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A retrospective study on the prevalence of taenia saginata*

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Objective The determine the prevalence of taenia saginata in fecal samples brought to microbiology laboratory of Fırat University Medical School.

Method A total of 25.077 fecal samples and 5.066 cellophane tape preparations were examined for Taenia saginata between 1987-93 in Microbiology Laboratory of Fırat University Medical School.

Results Six hundred and seventy nine (2.3%) samples were positive for T. saginata. In positive samples 464 (68%) belonged to women and 215 (32%) belonged to men. Fecal samples were analysed by macroscopic examination, direct and sedimentation methods, and examined under the microscope. For cellophane tape preparations, the samples were taken at early morning hours and examined on the same day under the microscope.

Conclusion The results indicate that T.saginata infection is still a significant public health problem in Elazığ vicinity.

Key words Taenia saginata, intestinal parasite.

Introduction

Many studies indicate that Turkey is among the countries where parasitic infections continue to be a major public health problem (1,2,3,4). Taenia saginata is among the major parasite species found among Turkish population. Taenia saginata is an oral worm and lives in small intestines. In addition to problems in the digestive system, T. saginata could induce systemic disturbances when a heavy infestation takes place. In Taenia saginata, parasite eggs are not discarded via a specialized organ. Instead, pregnant rings containing ineffective eggs leave the host independently, most often in the feces. As a result of dying from mechanical trauma, the rings present in the feces or around anus, are broken open and eggs are freed. When these infective eggs contaminate animal food or drink, eggs are ingested in these food or drink. In the intestinal tract oncospheres leaves the eggs and pass through intestinal wall and get into circulation. When these oncospheres are localized in various organs or tissue, in cattle, they are termed as Cysticercosis bovis. Upon consumption of raw or undercooked cattle meat infested with Cysticercosis bovis, humans are infected (5,6). It is well known that Eastern Turkey has an important parasitism problem and taeniasis is frequently reported from this Elazığ vicinity. In this study, frequency of taeniasis is investigated in Elazığ vicinity.

Material and Method

In this study, 25.077 fecal samples and 5066 cellophane tape preparations brought to Clinical Microbiology Laboratory of Fırat University Medical School were investigated for the presence of Taenia saginata eggs. The study was performed between 1987 and 1993. The samples were taken into water proof cups and examined directly without any delay. Fecal samples were analysed by macroscopic examination, direct and sedimentation methods. In direct method, a small piece of (1 gr) sample was resuspended in 5 ml deionized water and suspension was centrifuged at 2500 rpm for 10 min. The pellet was resuspended once more in deionized water and centrifugation was repeated. Afterwards, the pellet was placed on a glass slide and examined under the microscope. For cellophane tape preparations, the samples were taken at early morning hours and examined on the same day. In cellophane tape preparations xylol was used.

Results

Out of 30.143 samples, 679 (2.3 %) were positive for T. saginata eggs. In positive samples 464 belonged to women (68%) and 215 belonged to men (32%) (Tables I,II).

Discussion

Intestinal parasites still continue to be a major health problem in third world countries. In our country, there are several studies assesing the distribution and impact of intestinal parasitism in human and animal populations. Apparently there are many factors influencing the distribution and rate of intestinal parasite infections. Infections show variety among different regions (7, 8). In developed regions, parasitism seems to be reduced whereas in poor and underdeveloped regions, parasitism gains importance (8). It is believed that Eastern and

Table I. T. saginata positivity in fecal and cellophane tape samples in women and men

Gender	No	T. saginata (+)		T. saginata (-)	
Woman	14.166	464	3.3%	13.702	96.7%
Man	15.977	215	1.3%	15.762	98.7%
Total	30.143	679	2.3%	29.464	97.7%

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Table II. T. saginata positivity in different age groups in men and women

	Woman		Man		Total	
Age	No	%	No	%	No	%
0-6	11	2.4	5	2.3	16	2.4
7-12	82	17.7	35	16.3	117	17.2
13-18	48	10.3	33	15.3	81	11.9
19-24	83	17.9	39	18.2	122	18.0
25-30	92	19.8	42	19.5	134	19.7
31-36	64	13.8	32	14.9	96	14.1
37-42	27	5.8	10	4.7	37	5.5
42>	57	12.3	19	8.8	76	11.2
Total	464	100	215	100	679	100

Southeastern regions of Turkey are the most heavily parasite infested regions of the country. Eating habbits of people inhabiting these regions is probably the single most important factor for the parasitism. Traditionally, in these region, raw meat ball consumption is common. In epidemiological studies, Saygı et al. (7,8) noticed that T. saginata positivity reached to 34.2% in women over 15 years old in Sivas where raw meat consumption is common. In elemantary school children, in municipal sanitary workers and meat handlers, T. saginata positivity were reported as 7.9% and 3.1%, respectively (5,9). There was a difference in T. saginata positivity between urban and rural communities. In urban school children, T. saginata positivity was 1.2 %, where as this rate in rural children was 6.6% (5,8).

Yılmaz et al. (10, 11) noticed that in 3.5% of school children had T. saginata in Elazığ. They also found a 3.5 % positivity in municipal sanitary workers in this city. Orak et al. (12) also found a similar rate of parasitism in workers of meat producing shops. In Adana, T.saginata was noticed in 0.47 of women and 0.54% of men (13). In a study performed with cellophane tape method, Saygı et al. (14) found that T.saginata infestation rate was 7.7% in elemantary school children. Durmaz et al. (15) in a city very close to ours observed 5.6% positivity, for T.saginata meat handlers and their families. In other studies performed in Adana and Eskişehir, T.saginata infestation rates were 9.7% and 0.5%, respectively (16,17).

In this study, overall T.saginata infestation was more prevalent. This point was also noticed by others (9,14).

In conclusion, our study indicate that T.saginata infection is still a significant public health problem in our region. One of the preventive approaches to T.saginata infestation is to change eating habbits of regional population. Especially, raw meat consumption should be eliminated or reduced to minimum. Also uncontrolled animal slaughter should be banned. The key aspect of any public healt campaign is, of course, to make people understand the importance of the campaing itself. Thus, the relevant authorities should concentrate their attentions on the aspects of public awareness.

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Editorial note:

The authors suggested that the samples were investigated under light microscope using direct sedimentation methods. However, it would be much better to use flotation method instead of sedimentation in the determination of T.saginata.

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