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THE PUBLIC HEALTH IMPORTANCE AND ECONOMIC  
LOSSES OF CYSTICERCOSIS IN SLAUGHTERED  
ANIMALS IN ASSIUT PROVINCE  
(With 2 Tables)

By

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الأهمية الصحية والخسائر الاقتصادية لحويصلات الديدان  
الشريطية في ذبائح الحيوانات  
في محافظة أسيوط

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أثبت وجود حويصلات الديدان الشريطية في الحيوانات المذبوحة في محافظة أسيوط خلال  
عام ١٩٨٦ حتى ١٩٩٢ لتكون ٠٠٧ ر % ٠٢٢ ر % ٠١٥ ر % ، صفر % ١٨٦ ر % ٠١١ ر % ٠١٥ ر % على  
التوالي .

وكانت أعلى نسبة إصابة هي ١٨٦ ر % لسنة ١٩٩٠ بين الحيوانات المذبوحة ( عجول ، أبقار ،  
جاموس ذكور الأبقار ، ذكور الجاموس ) في ذكور الأبقار . انعدمت نسبة الإصابة في العجول  
الكبيره ، الجاموس . كانت الأعدامات كلية أو جزئية ( قلب ، رأس ، ربع ) .  
نوقشت خطورة المرض على الصحة العامة والخسائر القومية المترتبة على ذلك .

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### SUMMARY

Annual frequency distribution of condemned slaughtered animals due to cysticercosis in Assiut province over period of seven years (1986-1992) was found to be 0.007%, 0.022%, 0.015%, 0.0, 0.186%, 0.011% and 0.015% respectively. The highest frequency of 0.186% was recorded in year 1990 and among slaughtered animals (Ox, Cow, Buffalo, Male cattle, Male buffaloes) male cattle recorded the highest incidence. No lesions was recorded among slaughtered oxes and buffaloes. The condemnations were total, or partial (heart, head, quarter). The public health significance and economic losses of cysticercosis were discussed.

### INTRODUCTION

*Cysticercus bovis* is widespread in most cattle-rearing countries of the world. Prevalence data reported by individual countries are often misleading since the wide variability by region or province may be obscured by single overall prevalence statistic. The highly endemic areas are Central and East Africans countries, USSR republics, near East countries and certain regions of yugoslavia. moderate infection rates are reported for Europe, Southeast Asia, and South America, while the United States, Canada and Australia report low incidence.

WHO (1985) recorded that a total condemnation of 189 carcass, 212 quarter, 1794 head and 17202 heart in Cairo slaughterhouse took place. Consumers are the major group of danger of acquiring meatborne disease. In Ethiopia, where almost a quarter of slaughter cattle is found infected with *Teania saginata* "Cysticercosis", it was estimated that 10 million people (on a total human population Ca. 45 million) take regular drug treatment against the tapeworm (TESHAGER, 1987).

The aim of the present work was to estimate the prevalence of Cysticercosis among animals slaughtered in Assiut Province and the economic losses (partial and total condemnation) due to this affection. Also to record the prevalence of the disease among Humanbeing in this area.

### MATERIAL and METHODS

At Assiut abattoirs, the slaughtered animals (Ox, Cow, Buffalo, Male cattle, Male Buffalo) were subjected to routine

post slaughter examination according to THORNTON and GRACEY, 1981, SYNDER and MURRELL, 1986.

## RESULTS

The results are tabulated in table (1 and 2).

## DISCUSSION

The results in Table (1) indicated that the incidence of total condemnation among slaughtered animals in Assiut abattoirs were 1(0.007%), 3(0.022%), 2(0.015%), 0(0%), 6(0.186%), 2(0.011%) and 2(0.015%) for years 1986-1992 respectively. It recorded no total condemnation among ox and buffalo. The highest condemnation was 6 (0.0186%) in 1990 while the lowest was 0(0%) in 1989. The economic losses were estimated to be 112000 Egyptian pounds calculated on the average price for these years.

The given results in table (2) reported that the predilection seats were Hearts, Head, shoulders and rounds respectively. In total, for year 1990-1992 a 327 heart, 279 head and 7 quarter were condemned. The economic losses for these condemnation were to be ca. 24200 Egyptian pounds.

Regarding to effect of species (Table 1&2), it is noted that low incidence was recorded in buffalo and this comply with IBRAHIM, 1978 and LOTFI *et al.*, 1971, 1976 and 1993. There were no infections among oxes over 4.5 years and this attributed to the irriversible relationship between infestation and age. concerning the effect of sex, it is noted that (Table 2), higher infestation in males than in females and this attributed to that male animals are usually subjected to slaughter up to 3 years which constitute this age the major infection with cysticerci besides bovines acquire strong immunity against reinfection by *T. saginata*. In the same time higher infestation rate was noted in male cattle than in male buffalo.

The costs of infection in a feedlot may be high. In USA once the problem recogenized, many packing plants refused to accept animals from the feedlot, and plants that did accept them did so only at reduced prices, because they knew that slaughter rate would be slowed, increasing labour costs. They also anticipated that some carcasses would be condemned and others whould have to be heated or frozen, increasing costs and yeilding product that could only be used for manufactured products such as sausage. The final cost was \$ 500000 to 800000 (WEEDON, 1987).

