

Short Communication

PREVALENCE OF *SARCOCYSTIS* IN FOOD ANIMALS IN THE SUDAN

HUSSEIN S. HUSSEIN¹ and MOHAMMED WARRAG²

Department of Microbiology and Parasitology, Faculty of Veterinary Science, University of Khartoum, Shambat, Khartoum North, Sudan

The identity and life-cycle of members of the genus *Sarcocystis* were recently elucidated and herbivores including food animals were proved to be intermediate hosts and carnivores final hosts. In the present study the prevalence of *Sarcocystis* infection in food animals in the Sudan was investigated.

Samples (about 400 g each) were collected from the oesophagus, heart, skeletal muscles and diaphragm of various animals slaughtered for human consumption at Tampool and Rufaa (central Sudan), Omdurman Central Abattoir (slaughtered animals come from western Sudan), El Gedarif and Port Sudan (eastern Sudan) and Atbara (northern Sudan) and examined for sarcocysts by the digestion technique of Box and McGuinness (1978). The intensity of infection in each positive sample was estimated using the 5 min count technique of Box and McGuinness (1978) and portions of these samples were also fixed in 10% formol saline for histological examination of sarcocysts.

The results were similar for each species in the various localities hence they were grouped together according to species in Tables I and II. Large numbers of sarcocysts occurred in all four sites in most animals in all four species (Table I). However, the most heavily infected organs differed being the heart in cattle, skeletal muscles in sheep and goats and the oesophagus in camels. In all hosts the sarcocyst walls were thin and smooth and the cysts were divided internally by septa into compartments tightly packed with banana-shaped zoites. Only microscopic cysts were seen in any of the hosts although those in camels were the largest.

Sarcocystis infection is very common in food animals in the Sudan as it is elsewhere. Ginawi and Shommein (1977) found only 4.5% prevalence in Sudanese camels, but these authors only examined samples from the heart and used a much less sensitive histological technique. This high prevalence can be explained by the fact that the animals are raised by nomads who keep large numbers of sentinel dogs with their herds; moreover wild carnivores such as hyaenas and jackals are common in nomadic areas and all of these are likely to contaminate pastures with *Sarcocystis* sporocysts. Human faeces is another source of pasture contamination in these areas. Other factors affecting the prevalence of *Sarcocystis* infection in food animals include the age of the animals surveyed. Higher infection occurs in adult animals (Seneviratna, Edward and DeGiusti, 1975) and all of the animals examined in the present study were adults.

The inability to detect macroscopic cysts in the present study may be due to the fact that such cysts are of feline origin (Munday and Rickard, 1974) and contact between food animals and cats in the Sudan is very rare as the nomadic owners never keep cats.

Accepted for publication August 1984

Present address: ¹Department of Zoology, College of Science, King Saud University, PO Box 2455, Riyadh 11451, Saudi Arabia; ²Veterinary Technicians Institute, Kuku Village, Khartoum North, Sudan.

TABLE I
Prevalence of Sarcocystis infection in food animals in the Sudan

Animal	No. examined	Prevalence (%)	Frequency of infection (%) in organs examined			
			Oesophagus	Heart	Skeletal muscles	Diaphragm
Cattle	180	97.8	56.7	95.6	64.4	63.9
Sheep	128	96.1	46.1	84.4	89.8	66.4
Goats	116	87.1	32.8	35.3	53.4	50.0
Camels	100	81.0	52.0	29.0	42.0	36.0

TABLE II
Intensity of Sarcocystis infection in food animals in the Sudan

Animal	Organ examined	No. of cystozoites in 5 minute counts	
		Mean ¹	Range
Cattle	Heart	880	680-1,120
Sheep	Skeletal muscles	560	320-600
Goats	Skeletal muscles	312	115-486
Camels	Oesophagus	280	85-320

¹Mean counts of 50 samples counted at $\times 400$ magnification.

REFERENCES

- Box, E. D. & McGuinness, T. B. (1978). *Journal of Parasitology*, **64**, 161-162.
 Ginawi, M. A. & Shommein, A. M. (1977). *Sudan Journal of Veterinary Science and Animal Husbandry*, **18**, 92-97.
 Munday, B. L. & Rickard, M. D. (1974). *Australian Veterinary Journal*, **50**, 558-559.
 Seneviratna, P., Edward, A. G. & DeGiusti, D. L. (1975). *American Journal of Veterinary Research*, **36**, 337-339.