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ORIGINAL ARTICLE

Retrospective study of equine cases at the Veterinary Teaching Hospital, Usmanu Danfodiyo University, Sokoto, Nigeria (2001-2015)

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SUMMARY
Knowledge of common diseases is important for effective disease control and management programme. This retrospective study was designed to identify the common equine diseases and clinical conditions observed at the Large Animal Clinics of Veterinary Teaching Hospital, Usmanu Danfodiyo University, Sokoto, using clinical case file records. Equine data were collected, analyzed on the basis of breed, sex, age and diagnosis. Out of the 1516 large animal cases reported during the study period (2001-2015) a total of 49 (3.2%) equine cases of 26 different diseases and/or clinical conditions were identified. Horses were the only equine spp reported with occurrence of the cases higher in the male (85.71%) and in the local breed (91.8%). Adult horses (> 4years) had the highest percentage (61.22%). Of the 26 diseases and/or clinical conditions identified, colic recorded highest percentage (18.37%) followed by strongyle infections (8.16%), lameness (8.16%), laceration/traumatic injury (6.12%), verminous pneumonia (6.12%) and equine influenza (6.12%). According to body systems affected, musculoskeletal recorded highest cases (32.65%) followed by gastrointestinal (28.57%), respiratory (14.29%) and cardiovascular being the least (2.04%). 17 (34.6%) of the total cases identified were associated with infectious causes while 32 (65.4%) were associated with non infectious causes. Based on infectious causes 10 (58.82%) were parasitic, 4 (23.53%) bacterial and 3 (17.65%) viral cases. Colic, lameness, laceration/traumatic injury, fracture and rectal prolapse were the important clinical conditions associated with non-infectious causes. In conclusion, this study provides an idea of prevailing equine clinical conditions in Sokoto as per cases handled in the veterinary teaching hospital.

Key words: Retrospective study, Equine cases, Veterinary hospital, Sokoto.

INTRODUCTION
Globally over 60% of all horses and 95% of all donkeys and mules are found in developing countries (Fielding, 1991), where they play a pivotal role in provision of 75% of traction energy (Pearson *et al.*, 2005). In Nigeria, 15 % of the total estimated populations of horses are found in Sokoto state (FAOSTAT, 2013) where they have contributed to the cultural heritage of the people of state, particularly for durbar, royalty, recreational activities, companionship, racing and polo as well as

agricultural purposes (Sa'ad, 2014). Majority of the horses are local breed, kept under traditional husbandry practices with or without provision for housing. Their functional abilities and welfare could be disturbed when they have health issues that cause immediate suffering and/or long-term progressive conditions (Rousing *et al.*, 2001; Pritchard *et al.*, 2005). More so, horse owners and handlers usually employ traditional methods of managing disease conditions of their animals and they maintain no record of the common diseases. Although there are numbers of equine diseases or clinical conditions that have been reported in different parts of the country (Kwanashie and Abdullahi (1991); Adeyefa and Hamblin (1995); Mshelia *et al*., 2010; Umar *et al.*, 2013; Mayaki *et al*., 2014), however, information about common equine diseases or disorders in Sokoto is lacking. And since understanding of predominant clinical problems and their demographic distribution in a particular area is usually elucidated by retrospective evaluation of clinical case records. The study was therefore aimed to identify the common equine diseases and/or clinical conditions presented at the Large Animal Clinic of Veterinary Teaching Hospital (VTH), Usmanu Danfodiyo University, Sokoto, over a period of fifteen years (2001 to 2015).

MATERIALS AND METHODS

Study Area

Sokoto state is located within the Sahel savannah belt and extreme North-western Nigeria between latitude 4^0 to 6^0 N and longitude 11^0 to 130^0 E, and the mean annual rainfall ranges between 500mm and 1300mm with average humidity of below 40% (Alayande *et al*., 2012). It shares boundaries with Zamfara state to East, Niger republic to the North and Kebbi state to the West and South west. Sokoto metropolis has an estimated population of 3.7 million people whose main occupations are farming, animal husbandry and fishing. It is the second largest with regard to livestock population with an estimated population of about 1.18 million cattle, 2.90 million goats, 1.98 million sheep, 2.0 million chickens, 45000 camels, 34532 horses and 51388 donkeys (FAOSTAT, 2013).

Data Collection

Data of equine cases were collected from clinical case file records of Large Animal Clinic of Veterinary Teaching Hospital, Usmanu Danfodiyo University, Sokoto (UDUS), from 2001 to 2015. The records analyzed include breed, sex, age, tentative and/or final diagnosis. The diseases and disorders reported in this study were diagnosed based on case history, characteristic clinical signs, and laboratory investigations (Radostits *et al*., 2007; Zajac and Conboy, 2012).