The prevalence of infection vary with countries; the  
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transmission of bovine cysticercosis in developed countries is sporadic and epizootic, while in less-developed countries and pastoral or nomadic countries is enzootic. It is recorded that the condemnation due to cysticercosis in Egypt(1988) (General Organization of Veterinary Service, slaughter houses) in Buffaloes, Ox & Cows, Steers, Camels and Buffaloes steers were the heart (0.25%, 2.5%, 3.4%, 0.6% and 0.024%), the head (0.2%, 0.7%, 0.7%, 0.007% and 0.009%), quarter (0.005%, 0.04%, 0.03%, 0.01% and 0.006%) and total (0.0%, 0.005%, 0.02%, 0% and 0.001%) respectively (ADAWY, 1989).

With respect to the public health importance of the disease, data collected from Assiut Epidemiological Hospital recorded that from 1990-1993, 174 patients (63 males, 99 females and 12 children) were infected, while data from Centres for Disease Control (CDC) indicate 443 patients (270 males and 172 females) were treated for *T. saginata* in 1981. Over 80% of the patient were in the age group of 11-50 years (SYNDER and MURREL, 1986). Another study conducted at 4 Los Angeles hospitals identified 497 patients treated and 11 deaths recorded for cysticercosis from 1973 through 1983 (RICHARDS *et al.* 1985).

These infections in humans are due to ingestion of raw or insufficiently cooked infested meat obtained from slaughter house or uncontrol slaughter. The routine post slaughter inspection is not enough to detect the cysticercous, Antemortem serological test could be very effective in transmission of *T. Saginate* to humans. Control measures consist of interrupting the epidemiological chain at the level of the definitive host (man) and the intermediate hosts (bovines)as well as improved the environmental and personal hygienic levels in rural areas.

#### REFERENCES

- Adawy, T. (1989): Slaughter Hygiene Situation in Egypt, Country Report. MZCP Seminar on Meat infection, Slaughter Hygiene and data collection (with refrence to Hydatidosis) Cairo, Egypt.
- Ibrahim, S.M. (1978): Taeniasis, Cysticercosis in cattle and buffaloes. M.V.Sc. Thesis, Faculty of Vet. Med. Cairo University.
- Lotfi, A.Y.; Youssef, K. and Ismail, A. (1971): Occurance and significance of cysticercosis in buffaloes with special references to infection in suckled calves. Schlact und Viehofzeitung 71, 8, 305.
- Lotfi, A.Y.; Al-Murrani, W.K. and Al-Ashmawy, A.M. (1976):

- Incidence of Bovine Cysticercosis in Iraq and its impact on meat borne helminthic zoonoses. *Iraq Med. J.* 24, 56-59.
- Lotfi, A.; El-Khatieb, T.; Youssef, H.; Fathi, S.; Nassar, A. and Habib, H. (1993): Incidence and public health significance of bovine cysticercosis in animals in Minia, Egypt. *Fleischwirtschaft* (in Press).
- Richards, F.D.; Schantz, P.M.; Ruit-Tiben, E. (1985): Cysticercosis in Los Angeles County. *JAMA*, 254, 3444-3448.
- Snyder, G.R. and Murrell, K.D. (1986): Bovine Cysticercosis. in "Practices in Veterinary Public Health and Preventive Medicine in the United States" Ed. Wood, G.T. Library of Congress Cataloging-in-Publication Data New York.
- Teshager, T. (1987): Teaniasis-Cysticercosis: a significant meat borne disease in Ethiopia". *La Medicina Tropicale nella Cooperazione allo Sviluppo*, 3, 185-187.
- Thornton, H. and Gracey, J.F. (1981): Thornton' Meat Hygiene: Parasitic disease, Cysticercous bovis and Sarcosporidia. 7th Ed. The English Language book Society and Bailliere Tindal, London
- Weedon, J.R. (1987): Cysticercosis. *JAVMA*, 191, 9, 1080-1081.
- W.H.O. (1985) Report on the Round Table Conference on Meat Hygiene in Developing Countries" Rome, VPH/85.60.

Table (1): Incidence of total condemnation among animals slaughtered in Assiut abattoirs during the period 1986 - 1992 due to cysticercosis .

Animal species	1986		1987		1988		1989		1990		1991		1992		
	No. of slaught animals	Conde. % No	No. of slaught animals	Conde. % No	No. of slaught animals	Conde. % No	No. of slaught animals	Conde. % No	No. of slaught animals	Conde. % No	No. of slaught animals	Conde. % No	No. of slaught animals	Conde. % No	
Ox	17	0	28	0	3	0	4	0	18	0	0	0	2	0	
Cow	1210	0	1391	0	374	0	665	0	1227	2	0.163	1791	0	2061	
Buffalo	7632	0	6614	0	5615	0	5137	0	7147	0	0	8799	0	12500	
Male Cattle	13750	1	13600	3	0.022	12978	2	0.015	15076	0	0	16275	3	0.018	
Male buffalo	21301	0	19731	0	17403	0	16512	0	19263	1	0.005	19047	1	0.005	
Total	43960	1	0.007	41214	3	0.022	36873	2	0.015	39444	0	0	43930	6	0.186
Ox															
Male Cattle															
Male buffalo															
Cow															
Buffalo															

(over 4.5 year)  
( 2.5- 3 year)  
( 2.5- 3 year)  
(over 4.5 year)  
(over 4.5 year)