RETROSPECTIVE STUDY ON PATTERN OF EQUINE CASES PRESENTED TO THE VETERINARY TEACHING HOSPITAL (VTH), UNIVERSITY OF IBADAN, IBADAN, NIGERIA FROM 1999 TO 2020

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ABSTRACT

Having proper knowledge of the pattern of diseases vis-à-vis the data of equine cases presented to the clinic over a period of time cannot be overemphasised for appropriate prevention and control of equine diseases in Nigeria. This study aimed to establish the occurrence of equine cases presented to the Large Animal Clinic of the Veterinary Teaching Hospital, University of Ibadan, Ibadan, Nigeria (January 1999 – December 2020). A total of 102 equine cases, comprising horses (78) and donkeys (24), were retrieved from the clinical case files of equine species presented to the clinic. The sex distribution of horses and donkeys showed a higher percentage of males compared to female. Cases in local breeds of horses were higher (82.05%), compared to exotic breeds (17.95%), while all (100%) donkey cases were recorded in the local breed. Adult animals' cases were higher compared to young animals, with 87.18% and 58.33% compared to 12.82% and 29.17% in horses and donkeys, respectively. More cases were presented during the wet season, with 74.36% and 70.83% in horses and donkeys, respectively. Higher cases involving the cardiovascular system were presented in equids (52.51%). Among infectious conditions, parasitic cases were highest (92.6%), while transportation stress (23.8%) and colic (14.3%) were the highest cases in equids among non-infectious conditions. The study observed a diverse pattern of diseases in equids that affect several body systems in Nigeria. We therefore recommend regular training of owners of horses and donkeys as well as equine veterinarians on appropriate prevention, control, and possible management of diseases.

Keyword: Diseases, Horses, Donkeys

INTRODUCTION

Horses and donkeys share the same family, Equidae and genus *Equus*, but are different species (Brosnahan, 2019). Nigerian horses are a mix of Arewa and the crosses between them and Arabians, Dongolas and Sudanese horses (Agina and Ihedioha, 2017). Horses have been dependable friends of humans since ancient times due to their energy, speed, and vitalizing attributes (Sikder *et al.,* 2012). They are mainly used in Nigeria for recreational activities, races, companionship, polo, royalty, agricultural uses, sports, exhibitions, research, recreation, security, parades, crowd control, food (meat and milk), a variety of products and medicine (Mshelia *et al.,* 2020; Adedokun *et al.,* 2023; Akinniyi *et al.,* 2023a). According to Blench *et al.* (2004), there are four recognised donkey breeds or types in Nigeria based on coat colour: dark brown to black, rust or red, grey to light-medium brown and pale cream to white.

Donkeys are mostly kept in Nigeria for work purposes, although they are also kept for milk, meat and breeding purposes (Khaleel *et al.,* 2020).

Retrospective study of diseases in animals is a quick and avoidable means to identify the appropriate strategy for effective disease prevention and control measures after it has been collated and analysed over a period of time (Abiola *et al.,* 2016; Olaniyi *et al.,* 2020). Horses and donkeys are prone to illnesses and conditions that can affect their performance and welfare. Furthermore, some of these diseases have considerable economic implications. A disease is a state of abnormality or derangement that affects the optimal body functions of an animal. The aetiology may be infectious, such as protozoa, viruses, bacteria, mycoplasma, parasites, rickettsia and some metabolism abnormalities that may be associated with malnutrition, underfeeding, poor feeding and bad management practises (Abiola *et al.,* 2016). Equine diseases, both infectious and non-infectious, have been reported in various regions of the country (Useh *et al.,* 2005; Mayaki, 2017; Alaba *et al.,* 2022; Akinniyi *et al.,* 2023a; Akinniyi *et al.,* 2023b; Akinniyi *et al.,* 2023c). Useh *et al.* (2005) and Mayaki (2017) had earlier adopted the evaluation of clinical case files retrospectively in Kaduna and Sokoto States, respectively, providing detailed information on the dominant diseases and their demographic distribution in the studied regions. However, apart from the studies of Useh *et al.* (2005) and Mayaki (2017), there is no information on the predominant equine clinical problems and their demographic distribution in Ibadan, Oyo State. Proper knowledge of the recent pattern and manifestation of equine diseases will enhance the institution of appropriate measures for the prevention and control of such diseases. This study therefore sought to establish the species' demography, diseases, and frequency of occurrence and classify them based on the system involved, either infectious or non-infectious, among the equine cases presented to the Large Animal Clinic of the Veterinary Teaching Hospital, University of Ibadan.

