

## **Prevalence of Hydatid Disease in Cattle and Camel Slaughtered at Damaturu Abattoir, Nigeria**

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### **ABSTRACT**

A prevalence study of hydatidosis among cattle and camel slaughtered at Damaturu abattoir, Yobe State, Nigeria, from 2003 to 2006 was conducted using slaughter records and post-mortem inspection of organs. Out of 8, 592 cattle and camel inspected, 0.6% was positive with specific prevalence of 0.4% in cattle and 6.3% in camel. There was no significant difference in the prevalence ( $p>0.05$ ) of the disease among the years and also among the sex of the species studied. The Male cattle had a prevalence of 0.1% and female 1.1% while male camel had 1.5% and female 12.6%. No significant difference ( $p>0.05$ ) was observed between the organs inspected including the lungs (0.15%) the liver (0.06%) and the spleen (0.05%). It was concluded that the prevalence of the disease is low in cattle and camel slaughtered at the abattoir. Strategic deworming of the ruminants and dogs with anthelmintics and proper meat inspection with incineration of affected organs may help to control the disease.

**Keywords:** Hydatid disease, prevalence, abattoir, ruminants

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### **INTRODUCTION**

Domestic livestock including cattle, camel, sheep, and goats play an important role in improving the national economy of Nigeria through the provision of important products such as meat, milk, hides and skin (David-West, 1983). However, parasitic disease including hydatidosis, fascioliasis and cysticercosis which could be zoonotic constitute a major economic problem by lowering the productivity of these animals (Biu and Adindu, 2004; Biu and Babagana, 2004). Hydatid disease or hydatidosis is a zoonotic parasitic disease caused by hydatid cyst, the larval stage of the dog tapeworm *Echinococcus*. It is of serious public health importance in certain parts of the world in addition to economic losses from the condemnation of affected organs (Schantz, 1990).

Prevalence studies of ruminant hydatidosis in some parts of Nigeria have been carried out and were as low as 0.8% in cattle and as high as 70% in camel (Arene, 1985; Dada and Belino 1987; Ajogi *et al.*, 1995; Adamu and Ajogi, 1998; Biu and Adindu, 2004). However, there is dearth of information on cattle and camel hydatidosis in Yobe state, which necessitate this study.

### **MATERIALS AND METHODS**

#### ***Study area***

The study was carried out at the abattoir in Damaturu, the Yobe state capital. The state is located in the semi-arid zone of North-eastern Nigeria with an estimated land mass of 47,153 square kilometers and is one of the highest livestock producing areas in the country. It lies within latitude 13 - 15° 43"N and longitude 14° 25" - 15° 15" E (Bourn *et al.*, 1994). Damaturu was selected as sampling point because animals are brought from all over the State for sale and slaughter.

#### ***Retrospective study***

Meat inspection records of cattle and camel slaughtered between 2003 and 2005 were obtained from the abattoir. Data on the number of the animals slaughtered, the species, the sex and number with hydatid cysts for each year were collated and analyzed.

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**Sample collection and examination**

Visits were made to the abattoir in the year 2006 for 16 weeks and cattle and camel slaughtered were grossly inspected for hydatid cysts.

The number of animal inspected, species, sex and organs infected were recorded. The suspected cysts were collected in 10% formalin and taken to the Veterinary Parasitology Laboratory of the University of Maiduguri for identification using the description of Soulsby (1982).

**Statistical analysis**

Simple percentages and comparison of means and standard deviation were used to analyze results statistically.

**RESULTS**

The results of this study showed that of the 8592 cattle and camel inspected post- mortem at the Damaturu abattoir between 2003 and 2006, 48 (0.6%) had hydatid cysts made up of cattle (0.4%) and camel (6.3%) (Table 1).

**Table 1.** Prevalence of hydatidosis in slaughtered cattle and camel at Damaturu abattoir from year 2003 to 2006

Year	Cattle		Camel	
	No. examined.	No. (%) infected	No. examined.	No. (%) infected
2003	1892	1(0.1)	52	1(1.9)
2004	2221	7(0.3)	61	1(1.6)
2005	2877	10(0.4)	77	1(1.3)
2006	1365	15(1.1)	47	12(25.5)
Total	8355	33(0.4)	237	15(6.3)
Mean $\pm$ SD		8.25 $\pm$ 5.85		3.75 $\pm$ 5.5

The results also showed that of the 8,355 cattle inspected after slaughtered, 5,799 were males with 0.1% prevalence and 2,556 female with 1.1% prevalence. Also of the 237 camel inspected at slaughter, 134 were male with 1.5% prevalence and 103 female with 12.6% prevalence ( $p>0.05$ ) (Table 2).

**Table 2.** Prevalence of hydatidosis in slaughtered cattle and camel at Damaturu abattoir from year 2003 to 2006 based on sex

Sex	Cattle			Camel		
	No. examined.	No. (%) infected.	Mean $\pm$ SD	No. examined.	No. (%) infected.	Mean $\pm$ SD
Male	5799	6(0.1)	1.50 $\pm$ 1.3	134	2.0(1.5)	0.50 $\pm$ 1.0
Female	2556	27(1.1)	6.75 $\pm$ 4.6	103	13.0(12.6)	3.25 $\pm$ 4.5
Total	8355	33(0.4)		237	15(6.3)	

In cattle, infected organs showed that lungs, liver and spleen had 0.12%, 0.05% and 0.04% and in camel 1.27%, 0.42% and 0.42% prevalence respectively, but there was no statistical variation ( $p>0.05$ ) on the prevalence rate as far as the organs were concerned (Table 3).

**DISCUSSIONS**

Although the findings of this study showed that prevalence rises by each year of the study in both cattle and camel inspected, however, there was no significant difference ( $p>0.05$ ) in the prevalence. The overall prevalence of 0.6% in the cattle and camel and specific prevalence of 0.4% and 6.3% for cattle and camel respectively were

however lower than earlier reported values from other parts of the country (Arene, 1985; Dada and Belino, 1987; Ajogi *et al.*, 1995; Adamu and Ajogi, 1998; Biu and Adindu, 2004). This may probably be attributed to periodic treatment of ruminants with antihelmintics. No significant difference was also obtained in the sex susceptibility to the disease between the female and male cattle and camel and so, sex may not be a predisposing factor in the occurrence of the disease. Though no statistical association ( $p > 0.05$ ) was obtained among organs inspected, agrees with earlier reports (Schantz, 1990; Biu and Abagwe, 2001).

**Table 3.** Prevalence of hydatid cysts infected organs at Damaturu abattoir, 2006

Species	No. of animals examined.	No. of organs infected (%)		
		Lungs	Liver	Spleen
Cattle	8355	10(0.12)	4(0.05)	3(0.04)
Camel	237	3(1.27)	1(0.42)	1(0.42)
Total	8592	13(0.15)	5(0.06)	4(0.05)
Mean $\pm$ S.D.		6.5 $\pm$ 5.0	2.5 $\pm$ 2.1	2.0 $\pm$ 1.4

In conclusion the prevalence of the disease in cattle and camel in the study area is low. However, the low prevalence is of significance largely from zoonotic point of view and cattle being a major source of meat for human consumption. In addition to periodic treatment of ruminants and hunting/security dogs with antihelmintics, long-term public health education through primary health care and veterinary public health activities, such as improvements in meat inspection and proper incineration of infected organs should be enhanced to effectively control the disease.

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