

ASSESSMENT OF COCCIDIAL OOCYSTS IN ONE HUMPED CAMELS (*Camelus dromedarius*) IN SOKOTO, NIGERIA

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Abstract

One humped camels (*Camelus dromedarius*) were assessed for coccidia oocysts in Sokoto metropolitan abattoir, Sokoto State, Nigeria where an average of 10 to 15 camels were slaughtered per day on an open concrete slaughter slab. A total of 200 randomly selected camels made up of 124 males and 76 females were aged by dentition and faecal samples collected between February and September, 2015 for identification of coccidia oocysts. All the camels sampled were above one year of age and all were negative for the presence of coccidia oocysts in the faeces. Further studies are recommended in camels less than one year of age, to determine the possibility of the occurrence of coccidia oocysts in that age bracket in Sokoto. Also, camel herds should be monitored regularly for coccidia oocysts and promptly treated while the improved management practices and associated improvement in the hygiene of camel breeding areas should be maintained.

Keywords: Camel, Coccidia oocysts, Sokoto

Introduction

Domesticated representatives of camels are an important part of the national livestock populations of numerous countries in arid and semi-arid regions of Asia and Africa, as well as the high mountains of the Andes in South America. *Camelus dromedarius*, the dromedary or one-humped camel has a world estimated population of over 15 million, with approximately 80% in Africa and 20% in Asia (Fassi-Fehri, 1987). The dromedary camel has traditionally been used as a beast of burden as it guarantees movement and trade activities for the nomadic and semi-nomadic population (Teka, 1991).

Other uses of camels for the nomadic population include the production of milk, meat, hides and a potential for traction. The camel's endurance in the hottest regions of the world, with less water consumption and feeding on thorny bushes is some of its peculiar characteristics (Teka, 1991). The camel is hardy with unique physiological systems which allow it to thrive under arid conditions and fill an important niche in desert eco-systems.

Nigeria has only the dromedarian camel, with an uncertain population record due to intermingling livestock market relationship with the neighbouring countries especially Niger, Chad, Cameroon and Benin Republic (Bello *et al.*, 2013). Despite the general reputation for hardiness and resilience, camels are however vulnerable to many infections, parasitic agents, physical stress and

occupational injuries. The signs of ill health in camels may be masked because of the normal variations in physiological functions (Mohammed *et al.*, 2007).

These various endo and ecto-parasitic diseases are major constraints to the improvement of camel health. These diseases are accompanied by high morbidity and cause substantial economic losses in terms of decrease in working capacity, growth and productivity (Fassi-Fehri, 1987). In Nigeria, few deaths of camels are attributed directly or indirectly to parasitic diseases and are undoubtedly a major cause of economic loss (Tefera, 2004).

With the introduction of sedentary, semi-intensive systems of camel farming, parasite may assume much more significant role in camel husbandry (Borji *et al.*, 2010). In Nigeria, many systemic studies has been carried out so far regarding occurrence of different parasitic diseases in camels in different geographical regions and their impact on the economy of the farmers, but there is need to update the study of prevalence of camel coccidiosis in Sokoto. Camel coccidiosis generally have not been extensively studied, probably owing to the hostile environment in which the camels live and non-sedentary nature of the herds, constantly moving in search of food and water (Kohler-Rollefson, 1994).

Coccidiosis is a contagious enteritis in all domestic animals characterised by diarrhoea, dysentery, anaemia and inferior growth rates and production especially in young animals housed or

confined in small areas (Radostits *et al.*, 2007). The first sign of clinical coccidiosis is the sudden onset of diarrhoea with foul-smelling, fluid faeces containing mucus and blood. The perineum and tail are soiled with blood stained faeces. Severe straining is characteristic, often accompanied by the passage of faeces and rectal prolapse may occur. Anaemia, dehydration or haemoconcentration and reduced growth rate may be seen. Severely affected animals do not quickly regain the body weight losses which occurred during the clinical phase of the disease. Nervous signs consisting of muscular tremors, hyperaesthesia, clonic-tonic convulsions with ventroflexion of the head and neck and nystagmus, and high mortality rate (80 to 90%) may occur in young animal with acute clinical coccidiosis.

In this study, one humped camels were assessed for coccidia oocysts in Sokoto metropolitan abattoir, Sokoto State, Nigeria.

