

INCIDANCE OF HYDATID CYSTS IN SLAUGHTERED ANIMALS AND THEIR RELATION TO PUBLIC HEALTH AT SHARKIA PROVINCE

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Abstract

A total of 5500 slaughtered carcasses (Camel, cattle, sheep and goats) were investigated for the detection and the predilection seat of hydatid cysts in Zagazig and Belbis abattoirs in Sharkia Province during the period from August 2008 to July 2009. The infestation rate was 3.5, 3, 3.9 and 4.5 % in the carcasses of camel, cattle, sheep and goats, respectively. The high incidence was in lungs 58%, followed by livers 39%, and the low percentages were in the spleen 0.02% and heart 0.01% . Suggestive control measures and public health hazard were mentioned.

INTRODUCTION

Hydatidosis is a zoonotic disease of world wide distribution causing considerable economic losses and public health problems. Cystic hydatid disease is considered endemic in the Mediterranean region, including all countries of the middle East (Seimenis, 2003).

Cystic hydatidosis, caused by the larval stage of *Echinococcus granulosus* is recognized as being one of the world's major zoonosis (Eckert and Deplazes, 2004). The parasite is common in countries where dogs are in close contact with humans and where favourable conditions for the perpetuation of the life cycle of the parasite are available, as presence of wide variety of hosts, the lack of proper slaughter facilities. In Egypt the prevalence of echinococcal infection in stray dogs was previously reported (Abou Eisha, 2000 and Teshome *et al.*, 2003).

The present study was conducted to investigate the prevalence of hydatid cysts among slaughtered food animals (camel, cattle, sheep and goats) to provide some necessary required data of public health significance to minimize the possible hazards and economic losses of such disease.

MATERIALS AND METHOD

A total of 5500 individuals of 100 cattle, 936 camel, 2314 sheep and 2150 goats slaughtered in two abattoirs in Sharkia Province (Zagazig and Belbis abattoirs) during the period from August 2008 to July 2009, was examined for the presence of hydatid cysts. The examination for hydatidosis in slaughtered animals was performed during

routine meat inspection by macroscopic examination of the morphology of cysts and palpation of lungs, liver, spleen, heart. The discovered hydatid cysts were freed from the surrounding tissues and subjected to laboratory investigations to determine by microscopic examination of a portion of hydatid fluid for the presence of brood capsules, daughter cysts and protoscolices. (Saeed *et al.*, 2000). The cysts were recorded according to animal species, total number of examined animals, the number of animals harbouring hydatid cysts and the cyst location.

RESULTS AND DISCUSSION

Table 1. Incidence of hydatid cysts in slaughtered animals in Zagazig and Belbis abattoirs.

Animal species	No. Examined Carcasses(No.)	No. infested Carcasses(No.*)	Percentage of Infestation (%)
Camel	936	33	3.52%
Cattle	100	3	3.00%
Sheep	2314	91	3.93%
Goats	2150	97	4.51%
Total	5500	224	4.07%

Table 2. Distribution of hydatid cysts in different organs of slaughtered animals.

Animal species	Camel No.*=33		Cattel No.*=3		Sheep No.*=91		Goats No.*=97		Total No.*=224	
	No.	%	No.	%	No.	%	No.	%	No.	%
Lung	27	81.8	2	66.7	46	50.5	55	56.7	130	0.58
Liver	5	15.2	1	33.3	42	46.2	39	40.2	87	0.39
Spleen	1	3	–	–	2	2.2	2	2.1	5	0.02
Heart	–	–	–	–	1	1.1	1	0.97	2	0.01

No.*: Number of infested carcasses.

No.: Number of infested carcasses in relation to the infested organs.

%: The percentage of infection.

The results in Table 1 revealed the percentages of hydatidosis in different slaughtered animals. Similar results were recorded by Shahat(2000) at El- Qassim area K.S.A. Lower results were obtained at Buraydah (0.25%) by El-Metenawy(1999).

Also, Cheema *et al.* (1988) in Al-Hasa region reported that the incidences in camel and other animals ranged from 1 to 1.22%.