Management of the Animals

The animals were managed under traditional husbandry with the horses kept tethered in a stable or in an open field using sand as bedding with or without provision of shade. They were fed on hay, millet, wheat bran and crop residues, and water was provided *ad libitum*. Some horses had history of deworming and vaccination against tetanus. The horses were kept for racing, durbar, companion, polo and ceremonial activity.

Data Analysis

Data generated from the clinical records were stored in personal computer, using Microsoft Excel spreadsheet program 2007. A descriptive statistical analysis was used and the data were expressed as percentages and tabulations.

RESULTS

Of the 1516 cases presented to large animal clinic of VTH between 2001 and 2015, 49 (3.2%) were equine cases comprising 26 different diseases and clinical conditions. The highest percentage was recorded in 2014 with 8 (7.84%) cases followed by 7 (6.80%) and 7 (7.45%) in 2012 and 2013 respectively. No case was reported in 2002,

TABLE I: Prevalence of equine cases among large animal cases based on the year of study

Years	Total large Animal cases	Equine cases (% prevalence per year)
2001	116	1(0.86)
2002	97	0(0.00)
2003	110	5(4.55)
2004	98	0(0.00)
2005	147	5(3.40)
2006	136	3(2.21)
2007	120	5(4.17)
2008	105	0(0.00)
2009	98	1(1.02)
2010	73	3(4.11)
2011	102	1(0.98)
2012	103	7(6.80)
2013	94	7(7.45)
2014	102	8(7.84)
2015	64	3(4.69)
Total cases	1516	49(3.20)

TABLE II: The distribution of the equine cases according to body systems

Body system	Diseases/ Clinical conditions	No. cases (%)	Total prevalence (%) as per body system
Cardiovascular	Babesioisis	1(2.04)	2.04
Gastrointestinal	Colic	9(18.37)	
	Strongyle infection	4(8.16)	
	Eruption cyst	1(2.04)	28.57
Integument	Lousiness	2(4.08)	
	Squamous cell carcinoma	1(2.04)	6.12
Musculoskeletal	Lameness	4(8.16)	
	Laceration / traumatic injury	3(6.12)	
	Fracture	2(4.08)	
	Traumatic myositis	1(2.04)	
	Laminitis	1(2.04)	
	Polyarthritis	1(2.04)	
	Gonitis	1(2.04)	
	Thrush	1(2.04)	
	Rhabdomyolysis	1(2.04)	
	Recumbency	1(2.04)	32.65
Ocular	Conjunctivitis	1(2.04)	
	Corneal opacity	1(2.04)	6.12
Respiratory	Verminous pneumonia	3(6.12)	
	Equine influenza	3(6.12)	
	Actinobacillosis	1(2.04)	14.25
Uro-genital	Rectal prolapse	2(4.08)	4.08
Miscellaneous	Hernia	1(2.04)	
	Haematoma	1(2.04)	
	Ethmoid hematoma	1(2.04)	6.12
Total cases			49 (100)

2004 and 2008 as indicated in table I. Horses were the only equine spp reported with 85.7% occurrence in the male and 14.3% in the female. The cases consisted of 8.2% yearling (<2years of age), 30.6% young adults (2–4 years), and 61.2% adults (>4 years of age). The Nigerian local breed recorded the highest (91.8%) percentage while the Sudanese and crossed breed were 6.1% and 2.0% respectively.

The distribution of the equine cases according to body systems involved is shown in table II, with musculoskeletal system recorded highest cases (32.65%) followed by gastrointestinal (28.57%), respiratory (14.29%), integument (6.12%), ocular (6.12%), Uro-genital (4.08%) and cardiovascular being the least (2.04%). Based on the possible aetiologies, 17 (34.7%) of the cases were associated with infectious causes while 32 (65.3%) were associated with non infectious causes. Three infectious disease classifications were identified and comprised 10 (58.82%) parasitic, 4 (23.53%) bacterial and 3 (17.65%) viral cases. The most important infectious diseases identified as shown in table III were strongyle infections (8.16%),

TABLE III: Distribution of the equine cases associated with infectious cause

Infectious cause	Diseases	No. cases (%)	Total prevalence (%)
Bacterial	Actinobacillosis	1(2.04)	
	Conjunctivitis	1(2.04)	
	Thrush	1(2.04)	
	Polyarthritis	1(2.04)	8.16
Parasitic	Babesioisis	1(2.04)	
	Lousiness	2(4.08)	
	Strongyle infection	4(8.16)	
	Verminous pneumonia	3(6.12)	20.41
Viral	Equine influenza	3(6.12)	6.12
Total cases		17	34.6

