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Short communication

Prevalence of intestinal parasites of dogs slaughtered at Mami market area, Sokoto, Nigeria

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ABSTRACT

A parasitological study was carried on faecal samples obtained from intestinal segments of dogs killed for human consumption at Mami Market Area, Sokoto, Nigeria. Faecal samples of 40 different local dogs were analyzed using concentration techniques for the presence of Oocysts, eggs, larvae and adult parasites. Twenty nine (29), representing 72.5% of the samples were positive for one form of parasite or another comprising of fifteen (15) different parasite species. The public health importance of this finding was discussed.

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1. Introduction

Dogs harbor a variety of intestinal parasites, some of which can also infect humans. Present data shows that there is a large number of dogs for which neither housing nor food are provided and which therefore roam the streets constituting health hazards to the public (Omamegbe, 1980). Several gastrointestinal parasites are found in these dogs as a result of general poor maintenance due to low socio-economic status of their owners, improper housing, poor feeding and absence of medication. They constitute a major source of diseases for dogs in the tropics and have been recognized as an important public health problem in several parts of the world (Ezeokoli,

1984). In view of this, some of the dog parasites are reported to be a significant public health problem, especially in developing countries and communities that are socio-economically disadvantaged (Craig & Macpherson, 2000). In these communities, poor levels of hygiene and overcrowding, together with lack of veterinary attention and zoonotic awareness, exacerbate the risk of disease transmission (Hinz, 1980; Malgor *et al.,* 1996). Despite the extensive work carried out so far on intestinal parasites of dogs in various parts of the country (Idowu *et al.,* 1977; Olufemi and Bobade,1979; Dada *et al.,* 1979; Sarror *et al.,* 1979; Fabiyi,1983; Baba *et al.,* 1983; Ezeokoli, 1984; Ugochukwu and Ejimadu,1985), and the world at large (Arambulo and Steel,1976; Hendrix and Blagburn,1983; Vamparijs *et al.,* 1991; Reinemeyer,1997; Bowman,1999), enough has not been done to investigate and evaluate their prevalence here in Sokoto, Nigeria.

The purpose of this study was to investigate the prevalence and distribution of the canine intestinal parasites of zoonotic importance in dogs slaughtered for human consumption in Sokoto metropolis, and to suggest possible solutions and recommendations on their prevention and control.

2. Materials and methods

Sokoto State is located between longitude 11° 30 to 13° - 50 East and latitude 40 to 6° 40 North. The State shares common borders with Niger Republic to the North, Kebbi State to the South, and Zamfara State to the East.

The study covers Mami market dog slaughter unit within Sokoto metropolis where dogs are slaughtered for human consumption. Polythene bags were used to collect the intestinal segments following evisceration. Fourty (40) samples from different local dogs comprising 24 males and 16 females were collected, transported to the laboratory and their content (faeces) immediately processed.

Concentration methods which include sedimentation (formal-ether) and floatation (sucrose) were conducted simultaneously on each sample, and the identification of the forms of the parasites was based on microscopic appearance of the eggs, cysts, and larvae encountered which were then compared with those in standard texts, literatures and micrographs. Adult helminthes were also picked from the segments of intestines of some dogs and were identified by the department of Veterinary Parasitology and Entomology of the Usmanu Danfodiyo University, Sokoto, Nigeria.

3. Results and discussion

Faecal samples analyzed for the presence of cysts, eggs, larvae and adult heminthes species, and Prevalence of canine intestinal parasites in dogs slaughtered at Mami Market Sokoto shown in Table 1, 2. Also, Percentage prevalence of canine intestinal parasites in dogs slaughtered at Mami Market, Sokoto shown in Fig. 1. The distribution of several canine intestinal parasites is well known in many parts of the world, as the management system being employed by the owners is closely related to the economic status of the owners, and the type of dog owned (Omamegbe, 1980). The prevalence of 72.5% recorded in this study is closely related to that reported for other parts of the country: 83% for the Zaria area (Umoh and Asake, 1982); 77.4% for Ibadan (Olufemi and Bobade, 1979); and 86.9% for Calabar (Ugochukwu and Ejimadu,1985).The significantly higher prevalence of Nematodes (60.0%) and Cestodes (20.0%) is in line with the reports of others (Dada *et al.,* 1979; Ezeokoli, 1984; Bobade *et al.,* 1984) who recorded a higher prevalence in older dogs. The most commonly encountered parasite in this study was *Ancylostoma spp* (37.2%), which is in agreement with other research findings in Nigeria (Ugochukwu and Ejimadu, 1985; Onyenwe and Ikpegbu, 2004) and other parts of the world (Jordan *et al.,* 1993; Blagburn, 2001; Ramirez-Barrios *et al.,* 2004). This is of great importance since *Ancylostoma spp* is a well recognized zoonotic agent which may constitute a significant public health risk due to frequent contact between humans and their pets (Chiejina and Ekwe, 1986; Malgor *et al.,* 1996; Ramirez-Barrios *et al.,* 2004). In general, fifteen (15) different types of parasites were found to infest the animal examined. Nematodes with the highest incidence of 67.4% followed by Cestodes 20.9%, Trematodes 7.0% and the least was Protozoa with 4.7%. Three (3) of the Nematodes: *Gongylonema pulchrum,* Trichostrongylus spp and *Graphidium strigosum,* are not usual intestinal parasites of dogs. They usually get infection following ingestion of their definitive or intermediate hosts, which include sheep, goat, chicken, rabbit, fish, snail, beetle, e.t.c. Six (6) different genera of both helminthes and protozoan parasites from the examined samples namely: *Giardia* spp*, Ancylostoma* spp*, Toxacara* spp*, Dipylidium caninum, Trichostrongylus* spp and *Diphyllobotrium latum* are zoonotic as far as public health is concerned (Hinz, 1968; Enyenihi, 1980; Fabiyi, 1984 and Awogun and Onile, 1995), and therefore if meat consumed by the public in infested, several zoonotic

