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Prevalence of human taeniasis in Maiduguri, Nigeria

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ABSTRACT: Faecal analysis for tapeworm segments of humans in Maiduguri was conducted between February and July, 2003. Of the 168 stool samples examined there was a prevalence of 7 (4.2%) for taeniasis which was higher but insignificant in males 5(5.5%) compared to females 2(2.6%)($p>0.05$). The health and economic significance of this finding is discussed as a result of the threat to the livestock and human population. Most infections were observed from adults of ≥ 18 years age with 6(6.5%) compared to the young patients (<18 yrs) with 1(1.3%).

Key Words: Taeniasis; *Taenia saginata*; *Taenia solium*; Zoonotic infection; Prevalence study.

Introduction

Taeniasis is of a zoonotic significance with great threat to man and animal health caused principally by the cestodes *Taenia saginata* and *Taenia solium* with the chief factor of maintaining transmission as the unsanitary disposal of human faeces, and of eating raw or insufficiently cooked beef or pork (Davey and Davey 1971). The disease is prevalent in tropical Africa and the Middle east (Gerald *et al.*, 1988), with up to 45 –60 million cases world over (Da Carneri, 1973; MBIM, 2004). Here in Nigeria, a prevalence of 2.1% for the Bauchi Plateau (Dada, 1980) was reported for the disease, with no information on the situation for Maiduguri in Borno State, Nigeria and hence this study was conducted to determine its prevalence and to suggest ways of preventing it.

Materials and Methods

Stool samples collected from patients visiting metropolitan hospitals in Maiduguri were examined physically for tapeworm segments, which were then fixed in 10% formalin, later dehydrated in 70% alcohol and stained using Mayers borax carmine for 6 hours, and destained in 1% hydrochloric acid. The tapeworms were further dehydrated using ascending grades of alcohol (50%, 70%, 90% and 100%), cleared in cedar wood oil, and then mounted on clean glass slides using Canada balsam mountant under a coverslip.

All mounted tapeworms were then examined at x 40 objective of the light microscope (Soulsby, 1982; Loos- Frank, 2000; Mayta *et al.*, 2002); and identified using some key morphological features such as possession of head suckers, armed or unarmed rostellum, number of uterine lateral branches, length of segments, number of ovaries in gravid segments, and presence or absence of sphincter muscles as described

by Vester, (1969); Edington and Gilles, (1976); Walther and Koske (1980). Data were analysed statistically at "P" values of 0.05 using the students "t" test (Dibal, 1991).

Results

Of the 168 stool samples of patients examined a prevalence of 7 (4.2%) was recorded for *Taenia saginata* with 5(5.5%) cases from 91 males and 2 (2.6%) from 77 females. Most infections were observed from adults ≥ 18 years old having 6(6.5%) as prevalence compared to the young (< 18years) patients with 1(1.3%) (Table 1).

Table 1: Prevalence of *Taenia saginata* among patients in Maiduguri.

	No. examined	No. (%) infected.
Overall	168	7(4.2)
Sex:		
Male	91	5(5.5)
Female	77	2(2.6)
Age:		
Adult (≥ 18 -yrs)	92	6(6.5)
Young (<18yrs)	76	1(1.3)

Discussion

This study on human taeniasis in Maiduguri revealed a prevalence of 4.2% for *Taenia saginata* which though low is quite significant medically, as tapeworms have been described as a great threat to human and animal health with humans acquiring infection by consuming undercooked beef contaminated by encysted *Taenia saginata* larvae, also known as *Cysticercus bovis* (OIE, 2004) and an estimate of 60 million people have taeniasis world wide (Muller, 1975). Taeniasis in Czechoslovakia had been a noticeable disease (Rekha, 1981).

The findings in this study of a higher, though not statistically significant prevalence among males compared to females agrees with the reports by Dada, (1980) who in a study of three ecological zoles i.e. northern Guinea, Sudan and Bauchi Plateau of Nigeria where he explained as probably because of eating more "Suya" (half grilled beef).

Also more of adults were infected compared to young people though not significant in this study, it was reported that humans may acquire infection at any age from 2 years onward but it is more common in people less than 40 years of age compared to older people (Davey and Davey; 1971; Dada, 1980). Conclusively, the disease is an obligatory cyclo-zoonotic infection with adults found only in man (Muller, 1975) hence mass compulsory treatment together with public enlightenment are ways to prevent human infections.

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