TABLE IV: Distribution of the equine cases associated with non-infectious cause

Diseases/ Clinical conditions	No. cases (%prevalence)
Colic	9 (18.37)
Eruption cyst	1 (2.04)
Squamous cell carcinoma	1 (2.04)
Lameness	4 (8.16)
Laceration / traumatic injury	3 (6.12)
Fracture	2 (4.08)
Traumatic myositis	1 (2.04)
Laminitis	1 (2.04)
Gonitis	1 (2.04)
Rhabdomyolysis	1 (2.04)
Recumbency	1 (2.04)
Corneal opacity	1 (2.04)
Ocular papilloma	1 (2.04)
Rectal prolapsed	2 (4.08)
Hernia	1 (2.04)
Haematoma	1 (2.04)
Ethmoid hematoma	1 (2.04)
Total cases	32 (65.4)

verminous pneumonia (6.12%), equine influenza (6.12%), lousiness (4.08%), babesiosis (2.04%) and actinobacillosis (2.04%). Of the non-infectious causes, colic (18.37%), lameness (8.16%), laceration/traumatic injury (6.12%), fracture (4.08%) and rectal prolapse (4.08%) were the important clinical conditions identified (Table IV).

DISCUSSION

Despite the significance of horses in Sokoto caliphate and its environs, where they are used for transportation, riding, durbar, racing, and farm work, no work has been reported regarding their common disease and clinical conditions except few case reports and some isolated disease entities (Abubakar *et al*., 2007; Alayande *et al*., 2013). Considering the estimated population of horses in Sokoto as reported by FAOSTAT (2013), their common usage and the traditional husbandry type of management employed by most horse owners/handlers, one would expect more clinical affections and high cases that would require veterinary expertise. However, the result of this study showed fewer equine cases compared to the total large animal cases handled within the study period. Probably horse owners are not well informed or aware of the importance of routine veterinary visits for early disease diagnosis and management or the habit of non-willingness to pay for veterinary services may be the reason. More so, it has been reported that importance given to costs of veterinary care is one of the most important obstacles among pet owners to veterinary visits (Volk *et al*., 2011). This could explain why most horse owners or handlers self-treat their horses. The increase in cases observed between 2012 and 2015 was associated with increase in awareness due to increase in number of equine clinicians on call.

The high prevalence cases (85.7%) recorded in males may be associated with the main purpose (ie racing and durbar) of keeping horses in Sokoto state as reported by Sa'ad (2014) and the fact that male horses have a very high prestige in traditional circles. Royalty and companionship attached to horses may also contributes to what makes adult male horses population to be higher since the owners are more attached to their horses thereby keeping them for a long period of time. In addition durbar processions required experienced horses which are capable of tolerating all the ceremonial displays, and this will make horse owners to prefer experienced ones rather than keeping young horses that will require training before they can be used. It is therefore, not surprising that more cases were observed in adult male horses. The preponderance of the local breed among the horses kept in the study area (Mayaki *et al*., 2014) was the reason attributed to higher cases recorded in the local breed. According to body systems involved, musculoskeletal recorded highest cases (32.7%), followed by gastrointestinal (28.6%), respiratory (14.3%), ocular (6.1%), integument (6.1%), urogenital (4.1%) and cardiovascular system (2.0%). 3(4.1%) cases not associated with any body systems were categorized as miscellaneous. The higher cases of musculoskeletal conditions recorded may be a reflection of their sport-like activities such as racing and durbar, and farm work they are commonly used for in the study area. This finding is also supported by Goraya *et al*. (2013) who reported higher frequency of musculoskeletal conditions among the body systems. Although, the musculoskeletal conditions reported were more of wound and lameness. Based on infectious causes 9 different diseases which accounted for 17 of the cases were identified. The parasitic cases had the highest percentage (10/17), followed by bacterial (4/17) and viral (3/17) cases. The four parasitic diseases recorded were strongyle infection, verminous pneumonia, lousiness and babesiosis. Equine influenza was the only viral disease recorded while

actinobacillosis, polyarthritis, conjunctivitis and thrush were the diseases associated with bacteria aetiologies. Parasitic diseases have constantly been reported as the most occurring diseases in horse's population (Useh *et al.*, 2005; Goraya *et al*., 2013). Coprological analysis of 54 horses from Sokoto revealed 84.4% prevalence with 75.5% being ova of *Strongylus* spp (Alayande *et al*., 2013). Umar *et al.* (2013) also reported 68.8% prevalence rate for *Strongylus* spp. Noninfectious causes accounted for 32 (65.4%) cases of 17 diseases and/or clinical conditions. The clinical conditions with highest percentage was colic with 9 cases, followed by lameness with 4 cases, laceration/traumatic injury with 3 cases, fracture and rectal prolaspe with 2 cases each. This result agreed with the report of different researchers who considered colic has one of the most important equine health problems encountered by veterinarians as well as horse owners (Mellor *et al*., 2001; Akinrinmade and Olusa, 2009; Hart and Southwood 2010)

CONCLUSION

This study provides an idea of prevailing equine diseases and clinical conditions in Sokoto as per cases handled in the veterinary teaching hospital.

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