

Incidence of bovine trichomoniasis in Nigeria

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RÉSUMÉ

Le cas de la trichomonose bovine au Nigeria

L'auteur a recherché *Trichomonas foetus* chez 960 bovins abattus à Ibadan, provenant en grande partie des contrées Nord de la Nigeria. Les prélèvements effectués dans le fourreau et à l'orifice préputial des mâles et dans le vagin des femelles, colorés au Leishman ou au Giemsa, ont donné 144 cas positifs, avec un pourcentage général d'infection de 8,75 p. 100 chez les mâles et 6,23 chez les femelles, soit 15 p. 100 pour la totalité des animaux examinés.

Une enquête semblable menée dans un ranch d'élevage intensif auprès de 200 animaux a montré que 142 d'entre eux étaient infectés, dont 100 p. 100 des mâles et 42 p. 100 des femelles, avec un taux général d'infection de 71 p. 100.

L'auteur discute de l'incidence de la maladie sur le développement du troupeau bovin de la Nigeria et souhaite que la lutte contre la trichomonose s'organise sur des bases aussi bien médicales que de prophylaxie sanitaire avec des moyens en rapport avec son importance.

INTRODUCTION

Many micro-organisms undermine the health and proper performance of cattle as they do in other animals and man. Some of these micro-organisms are highly contagious while some are mildly so. Some others are highly infectious. *T. foetus* is a protozoan which causes a contagious venereal disease of bovine. It was first discovered by MANZZANTI (1900). Since then, a lot of work has been done on its incidence especially in the United States and Britain. The first case reported in the U. S. A. was by EMMERSON (1932) in Pa McNutt. WALSH and MURRAY (1933) also reported the disease in Iowa.

The disease has also been reported in Britain by STABLEFORTH, SCORGIE and GOULD (1937) and in Australia by ALEXANDER (1953) (2) and SUTHERLAND *et al.* (1953) (6). Since then, the disease which had been thought to be world wide has been reported in France and South Africa. Although *T. foetus* is known to be widely distributed, only few studies have been

made of its incidence. In Nigeria for example, the disease occurs here but there has not been any documented evidence to justify or prove its existence. Yet, the disease is so important in the light of the havoc it has done to livestock industry in the world that much studies need to be done on it. The aim of this investigation therefore is to ascertain the degree of incidence of this disease both in the static herd and in the trade cattle brought from all parts of the Northern States of Nigeria as well as its neighbouring countries.

MATERIALS AND METHODS

Neuf cent soixante animals were sampled during the course of this investigation out of which 400 heads of cattle were male and 560 were female. Four breed representations were encountered : the White Fulani or Bunaji (480), the Sokoto Gudali (204), the Red Bororo (56) and the Keteku and other crosses (220). The exact origin of the cattle is not known with certainty

except that they form part of cattle transported from the more Northern parts of the country by road, railway or trekk to the Southern parts of the country. It is possible that some breeds might have crossed to Nigeria from the neighbouring countries like Chad, Niger Republic and Mali. Also no history of previous disease was recorded before the animals were brought for slaughter. It was however evident that all of the cattle examined were above two years.

Sterile swab sticks were used to collect samples from the animals before the animals were slaughtered. Saline solution was then used in case of bull to wash the lining of the preputial cavity into a container. In the cow, the sterile swab was inserted into the vulva and vagina of the animal after the vulva labiae had been parted apart from vaginal saline washing. All these were carried to the laboratory for further examinations. Two swab smears were made on clean sterile slides from each of the animals examined. The slides were allowed to dry before fixing with methanol. After about 5 mn., the slides were already dry and were grouped into two before staining. One group was stained with Giemsa and the other with Leishmann. The slides were later examined under the light microscope for detailed observation. Similarly, samples were collected from the static herd at Upper Ogun in Oyo State and were brought to the laboratory for fixing and staining. The breed representation there include White Fulani (120) Crosses (60) and Sokoto Gudali (20). The slides were similarly examined in the laboratory under light microscope.

Some wet mounts were also made from the saline washings after they have been allowed to settle for sometime and centrifuged (1).

DISCUSSION

Of all the 960 samples collected from trade cattle, only 144 (14.98 p. 100) were positive for *T. fetus* out of which bulls were 85 (8.75 p. 100) and cows and heifers numbered 59 (6.23 p. 100) (table I). The total infection rate of 14.98 p. 100 for all the trade animals is quite high. This goes to show that the disease is fairly prevalent in this country. The fact that the infection rate among the bulls is higher points to the fact that bulls are carriers and will harbour the organisms permanently if not treated.

Among the cows, the prevalence diminishes

TABLE I Trade cattle

Breed	Sex	Number sampled	Number positive	Percent infection
White Fulani (Bunaji)	Male	206	18	9.0
	Female	274	15	5.5
Sokoto Gudali	Male	84	8	9.3
	Female	120	4	3.3
Keteku & Other Crosses	Male	90	7	7.7
	Female	130	6	4.6
Red Bororo	Male	20	2	10
	Female	36	2	5.5
Average p.100 infection			Male = 8.75	p.100
			Female = 6.23	p.100
Total p.100 infection			=14.98 p.100	

with age. In fact, the condition may only produce clinical manifestations in heifers when they are contacted. In older cows, immunity would have developed from any previous infection and since it is a self — limiting disease in cows, it can then be seen why the number of positive cases was less in cows than in bulls. In the established ranch at Upper Ogun, the infection rate is about 71 p. 100 (table II) since 142 out of 200 animals sampled had the infection.