MATERIALS AND METHODS

Study Area: The study was carried out at the Large Animal Clinic of the Veterinary Teaching Hospital (VTH), University of Ibadan. Ibadan is made up of 11 Local Government Areas (LGAs). It is located in Nigeria's south-western region. Ibadan lies approximately at longitude 3°56' east of the Greenwich meridian and latitude 7° 23' north of the equator, at a distance of 145 km north-east of Lagos, the administrative capital of Oyo State. With a 2022 projected population of 3,756,000, Ibadan is Nigeria's third-most populous city after Lagos and Kano (Macrotrends, 2023). Situated in Ibadan are several equine facilities, including Polo Club, Zoological Garden, and Research Institutes, and some private individuals patronising the VTH, Ibadan.

Data Collection: A total of 102 equine cases, comprising horses and donkeys, were retrieved from clinical case file records of the Large Animal Clinic, Veterinary Teaching Hospital, University of Ibadan, Ibadan, Oyo State. The diagnoses made in the case files were based on case history, physical examination, clinical signs, and laboratory confirmation. The clinical diagnosis and laboratory confirmations were made by highly experienced veterinarians and well-trained laboratory technologists, respectively.

Other information retrieved from the case files includes age, breed, sex, and season. Age was classified as young (< 5 years) and adult (5 to 15 years). The breed was classified into local and exotic breeds. Sex includes males and females. The season was classified into a wet season (April – November) and a dry season (December – March).

Data Analysis: The data were summarised using descriptive statistics. All the data were entered in a Microsoft Excel spread sheet 2019, and analysis was done using the Statistical Package for Social Sciences (SPSS, version 26). The analysed data were reported as frequencies and percentages.

RESULTS

Distribution of Equine Cases Based on Animals' Types: Out of the 102 equine cases, 78(76.47%) were horse cases, while 24(23.53%) were donkey cases.

Distribution of Equine Cases Based on Sex, Breed, Age and Season: In cases regarding horses, 44/78 (56.41%) were male, while 34/78 (43.59%) were female. Among donkey cases, 17/24 (70.83%) were male, and 7/24 (29.17%) were female. In cases regarding horses, 64/78 (82.05%) were local breeds, while 14/78 (17.95%) were exotic breeds. All (24/24; 100%) of the donkey cases were local breeds. In cases regarding horses, 68/78 (87.18%) were adults, while 10/78 (12.82%) were young. Among donkey cases, 7/24 (29.17%) were young, while 17/24 (70.83%) were adults. In horse cases, 58/78 (74.36%) were recorded in the wet season, while 20/78 (25.64%) were recorded in the dry season. In donkey cases, 17/24 (70.83%) were recorded in the wet season, and 7/24 (29.17%) were recorded in the dry season (Table 1).

Table 1: Distribution of equine cases based on sex, breed, age and season presented to the Veterinary Teaching Hospital, University of Ibadan, Nigeria from 1999 to 2020

Factor	Horse (%)	Donkey (%)
Sex		
Male	44(56.41)	17(70.83)
Female	34(43.59)	7(29.17)
Breed		
Local	64(82.05)	24(100)
Exotic	14(17.95)	0(0)
Age		
Young(< 5 years)	10(12.82)	7(29.17)
Adult(5-15 years)	68(87.18)	17(70.83)
Season		
Dry(December – March)	20(25.64)	7(29.17)
Wet(April – November)	58(74.36)	17(70.83)

Summary of Equine Cases (Horse and Donkey) Based on Body System Involvement: The body system with the highest number of cases was the cardiovascular system (52; 51%), which comprises piroplasmosis (16; 15.7%), trypanosomosis (30; 29.4%), septicaemia (4; 3.9%), acute heart failure (1; 1%), and oedematous surgical site (1; 1%). The number of cases associated with the gastrointestinal system was 29(28.4%), which comprises helminthosis (22; 21.6%), colic (3; 3%), coccidiosis (2; 2%), phytobezoar (1; 1%) and intestinal rupture (1; 1%). The number of cases associated with the integumentary system was 6(5.9%), comprising tick infestation (3; 2.9%), mange (2; 2%) and overgrown hoofs (1; 1%). The least number of cases was found in the musculoskeletal system (4; 3.9%), comprising laminitis (2; 2%) and tetanus (2; 2%). Transportation stress (5; 4.9%), trauma (2; 2%), tumour (2; 2%), proud flesh (1; 1%), and phytotoxicity (1; 1%) were classified as miscellaneous (Table 2).

