

Prevalence of Ovine Babesiosis in Maiduguri, Nigeria

A. A. Biu*, I. A. Gulani and B. Bulama

Department of Veterinary Microbiology and Parasitology, Faculty of Veterinary Medicine,
University of Maiduguri, P. M. B. 1069, Maiduguri, Nigeria

ABSTRACT

Examination of two hundred Giemsa stained thin capillary blood films of sheep, in this study revealed a prevalence of 15 (7.5%) for *Babesia ovis*, of which the breeds of Yankasa, Ouda, and Koraji had infection rates of 6 (40%), 4 (26.7%), and 5 (33.3%) ($p>0.05$). Female and male sheep had infection rates of 8 (53.3%) and 7 (46.7%) respectively ($p>0.05$); while young and adult sheep had infection rates of 5 (33.3%) and 10 (66.7%) respectively ($p<0.05$). The packed cell volume indicated that infected Yankasa had 17.5 ± 4.1 , Ouda (16.0 ± 5.7), and Koraji (18.5 ± 7.8); male (18 ± 5.7), female (20.5 ± 6.4); young (20.0 ± 9.9) and adults (16.5 ± 8.5) which were significantly lower ($p<0.05$) than those of non-infected sheep and indicative of anaemia.

Key words: Prevalence, ovine, babesiosis, Nigeria

INTRODUCTION

Babesiosis is an important tick borne disease caused by several *Babesia* species. The disease which affects many domesticated animals is usually characterized by anaemia, weakness, emaciation and death (Hall, 1977 and Losos, 1986). In Nigeria, babesiosis has been reported to occur in sheep raised in south western and northern Nigeria (Leefflang, 1976; Lamorde, 1986; Anon, 1989). However, in Maiduguri, there is scanty data on parasitic *Babesia* of small ruminants particularly sheep, and thus the need for this study to identify the species responsible and to define the prevalence of the disease.

MATERIALS AND METHODS

A total of 200 individual sheep blood collected from the jugular vein using sterile disposable needles and syringes, into tubes containing ethylene diamine tetra-acetic acid (EDTA) as anticoagulant were used for this study. Thin blood smears were made on clean glass slides, allowed to air dry, fixed with methanol for 3 minutes, stained with Giemsa for 5 minutes, rinsed with distilled water, air-dried and examined under oil immersion at $\times 100$ objective of the light microscope (Biu and Philips, 2004).

Identification of *Babesia* species was based on morphological features of shape, location within the infected erythrocytes and the angle between the pair of parasites as described by Habbila *et al.* (1990); Yeruham *et al.* (1998) and Yeruham and Hadani (2004).

The haematocrit centrifuge technique was used to determine the packed cell volume (PCV%) which was compared with normal standard (Bush, 1975). Data on the breed, sex, and age of the sheep studied was analysed using student's *t*-test (Armitage 1980).

RESULTS

This study revealed that out of 200 sheep blood examined 15(7.5%) contained *Babesia ovis* (Table 1). The prevalence of infection was similar ($p>0.05$) for the Yankasa (40%), Ouda (26.7%), and Koraji (33.3%) breeds. Male (46.7%) and female (53.3%) sheep were equally infected ($p>0.05$) but young animals (33.3%) had significantly lower ($p<0.05$) prevalence than the adults (66.7%). It also shows the packed cell volume based on breed, sex, and age of the infected and normal sheep examined. Infected Yankasa had 17.5 ± 4.1 , Ouda (16.0 ± 5.7), and Koraji (18.5 ± 7.8); male (18 ± 5.7), female (20.5 ± 6.4); young (20.0 ± 9.9) and adults (16.5 ± 8.5) which were significantly lower ($p<0.05$) than those of non-infected sheep.

*Author for correspondence

Table 1. Prevalence of ovine babesiosis with reference to age, sex, and breeds examined

	Prevalence		PV C (%)	
	No. examined	No. (%) infected	Infected	Non-infected
All sheep	200	15 (7.5)	31.9 ± 0.9	18.1 ± 1.7
Age				
Young	81	5 (33.3)	33.0 ± 3.5	20.0 ± 9.9
Adult	119	10 (66.7)	31.5 ± 6.4	16.5 ± 8.5
Sex				
Male	45	7 (46.7)	31.0 ± 4.2	18.0 ± 5.7
Female	155	8 (53.3)	32.5 ± 3.5	20.5 ± 6.4
Breed				
Yankasa	80	6 (40.0)	31.0 ± 7.1	17.5 ± 4.9
Ouda	59	4 (26.7)	31.5 ± 4.9	16.0 ± 5.7
Koraji	61	5 (33.3)	33.0 ± 4.2	18.5 ± 7.8

DISCUSSION

The prevalence of ovine babesiosis was investigated in this study which though very low at 7.5%, probably due to the fact that the prevalence, distribution and incidence of infection is influenced by climatic conditions, and nature of vectors (Ukoli 1984; Biu and Kabono, 2005), and disease is less serious in traditional management systems in endemic areas, as local breeds are hardier and less susceptible, and are better adapted with genetic diversity (Morel, 1989; Yeruham and Hadani, 2004).

Differences in infection rates among the sex and breed of sheep, though not significant in this study, conforms to the report that there is an inverse age resistance to babesiosis, with young animals less susceptible than older ones due to passive protection from maternal antibodies (Morel, 1989; Urquhart *et al.*, 1992). Arnold (1948) reported that some breeds of sheep are resistant to babesiosis than others.

In this study, babesiosis was characterized by a low PCV (%) indicative of anaemia, which was reported as a constant feature mainly due to the breakdown of the red blood cells by the parasite (Losos, 1986). In conclusion, sheep de-ticking should be emphasized among shepherds in addition to chemotherapy.

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