Higher incidences were reported in other Arabian countries, 22.26% and 7.9% of camel in Egypt were positive for hydatidosis (Mansour, 1992 and Mohamed, 2005), while, 10.7% of camels in Jordan (Abdel-Hafez *et al.*, 1986) and 12.03% in Morocco (Azlaf and Dakkak, 2006) were infested with hydatid cysts.

In the present study, the percentage of infection with hydatidosis in cattle was 3%, nearly similar to the results recorded by Fakhar and Sadjjadi (2007) (3.5%) in Iran. Lower percentages 0.01% and 2% were recorded in Egypt by EL-Mosssalami *et al.*(1986) and Mohamed (2005), and 0.0% was recorded in Qassim area K.S.A by Shahat (2000). In other countries high percentage was recorded (11.4%) in Jordan (AL-Yaman *et al.*, 1985), and 22.98% (Azlaf and Dakkak,2006) in Morocco.

The incidence of hydatid cysts in sheep and goats was 3.93% and 4.56%, respectively. Lower incidence was recorded in Egypt (0.13%) in examined sheep carcasses by EL-Mosssalami *et al.*(1986), and 0.0% by Mohamed(2005), and in Buraydah 2.13% and 2.88% of examined sheep and goats, respectively by EL-Metenawy (1999). Also, Sobaih *et al.* (1998) found that hydatid cysts infection was 2.4% , 3.65% for local breed of sheep and goats, and 2.59%, 6.72% in imported breed of sheep and goats, respectively. In Jaddah, the incidence ranged from 7.15% to 28% among imported sheep (Ghandour *et al.*,1989). Nearly similar results were obtained by Shahat(2000) in EL- Qassem area K.S.A.(4.33% and 4.02%) in examined sheep and goats, respectively.

Generally, the variation in the incidence rate in the animals and among different geographical locations could be related to age factors. Other factors, like differences in culture, social activities and attitudes are responsible for this variation, (Kebede *et al.*, 2008).

It was evident from the results achieved in Table 2 that the frequency distribution of hydatid cysts in lungs, liver, spleen and heart of slaughtered camels was 81.82%, 15.15%, 3.03% and zero, respectively. These findings coincide with the results of previous workers (Haridy 1998, Shahat,2000, Mohamed, 2005, Azlaf and Dakkak ,2006 and Kebede *et al.* 2008) who reported that the most predilection sites were the lungs followed by the liver. In the present study, it has been established that hydatid cysts occur predominately in the lungs and liver .

The recommended measures which are suggested to prevent or at least to minimize hydatidosis are efficient meat inspection, destruction of viscera containing hydatid cysts, humane destruction of stray dogs and public health education.