Summary of Equine Cases (Horse and Donkey) Associated with Infectious Conditions: Based on the infectious causes, two infectious disease classifications were identified and comprised 75(92.6%) parasitic and 6(7.4%) bacterial cases. The parasitic diseases identified were helminthosis 22(27.2%), piroplasmosis 16(19.8%), trypanosomosis 30(37%), tick infestation 3(3.7%), mange 2(2.5%) and coccidiosis 2(2.5%), while the bacterial diseases were septicaemia 4(4.9%) and tetanus 2(2.5%) (Table 3).

Summary of Equine Cases (Horse and Donkey) Associated with Non-Infectious Conditions: Based on non-infectious causes among the cases presented, transportation stress was the highest (5; 23.8%), followed by colic (3; 14.3%). Tumour, trauma, and laminitis were 2(9.5%) cases each. Acute heat failure, intestinal rupture, proud flesh, phytotoxicity, phytobezoar, oedematous surgical site, and overgrown hoof all had 1(4.8%) case each (Table 4).

DISCUSSION

Medical records of the horses and donkeys presented to the clinic were retrospectively

Table 2: Summary of equine cases based on body system of horses and donkeys presented to the Veterinary Teaching Hospital, University of Ibadan, Nigeria from 1999 to 2020

Body System	Disease/Clinical conditions	Number of cases (%)	Number of cases as per body system (%)
Gastrointestinal	Helminthosis	22(21.6)	29(28.4)
	Colic	3(3)	
	Coccidiosis	2(2)	
	Phytobezoar	1(1)	
	Intestinal rupture	1(1)	
Cardiovascular	Piroplasmosis	16(15.7)	52(51)
	Trypanosomosis	30(29.4)	
	Septicaemia	4(3.9)	
	Acute heart failure	1(1)	
	Oedematous surgical site	1(1)	
Integumentary	Tick infestation	3(2.9)	6(5.9)
	Mange	2(2)	
	Overgrown hooves	1(1)	
Musculoskeletal	Laminitis	2(2)	4(3.9)
	Tetanus	2(2)	
Miscellaneous	Transportation stress	5(4.9)	11(10.8)
	Trauma	2(2)	
	Tumour	2(2)	
	Proud flesh	1(1)	
	Phytotoxicity	1()	
Total		102(100)	102(100)

Table 3: Summary of equine cases associated with infection causing agents in horses and donkeys presented to the Veterinary Teaching Hospital, University of Ibadan, Nigeria from 1999 to 2020

Infection causing agent	Diseases	Number of cases (%)	Number of cases as per infectious cause (%)
Bacterial	Septicaemia	4(4.9)	6(7.4)
	Tetanus	2(2.5)	
Parasitic	Helminthiasis	22(27.2)	75(92.6)
	Piroplasmosis	16(19.8)	
	Trypanosomosis	30(37)	
	Tick infestation	3(3.7)	
	Mange	2(2.5)	
	Coccidiosis	2(2.5)	
Total		81(100)	81(100)

Table 4: Summary of equine cases associated with non-infectious causes in horses and donkeys presented to the Veterinary Teaching Hospital, University of Ibadan, Nigeria from 1999 to 2020

Disease/Clinical conditions	Number of cases (%)
Colic	3(14.3)
Acute heart failure	1(4.8)
Intestinal rupture	1(4.8)
Proud flesh	1(4.8)
Phytotoxicity	1(4.8)
Phytobezoar	1(4.8)
Oedematous surgical site	1(4.8)
Overgrown hooves	1(4.8)
Laminitis	2(9.5)
Transportation stress	5(23.8)
Trauma	2(9.5)
Tumour	2(9.5)
Total	21(100)

reviewed to investigate the species' demography, nature of infection, body systems affected and seasonal incidence of the disorder. The presence of only 102 equine cases in 21 years reflects the small population of equids in Ibadan, Oyo State (south-western Nigeria). The number of cases presented to the VTH may be associated with limitations regarding transportation and logistics involved in bringing large animals to the Clinics. The difficulty