Materials and Methods

Study area: The study was conducted from February to September 2015, in Sokoto abattoir, Sokoto State, Nigeria, where livestock animals including camels are slaughtered. Most of the animals are sourced from local farmers and neighbouring villages. An average of 10 to 15 camels were slaughtered per day on an open concrete slaughter slab. Sokoto is located between longitudes 11°30 and 13°50E and latitude 4° to 6°N with the two main seasons, the wet in June and the dry from November to May. It has an annual rainfall of between 550mm and 1,300mm, temperature of 28-48°C and mean monthly relative humidity 15-40% (Alayande *et al.*, 2012). Sokoto State is placed second with regards to livestock population in Nigeria.

Sample collection and Processing: Camels examined in this study were the one humped species (*Camelus dromedarius*). A total of 200 local breed of camels made up of 124 males and 76 females were selected randomly at post-slaughter, aged by rostral dentition (Bello *et al.*, 2013) and faecal samples were collected using a pair of polythene gloves from rectum after adequate restrain. The polythene gloves were labelled, the gross appearance and nature of the faeces, date of collection, age and sex were noted. All polythene gloves containing samples were placed in bags and transported within hours to the Parasitology and Entomology Laboratory of Faculty of Veterinary Medicine, Usmanu Danfodiyo University, Sokoto for parasitological analysis (using floatation technique and sporulation of coccidia oocysts). Faecal examination for oocysts

using saturated sodium chloride (NaCl) solution as floatation medium (400g NaCl in 1000ml of distilled water) was carried out.

Results and Discussion

The distribution of sex and age of dromedary camels slaughtered in Sokoto is presented in Tables 1 and 2 respectively. Coccidia oocysts were found in none of the faecal samples of camels examined in this study and hence, sporulation of oocysts could not be done. None of the camels sampled in this study was less than one year of age. 34.5% of the camels were in 1 to 6 years age group, 55.0% in 7 to 12 age group and 10.5% in 13 to 18 age group. 62.0% of the camels were males and the remaining 38.0% were females. The results of our study is in agreement with that of Dia, (2006) who carried out a survey of parasites of camels in Burkina Faso but found no coccidia oocysts throughout the survey.

Coccidiosis is pathogenic in dromedaries in Kenya and other countries, where *Eimeria* and *Isospora* protozoans were incriminated to cause severe enteritis (Ouhelli and Dakkak, 1987). Chineme, (1980) reported a clinical case of coccidiosis in Nigeria due to *Eimeria cameli* in a five year old camel. Following purchase, the camel developed clinical signs of progressive wasting and was euthanized. Confirmation of coccidiosis was by necropsy and histopathological findings while the oocysts of *E. cameli* were found in the jejunum. The coccidian species associated with disease in camels are primarily *E. cameli* and *E. dromedarii* (Ouhelli and Dakkak, 1987).

Mahmuda *et al.* (2014) investigated the prevalence and distribution of gastrointestinal parasites of working camels in Sokoto metropolis. They recorded a prevalence of 8.33% for coccidia oocysts from the faecal samples collected. This is at variance with the results obtained in our present study even though we collected samples from camels in the abattoir getting ready for slaughter. The absence of coccidia oocysts observed in this present study may be as a result of improved management practices and associated improvement in the hygiene of camel breeding areas.

Successful control of coccidiosis in herbivorous animals will depend on avoiding the overcrowding of animals while they develop an immunity to the coccidial species in the environment. The floor should be well drained, kept dry, cleaned out frequently and beddings disposed of so that oocysts do not have time to sporulate and become infective. In addition to strategic use of coccidiostats, feed and water troughs should be high enough to avoid heavy faecal contamination while feeding on the ground should be avoided if

possible, particularly when overcrowding is a problem.

This study concluded that all the camels sampled were negative for the presence of coccidia oocysts in the faeces. Further studies are therefore recommended in camels less than one year of age, to determine the possibility of the occurrence of coccidia oocysts in that age bracket in Sokoto. Also, camel herds should be monitored regularly for coccidia oocysts and promptly treated while the improved management practices and associated improvement in the hygiene of camel breeding areas should be maintained.

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Table 1: Distribution of sexes of dromedary camels slaughtered in Sokoto

Sex	Number (%)	Coccidia oocysts (%)
Male	124 (62.0)	0 (0.0)
Female	76 (38.0)	0 (0.0)
Total	200 (100.0)	0 (0.0)

Values in parenthesis are percentages

Table 2. Age distribution of dromedary camels slaughtered in Sokoto

Age range	Number (%)	Coccidia oocysts (%)
1-6	69 (34.5)	0 (0.0)
7-12	110 (55.0)	0 (0.0)
13-18	21 (10.5)	0 (0.0)
Total	200 (100)	0 (0.0)

Values in parenthesis are percentages