changing horseshoes every month or a little earlier, if required when damage to the horseshoes occurs; the shoeing procedure is carried out in accordance with established recommendations [19, 20]. There is a sanitary management that includes a deworming schedule, in which the combination of albendazole and ivermectin oral paste is used, following the prescribed recommendations, to control internal parasites and external. In addition, a vaccination schedule is applied against infectious diseases such as equine influenza, with a booster every six months, and for tetanus prevention, with an annual booster [21-23].

3. Results

During the study period, the stable population was 52 horses, made up of three different breeds. All cases correspond to males, since the place does not have females. The total prevalence observed for the presentation of colic cases was 28.8%. The highest number of cases was observed in horses of the Spanish breed, followed by the Friesian breed, while the lowest prevalence was observed in those of the Ibero breed. At least one case occurred in all breeds; However, some animals were treated up to two times for the same condition, one of the Friesian breeds and two of the Spanish breeds. Table 1 shows some particularities of the treated animals.

Table 1: Characteristics of the Specimens Cared for and Colic Proportion Data.

Breed	n	Age ranking (yearss)	Cases	Prevalence
Spanish	25	4 – 12	7	28.0%
Friesian	15	4 – 9	6	40.0%
Ibero	12	4 – 9	2	17.0%

4. Discussion

Within the published studies, there are differences regarding the horse breeds most affected by colic. Cohen and Peloso report that Arabian horses were more susceptible to colic episodes [24]. For their part, Reeves et al. Observed that the most affected breed in the study were thoroughbreds [25]. In another investigation, Nagar and Sharma mention that the kathiawari breed was the one that showed the greatest impact on colic [26]. However, in the case of the research by and Mohammad, the highest number of cases occurred in crossed or mixed breed horses [27]. This variable can be confusing and consistent; This could be attributed to the great diversity of breeds involved in the different studies, but it could also be influenced by the owner predilection towards a particular breed or by the zootechnical function of the animals within the stable or farm.

It is known that some indicators of the condition can be considered to issue a diagnosis or prognosis, including anamnesis, hematological examination and other modalities such as abdominal auscultation, fecal examination, rectal examination, nasogastric intubation, and ultrasonography [10, 8]. However, the study area lacks the facility to perform biochemical or hematological studies; Therefore, the diagnosis is based on the experience of the personnel in charge, such as the Veterinarian, to recognize the manifestations compatible with the condition, in accordance with what is recommended by Scantlebury et al [12].

Bihonegn and Bekele mention that in a population of 100 horses, between 4 and 10 cases of colic can occur per year; In our study, this parameter is higher, since in the stable there were 15 cases of colic in a period of one year, in a population that corresponds to half of what was mentioned above, this may indicate some failure in the management of the equines and therefore increases the number of colic events [8]. Traub-Dargatz et al tell us that some horses can repeat between 2 and 4 episodes of colic in a year [28]. Our obser-

vations are in line with what was reported by these authors, since three of the horses in the stable presented at least two episodes of colic that year. On the other hand, tinker et al mention that between 10-15% of colic cases can recur [29]. This percentage is above our values, where it was observed that around 6.0% of the animals were treated repeatedly for colic.

Among the risk factors for recurrent or chronic intermittent colic, it is mentioned that animals over eight years of age, neutered, are mostly susceptible [30]. Also, other elements such as taking an animal to a new housing site, previous abdominal surgery or changes in diet; as well as management and activity, influence the presentation of cases [30, 11, 31]. Our results coincide with some of those mentioned by previous authors. In the stable, the most common factors attributable to the cause of colic are the change in diet, this happens by increasing the amount of grain to improve the performance of the animals. The lack of water can occur due to a failure in the distribution network, so its proper functioning is routinely checked. Finally, overwork; This point is observed in some horses that are subjected to the usual workloads in the place, but to which they are not accustomed because they are new to the place.

It is important to highlight that in our study none of the animals died due to colic. This contrasts with what was reported by Hillyer et al, who mention that around 6.0% of horses affected by this condition had a fatal outcome; However, although what was observed by these authors is greater than our number of cases, other authors report that up to 10.0-11.0% of horses with colic died [32, 33, 30]. These same authors mention that the risk of death was higher for patients due to non-surgical cramps.

The present study provides information on the prevalence of colic and some associated risk factors over 12 months in a population of dancing horses. This information can be used for training purposes for horse keepers and owners with similar zootechnical purposes. Future studies are needed to further examine risk factors for colic in other show equine populations. Recognition of the mechanisms involved, in addition to the triggering factors, as well as knowledge of the strategies to follow during colic events, will help reduce the occurrence of such events.

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