REFERENCES

1. Abdel-Hafez, S. K., F. M. Al-Yaman and I. M. Said. 1986. Further studies on prevalence of hydatidosis in slaughtered animals from North Jordan. *Z. ParasitenKd.*,72:89.
2. Abou Eisha, A. M. 2000. Brucellosis in camels and its relation to public health. *Assiut Vet. Med. J.* 44(86): 86-105.
3. AL-Yaman, F. M., L. Assaf, N. Hailat and S. K. Abdel- Hafez. 1985 . Prevalence of hydatidosis in slaughtered animals from North Jordan. *Ann. Trop. Med. Parasitol.*,79:501.
4. Azlaf, R. and A. Dakkak 2006. Epidemiological Study of cystic echinococcosis in Morocco. *Vet. Parasit.*,137: 83-93.
5. Cheema, A. H., E. A. Kawasma and T. A. Shigidi 1988. Studies on the prevalence of disease communicable to man and meat producing animals. Symposium of the Biological Aspects of Saudi Arabia-Al-Hassa, 12-14March.
6. Eckert, J. and P. Deplazes. 2004 . Biological, Epidemiological, and Clinical Aspects of Echinococcosis, a Zoonosis of increasing concern. *Clin. Microbial. Rev.*, 17(1):107-135.
7. El-Metenawy, T. M. 1999. An abattoir survey of metacestode among slaughtered ruminants at Al-Qassim area Saudi Arabia. *Vet. Med.J. Giza.*47:199.
8. EL-Mossalami, E., F. El-Nawawi, A. A. Hassan and N. Mansour 1986. Hydatidosis in food animals slaughtered at Cairo abattoir. *Egypt. J.Ve. Sci.*, 23:219.
9. Fakhar, M. and S. M. Sadjjadi 2007. Prevalence of hydatidosis in slaughtered herbivores in Qom Province, central part of Iran. *Vet. Res. Com.*,31: 993-997.
10. Ghandour, A. M., M. O. Tahir and Shalabi. 1989. A Comparative study of the prevalence of some parasites in animals slaughtered in Jeddah abattoir. *J. of King Abdul Aziz Univ. Sc.*,1:87.
11. Haridy, F.M., B.B. Ibrahim and T.A. Morsy. 1998. Studies on hydatidosis in slaughtered camels in Egypt. *J. Egypt. Soc. Parasitol.*, 28(3): 673-681.
12. Kebede, N., A. Mitiku and G. Tilahun. 2008. Hydatidosis of slaughtered animals in Bahir Dar Abattoir, Northwesern Ethiopia. *Trop. Anim. Health. Prod.*9152-3.
13. Mansour, N.K. 1992. Diseases of camels slaughtered for meat production in Egypt. *Fleischwirtsch.*, 72 : 1276.

14. Mohamed, A.A. 2005. Some epidemiological studies on hydatidosis/Echinococcosis in man, slaughtered animals and dogs in Dakahlia and Sharkia Provinces, in Egypt. *J. Egypt. Vet. Med. Ass.* 65, 3: 255-266.
15. Saeed, I., C. Kapel, Saida L. A., L. Willingham and P. Nansen. 2000. Epidemiology of *Echinococcus granulosus* in Abril Province , Northern Iraq, 1990-1998. *J. Helminth.*, 74: 83-88.
16. Seimenis, A. 2003. Overview of the epidemiological situation on Echinococcosis in the Mediterranean region . *Acta Trop.*, 85(2):191-195.
17. Shahat, A. A. 2000. Prevalence of hydatidosis in slaughtered food animals. *J. Egypt. Vet. Med. Assoc.* 60, 4:147-150.
18. Sobaih, M.A., H.A. Youssef and M. Al-Saif. 1998. Public health importance of hydatid cysts in slaughtered sheep and goats in EL-Gassim , Saudi Arabia. *Assiut Vet. Med. J.*, 39(78):194-200.
19. Teshome, H., B. Molla and M. Tibbo. 2003. A seroprevalence study of camel-rearing regions of Ethiopia. *Trop. Anim. Health. Prod.*, 35(5),381-390.

نسبة الإصابة بالأكياس المائية فى ذبائح حيوانات اللحم و علاقتها بالصحة العامة فى محافظة الشرقية

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- تم فحص عدد 5500 من ذبائح الأبل والأبقار والأغنام والماعز فى مجزرى مدينة الزقازيق ومدينة بلبيس فى الفترة من اغسطس 2008 و حتى يوليو 2009 وذلك لاستبيان مدى تواجد الاكياس المائية فى الذبائح المختلفة . وقد اتضح من الدراسة ان نسبة الاصابة كانت 4,5,3,9,3,0,3,5% من ذبائح الابل والابقار والاعنام والماعز على الترتيب 0 كما اوضحت النتائج ان اكثر الاعضاء اصابة بالاكياس المائية كانت الرئتين 58% ثم الاكباد 39% فى حين كان اقلها إصابة الطحال 02,0% ثم القلب 01,0%
- ونظرا لما تشكله الإصابة بالأكياس المائية من خطورة على الصحة العامة و من خسارة اقتصادية كبيرة فقد نوقشت الاحتياطات الواجب اتخاذها لمنع الإصابة بداء الاكياس المائية 0