diseases are likely to occur. More work/research should be done in this area to bring into focus the magnitude of these parasites so that, effective control measures could be instituted. Steps should also be taken to ensure the improvement of meat inspection procedure at Mami market dog slaughter unit of Sokoto to reduce the tendencies of contaminated dog meat for human consumption. Pet owners and the general public should also be enlightened on the dangers associated with eating or drinking water contaminated with dog faeces and other excretions, as well as the improvement of personal hygiene, as infection of man occurs as a result of accidental exposure.

Table 1
Faecal samples analyzed for the presence of cysts, eggs, larvae and adult heminthes species.

Parasites	Parasite	No. of positive samples	Form of parasite encountered
Nematodes	*Ancylostoma* spp	16	Eggs
	Uncinaria spp	3	Eggs
	Trichostrongylus spp	2	Eggs
	Toxocara spp	3	Eggs and worms
	Gongylonema pulchrum	1	Eggs
	Trichuris vulpis	1	Eggs
	Graphidium strigosum	2	Eggs
	Toxascaris leonina	1	Eggs
Cestodes	*Diphylidium caninum*	2	Adult worms
	Diphyllobotrium latum	2	Eggs
	Taenia spp	2	Eggs and worm
	Diphylidium caninum	3	worms
Trematodes	*Nanophytus salmincola*	3	Eggs
Protozoa	*Giardia* spp	1	Cyst
	Isospora belli	1	Cyst

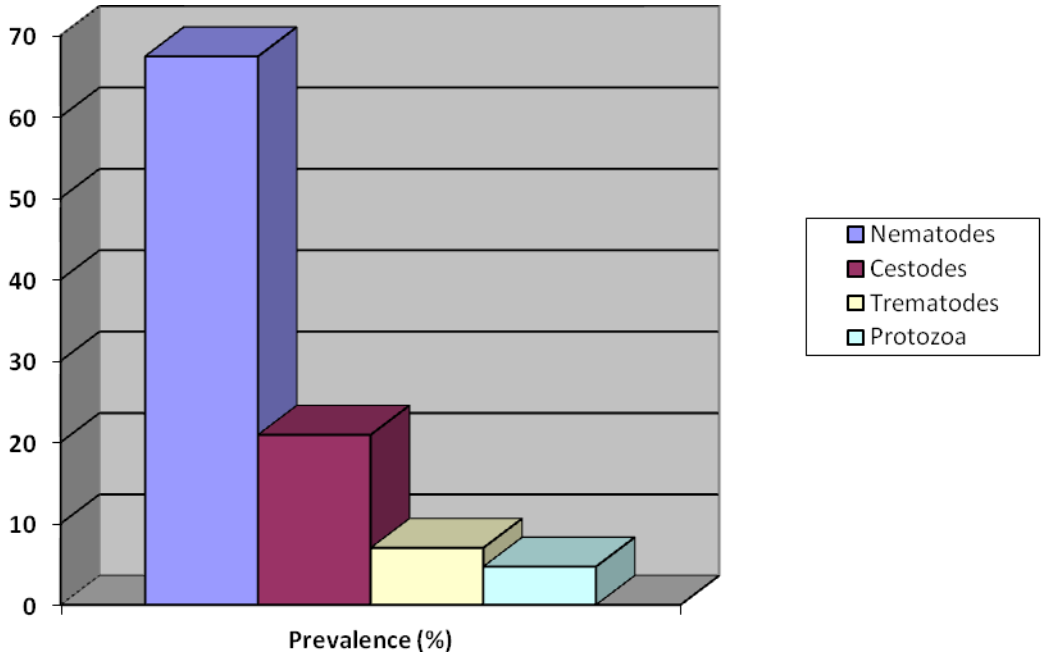

Fig. 1. Percentage prevalence of canine intestinal parasites in dogs slaughtered at Mami Market, Sokoto

Table 2
Prevalence of canine intestinal parasites in dogs slaughtered at Mami Market Sokoto.

	No. of samples	Percentage (%)
Samples (+ve)	29	72.5
Samples (-ve)	11	27.5
Total	40	100

4. Conclusion

From the results of the present study, it is concluded that as most researchers suspected that canine intestinal parasites are cosmopolitan in distribution, it is also found to be true as far as Sokoto is concerned. Therefore, more work/research should be done in this area to bring into focus the magnitude of these parasites so that, effective control measures could be instituted. Steps should also be taken to ensure the improvement of meat inspection procedure at Mami market dog slaughter unit of Sokoto to reduce the tendencies of contaminated dog meat for human consumption. Pet owners and the general public should also be enlightened on the dangers associated with eating or drinking water contaminated with dog faeces and other excretions, as well as the improvement of personal hygiene, as infection of man occurs as a result of accidental exposure.

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