SHORT COMMUNICATION

PRELIMINARY EPIDEMIOLOGICAL SURVEY OF TRICHINOSIS IN GIANT RATS IN SOKOTO STATE, NIGERIA.

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Absract

A total number of giant rats (*Cricetomys gambianus*) were obtained from different locations in Sokoto state between the months of May and November, 1997. The tongue, diaphragm and masseter muscles from ech rat were examined for *Trichinella spiralis* larvae using the squash preparation technique and artificial enzymatic digestion methods. None of the specimens examined microscopically was found positive for *Trichinella spiralis* larvae. This finding is significant in view of the zoonotic implication of the infection. There is need to conduct this type of survey in other parts of the country where giant rats are delicacy to determine the true zoonotic status of the parasite in Nigerian edible wildlife population.

Key words: Trichinosis, Giant rats, Sokoto State, Nigeria, epidemiology

Introduction

Trichinellosis or Trichinosis, a mammalian helminthosis and anthropozoonosis caused by a tiny and slender enoplida nematode of the species *Trichinella spiralis* is cosmopolitan in distribution and affects over 120 mammals including humans (Acha and Szyfres, 1981; Campbell, 1983; Shah - Fischer and Say, 1989). The causative agent spends its adult life in the mucosa of the small intestine of a wide variety of animals including man, domesticated swine, rats, dogs, cats and racoons (Hunt, 1967).

The reports of various investigations show that 75 species of animals serve as reservoir hosts of *T. spiralis* and most of them are carnivores, pigs and rodents (Dissamarn and Indrakamhang, 1985).

Man becomes infected mainly through consumption of pork and pork products and occasionally through consumption of infected rodents and other wild animals with resultant clinical manifestation of intestinal and muscular diseases (Steel, 1970; Gracey and Collins, 1992). Also, horsemeat has been found to be natural source of trichinosis in humans (Soule, 1989).

The parasite has been documented in domesticated pigs in Nigeria (Akinboade *et al*, 1984; Alonge *et al* 1992). The disease has also been investigated in wild edible rodents (*Arvicanthus niloticus*) in Kaduna State, Nigeria (Dusai and Adamu, 1991).

Giant rats are widely spread throughout Africa and are found in all West African vegetation zones from Sahel woodland to the coast and are known to exist at high altitudes. The rats are terrestrial and occasionally climb trees, shelter in burrows, are nocturnal, usually found in the bush and near or inside houses, ditches and water drains (Rosevear, 1969).

Pigs and rats have been considered to be responsible for the domestic cycle of *T. spiralis* (Gould, 1970), but they are seldom observed to be seriously affected by trichinosis; nonetheless,

they serve as source of infection to man in whom the disease may be debilitating or fatal (Hunt. 1967).

Tests for detecting Trichinella infection include direct methods comprising of Trichinoscopy. Squash/Compression microscopy and Enzymatic digestion method. The indirect method involves serology e.g. Enzyme linked Immunosorbent Assay (ELISA) technique (Ruitenberg. and Van-Knapen. 1979).

The present study was an attempt to assess the incidence of trichinosis in giant rats in order to determine their role in the epidemiology of the infection. The study was also aimed at providing some necessary data of public health significance.

Materials and Methods

One hundred and thirty (130) rats were obtained from trappers at Kofar Aliyu Jodi. Mabera. Marina. Gwiwa Low-cost housing estate areas of Sokoto metropolis and some villages within the state (Dundaye. Kware. Kasarawa and Arkilla) for a period of seven months (May to November. 1997). The rats were skinned. eviscerated and muscles from tongue. masseter and diaphragm were detached and subjected to squash and enzymatic digestion techniques (Shah-Fischer and Say. 1989).

Artificial Enzymatic Digestion Method: 10gm of detached meat was minced and the minced meat was stirred into 1.0 percent pepsin/0.5 percent 1 M hydrochloric acid in tap water at 37°C. 100ml of fluid was used for 10gm minced meat.

The mixture was incubated at 37°C for 6 hours and stirred continuously with a glass rod at 15 minutes interval. The mixture was then poured through a wire mesh screen with an aperture of 0.25mm held over one with an aperture of 0.075mm and wash well with a stream of tap water into 600ml measure. This was then centrifuged at 1500 r.p.m for 10 minutes. The supernatant was discarded and the sediment pipetted onto a microscope slide. covered with coverslip and examined carefully under dissecting microscope at x100 magnification for *T. spiralis* larvae (Manual of Veterinary Investigation Laboratory Techniques. volume 2. 1984).

Results and Discussion

Out of the one hundred and thirty (130) giant rats examined. none was positive for *Trichinella spiralis* larvae by either the squash method or artificial enzymatic digestion method.

In this study. absence of *T. spiralis* larve in rats in Sokoto environment may be associated with absence of pig farms in the study area. Pigs. pork and pork products have been reported to play very important roles in the epidemiology of this disease (Campbell. 1983; Gracey and Collins. 1992).

Pigs and rats have been reported as the main natural hosts for T. spiralis and have been considered to be responsible for the domestic cycle of Trichinosis (Gould. 1970). Furthermore. the possibility of rat-swine-man cycle has been suggested (Dissamarn and Indrakamhang. 1985); these domestic cycles have been shown to occur almost exclusively in rural areas with traditional pig rearing practices (Pozio *et al*. 1996).

Trichinosis or Trichinellosis is a significant public health disease. It is a menance to public health and economy of any country and therefore requires detailed investigation.

This preliminary investigation did not show the giant rats as reservoir of Trichinosis. although there is need to conduct more extensive surveys in the wild life using other specific and sensitive techniques like the Enzyme linked immunosorbent assay (ELISA) technique.

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