

BRIEF COMMUNICATION

AFRICAN JOURNAL OF CLINICAL AND EXPERIMENTAL MICROBIOLOGY MAY 2017 ISBN 1595-689X VOL18 No. 2
AJCEM/1720 <http://www.ajol.info/journals/ajcem>
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AFR. J. CLN. EXPER. MICROBIOL. 18 (2): 129-131

TRYPANOSOMIASIS IN A MIGRATING HERD OF CATTLE IN KADUNA STATE NIGERIA

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ABSTRACT

The aim of this study is to evaluate the prevalence and impact of Trypanosomiasis on a herd of migrating/pastoral cattle. A herd of 50 white Fulani cattle migrating from a suburban area of Abuja to Afaka in Igabi Local Government Area of Kaduna State, Northern Nigeria, were examined and screened for Trypanosomiasis on request. The animals showed clinical symptoms of lacrimation, emaciation, depression, lethargy and enlarged superficial lymphnodes which were reportedly not present before the trek. 40 of the animals were screened by parasitological means (hematocrit, buffy coat methods and thin and thick blood smears). 15 out of the 40 animals sampled were positive for trypanosomes (37.5% prevalence). *Trypanosoma congolense* was the only *Trypanosoma* species identified. Trypanosomiasis was observed in the herd examined and laboratory examination corroborated the observed clinical signs. The results, as well as the role of migration and transhumance pastoralism in disease occurrence are discussed.

Key words: Trypanosomiasis, trypanosomes, cattle, Fulani, migration, Nigeria.

LA TRYPANOSOMIASE DANS LA MIGRATION D'UN TROUPEAU DE BOVINS DANS L'ÉTAT DE KADUNA NIGERIA

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RÉSUMÉ

Le but de cette étude est d'évaluer la prévalence et l'impact de la trypanosomose sur la migration d'un troupeau de bétail pastoral. Un troupeau de 50 bovins Peuls blanc migration à partir de la banlieue d'Abuja à Afaka dans Igabi du gouvernement local de l'État de Kaduna, au nord du Nigeria, ont été examinés et un dépistage de la trypanosomose sur demande. Les animaux ont présenté des symptômes cliniques de l'emaciation, larmoiement, la dépression, la léthargie et superficielle lymphnodes élargie qui auraient été pas présent avant le trek. 40 de ces animaux ont été éliminés par des moyens (hématocrite parasitologique, méthodes d'extraction de la couche leucoplaquettaire et frottis de sang fine et épaisse). 15 des 40 animaux de l'échantillon étaient positifs pour des trypanosomes (37,5 % de prévalence). *Trypanosoma congolense* était le seul *Trypanosoma* espèces identifiées. La trypanosomose a été observée dans le troupeau examiné et examen en laboratoire corroborent les signes cliniques observés. Les résultats, ainsi que le rôle de la migration et le pastoralisme transhumant dans les cas de maladie sont discutées.

Mots clés: la trypanosomiase, trypanosomes, bovins, Peul, la migration, le Nigeria.

INTRODUCTION

Trypanosomiasis still remains the major disease preventing optimum livestock production in Africa. With over 48 million cattle at risk, 3 million livestock deaths annually and up to US\$5billion lost yearly in livestock production and mixed agriculture, it is ranked among the top ten cattle diseases in the world (1, 2, 3). Nigeria, which has the highest number of cattle in Africa, stands to increase her cattle

production over three folds if trypanosomiasis and tsetse are controlled (4).

The bulk of Nigeria's cattle are reared extensively through transhumance pastoralism by the native Fulani. This system involves seasonal migration to secure food and water for cattle herds and also to avoid disease outbreaks (5). The unique ability of Fulani pastoralists in carrying herds across different

terrains to places of their choice has led to their being used to herd cattle for cattle owners who cannot do it themselves or who cannot afford to transport them by road when they are in need of a new location for their herds. The herd in this study were herded by Fulani men from a farm in Orozo (a suburban area around Abuja, Nigeria's capital) to Afaka (in the outskirts of Kaduna city, Northern Nigeria) due to poor feeding conditions (absence of pasture) in the former area and also security concerns.

MATERIALS AND METHODS

In the month of April 2011, a team of research staff from the Nigerian Institute for Trypanosomiasis Research (N.I.T.R) were invited by the herd owner to examine the herd located in Afaka village in the outskirts of Kaduna city, Nigeria. There were 50 animals in all. The herdsman had reported that the animals were in poor condition having rough hair coat, lacrimation and loss in weight despite a good appetite. These signs were reportedly not present before the trek from the Abuja farm. The trek was in the month of February and lasted 10 days. This information was corroborated by the visiting clinician at the farm. Clinical examination revealed lacrimation, emaciation, depression, lethargy and enlarged superficial lymphnodes.

Four milliliters of jugular blood was collected from 40 of the animals using syringes and needles and the contents transferred into commercially obtained sample bottles containing ethylene diamine tetra acetic acid (EDTA). The blood samples were kept cool by placing them in cold boxes containing ice packs after collection. Parasitological examination was carried out in the N.I.T.R. Laboratory using the haematocrit centrifugation technique, HCT (6), buffy coat method (BCM) (7) and Giemsa stained thin films made after BCM examination. The packed cell volume (PCV) of each animal was also determined while trypanosome species were identified based on their motility using the BCM and morphological features from Giemsa stained films.

RESULTS

The prevalence rate obtained after examination of the samples was 37.5% (15 out of the 40 animals sampled). *Trypanosoma congolense* was the only *Trypanosoma* species identified.

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DISCUSSION AND CONCLUSION

The occurrence of trypanosomiasis observed in this herd is not an uncommon feature in migrating herds. Grazing land and stock-routes top the list of Fulani's demands from the government. This is because the expansion of the grazing reserves and maintenance of stock routes will boost livestock population, lessen the difficulty of herding, reduce seasonal migration, and enhance the interaction among farmers, pastoralists, and rural dwellers (5, 8).

11 of the 23 known species of tsetse are found in Nigeria (4). These fly belts exist in different parts of the country including the areas through which these animals migrated. This allows for adequate exposure to the vector and the disease even if they weren't before the trek. However, the trek alone is enough to elicit enough stress in the animals to weaken their immunity and allow the progress of a disease even with very little exposure to the disease or its vector. The promotion and maintenance of stock routes would allow for proper resting, treatment and quarantine of migrating animals. Also the use of rail systems is far cheaper but has failed and is not an option for cattle owners today.

This accounts for the poor production of livestock in the region as well as the low profitability due the large amounts of money spent on treatment of diseases (over US\$35 million annually in Africa on trypanocides alone according to 9).

Trypanosoma congolense has consistently been observed to be most prevalent and important in cattle populations (10, 11).

The occurrence of trypanosomiasis in migrating herds is most likely to reduce if the proper structures for herding and transportation of the regions cattle are put in place. Before then, herders have the option of prophylactic treatment of their animals before treks and also the use of insecticide pour-ons or spot-ons to reduce or prevent attack by biting flies. Points for adequate rest feeding and drinking should also be fitted into the travel schedule before embarking on the journey.

In conclusion, trypanosomiasis was observed in the herd examined and laboratory examination corroborated observed clinical signs.

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