TABLE II Established cattle ranch upper ogun

Breed	Sex	Number sampled	Number positive	Percent infection
White Fulani (Bunaji)	Male	18	18	100
	Female	102	57	56
Keteku & Crosses	Male	10	10	100
	Female	50	15	30
Sokoto Gudali	Male	5	5	100
	Female	15	6	40
Average p.100 infection			Male = 100	p.100
			Female = 42	p.100
Total p.100 infection			= 71 p.100	

This is an intensive husbandry and once a bull is a carrier in the herd, or a cow is infected the disease generally spreads to all the animals in the herd. This explains also why it is low in nomadic cattle. Animals are not usually put together in one place. They are nomadic and it is very difficult for majority of them to be infected since even carrier bull may not be in their company.

While in the nomadic cattle the incidence is higher in bulls than in cows, the proportion is fairly high in the cows and very high in the bulls in the established ranch since the chance of infection of all the animals is high (table III).

TABLE III Comparative study

	Trade cattle		Cattle ranch	
	Sex	Percent infection	Sex	Percent infection
White Fulani	Male	9	Male	100
	Female	5.5	Female	56
Keteku & Crosses	Male	7.7	Male	100
	Female	4.6	Female	30
Sokoto Gudali	Male	9.3	Male	100
	Female	3.3	Female	40
Red Bororo	Male	10		Not available
	Female	5.5		

Why there is not 100 p. 100 infection in the herd could be that the disease had not spread yet to same cows and if it had spread to them, it is possible that since the disease is self-limiting in cows, some cows must have recovered probably after abortion.

This investigation has revealed that the infection does exist among our indigenous cattle.

Bovine trichomoniasis is a venereal disease transmitted by coitus. It can also be transmitted by artificial insemination. Non-venereal transmission is very rare under natural conditions. After infection, the organism multiplies at first in the vagina causing vaginitis. They may invade the uterus through the cervix after which they may disappear from the vagina or may remain there causing low grade inflammation and catarrh (4). Early abortion is characteristic occurring between 8-16 weeks with the foetus being so small that it may not be observed by the owner. Owner might infact conclude failure to conceive and with irregular heat period (5). It is very rare for abortion due to *T. fetus* to

occur after six months of gestation. When the placenta and foetal and placental membranes are completely eliminated following abortion, the cow or heifer usually recovers spontaneously. However, chronic catarrhal or purulent endometritis which may cause permanent sterility may occur if a part of placenta or membrane remains. Sometimes, the abortion fails to occur following foetal death and maceration results in the uterus (4). Pyometra results while the uterus contains large quantities of thin greyish white fluid swarming with the organism. The cervical seal may remain intact or may allow small amounts of fluid escape when the animal is lying down. Animals with pyometra seldom come on heat and thereby makes owners believe there is a pregnancy (4). In long standing cases, the organisms may disappear from the uterus. However, occasionally, normal gestation and calving may occur, although this is very rare. In the bull, the most common site of infection is the preputial cavity though the testes, epididymis and seminal vesicles may be involved. This investigation is probably the first documented work to ascertain the extent of *T. fetus* incidence among the breeds of cattle in Nigeria. This report is of great importance in livestock industry, because a country like Nigeria anxious to develop modern livestock industries could not afford great economic losses as a result of *Trichomonas* infection which has retarded the growth and expansion of livestock industries. By ascertaining such diseases, efforts could therefore be made with a view to controlling and/or preventing the occurrence of the disease.

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SUMMARY

Investigations were conducted into the incidence of *Trichomonas fetus* in 960 trade cattle slaughtered at the Ibadan abattoir between June 1979 to May 1980. Specimens were taken from the preputial sheath and orifice of the male and the vagina of the female cattle. A total of 144 positive cases were recorded by the method of direct examination of slides stained with both Leishman and Giemsa.

A similar investigation was conducted in 200 heads of static herd at the Cattle Ranch, Upper Ogun, Oyo State and 142 positive cases were recorded using similar method of examination.

RESUMEN

Casos de tricomoniasis bovina en Nigeria

El autor buscó *Trichomonas fetus* en 960 bovinos matados a Ibadan, proviniendo por la mayor parte de las areas norte de la Nigeria. Las muestras efectuadas en la envoltura y en el orificio del prepucio de los machos y en la vagina de las hembras, coloradas con Leishman o con Giemsa, daron 144 casos positivos ; el porcentaje general de infección era de 8,75 p. 100 en los machos y 6,23 en las hembras, sea 15 p. 100 de la totalidad de los animales examinados.

Una encuesta semejante efectuada en 200 animales de una ganadería intensiva mostró que 142 de ellos estaban infectados de que 100 p. 100 de machos y 42 p. 100 de hembras, con una tasa general de infección de 71 p. 100.

El autor discute sobre la incidencia de la enfermedad sobre el desarrollo del rebaño de bovinos de la Nigeria y desea que la lucha contra la tricomoniasis se organice a partir de bases medicales tan como de profilaxia sanitaria con medios en relación con su importancia.

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