associated with loading and off-loading equine species alone is enough to discourage clients from presenting equine patients to the clinic, as most owners of equids prefer ambulatory services. This number of cases presented over a period of 21 years is far lower than the 2308 cases presented to the Veterinary Teaching Hospital in Zaria, Kaduna State, in 28 years, as reported by Useh *et al.* (2005). This disparity may be corroborated by the observation of a large population of horses and donkeys in many northern states of Nigeria (Useh *et al.,* 2005; Mshelia *et al.,* 2023). Though, in another northern Nigerian state, Mayaki (2017) reported that only 49 equine cases were presented to the VTH in 14 years in Sokoto State. He attributed the low number of equine cases to horse owners not being well informed on the importance of routine veterinary visits for early disease diagnosis and management and the habit of not being willing to pay for veterinary services. The presence of more cases in horses than donkeys, despite the fact that donkeys are highly populated in Nigeria (FAO, 2023), shows that donkeys are rarely kept and used in Ibadan. This may also be due to the hardy nature of donkeys in terms of resilience and resistance to diseases compared to horses. It may also be associated with the fact that horses are highly priced and owners tend to care more for horses compared to donkeys. The higher occurrence of cases in male horses and donkeys as compared to their counterparts was in agreement with Mayaki (2017), who also reported that more stallion cases were presented to the VTH in Sokoto compared to mare cases. The higher number of cases in male horses being presented compared to female horses may be linked to the relative higher number of male horses generally in Ibadan compared to female horses. It may also be a result of the strong resilience and energy of male horses that may be required for polo games, transportation, or even security or parade purposes. The higher prevalence of cases in local horses (82.05%) and donkeys (100%) as compared to exotic breeds is consistent with previous studies in different regions of the country (Olusa *et al.,* 2010; Mayaki, 2017). This may be attributed to their adaptability to the Nigerian environment, lower maintenance costs and cultural significance (Olusa *et al.,* 2010; Turaki *et al.,* 2014). The high prevalence of cases in adult horses (87.18%) and donkeys (70.83%) may be because they are mostly subjected to strenuous activities such as intensive training, transport and riding, which may be predisposing factors to diseases (Ola-Fadunsin *et al.,* 2018). The occurrence of horse and donkey cases during the wet season was higher than during the dry season. This can be due to rainfall, high moisture content, and lower temperatures seen during the wet season, which favour the development and abundance of insect vectors and have a positive effect on their occurrence (Ola-Fadunsin *et al.,* 2018).

In the present study, cases of cardiovascular disorders were found to be the most prevalent (51%) in equids, with trypanosomosis and piroplasmosis being the most reported cardiovascular disorders. This can be attributed to the geographic and climatic conditions of Ibadan, which support the growth and development of insect vectors that are known to transmit haemoparasitic diseases with cardiovascular complications (Alaba *et al.,* 2022). However, this is in contrast with Mayaki (2017) and Goraya *et al.* (2013) findings, who reported musculoskeletal disorders to be the most prevalent. This variation may be due to differences in the two locations that may be associated with the environment in which the animals are kept and the presence of vectors of haemoparasitic diseases in Ibadan that may differ in Sokoto. This may also be due to differences in what the horses are being used for. In Ibadan, horses are predominantly used for Polo games, whereas it may be more for leisure and ceremonial displays.

In the present study, parasitic and bacterial cases were the only identified infectious equine cases. However, in similar studies by Useh *et al.* (2005) and Mayaki (2017), viral cases were reported. The absence of viral cases in our study could indicate that horse and donkey owners take necessary viral disease preventive measures, including up-to-date vaccination programmes. More parasitic cases compared to bacterial cases were

observed in this study, which is similar to Useh *et al.* (2005) and Mayaki (2017), who also reported more parasitic diseases in equids.

The observation of transportation stress as the commonest non-infectious case observed in this study may be due to the poor large animal transportation system in Ibadan. This may be associated with a lack of loading equipment, a bad condition of the vehicle, a bad road, terrible traffic conditions, a long distance, population density, or the larger size of Ibadan in general. Yaqub *et al.* (2014) earlier reported that transportation stress is a common condition in horses, leading to increased muscle metabolism, stress, dehydration, and immune changes. The observation of colic cases as being one of the most common non-infectious diseases in the present study agrees with the report of different researchers who considered colic as one of the most important equine health problems encountered by donkey and horse owners and veterinarians in general (Mellor *et al.,* 2001; Akinrinmade and Olusa, 2009; Mayaki, 2017).

It is hereby concluded that equids in Ibadan, Oyo State, Nigeria, are afflicted with a variety of infectious and non-infectious disorders affecting several body systems. As a result, it is essential to provide adequate training, awareness, and approaches to the management of these diseases. Horse and donkey owners should also be encouraged to seek frequent veterinary care for their animals.

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