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PUBLIC HEALTH IMPORTANCE OF HYDATID CYSTS IN SLAUGHTERED SHEEP AND GOATS IN EL-GASSIM, SAUDI ARABIA

(With 3 Tables)

By

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الأهمية الصحية للحويصلات المائية في ذبائح الخراف والماعز في منطقة القصيم بالمملكة العربية السعودية

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تم فحص عدد ٨٨٧٧١ من ذبائح الأغنام والماعز فى مسلخ القصيم خلال الفترة من مايو ١٩٩٥ إلى نوفمبر ١٩٩٦ وذلك لاستبيان مدى تواجد الحويصلات المائيه فى الأماكن المختلفه من الذبائح وأتضح أن معدل الاصابه كانت بنسبة ٥, ٢% (٤١, ٢% أغنام عترات محليه، ٥٨, ٢% عترات أجنبيه)، بينما وصلت نسبة الاصابه فى الماعز الى ٥% (بنسبة ٦٥, ٣% فى العترات المحليه، ٧٢, ٦% فى العترات الأجنبيه). وثبت أن توزيع الحويصلات فى الأعضاء المختلفه كانت كالتالى: الكبد ٨٥, ٥٨%، الرئتين ٢٥, ٨%، القلب ٩٦, ٠% , الأرباع ٠٥, ١٠% والأماكن الأخرى ٨٧, ٢١% وقد نوقشت الأهميه الصحيه والاحتياطات الواجب اتخاذها لمنع الاصابه بالحويصلات المائيه.

SUMMARY

A total of 88771 sheep and goats slaughtered at Gassim abattoir during a period of 18 months (May 1995-November 1996) were examined for the detection and predilection seats of hydatid cysts. The infestation rate of sheep was 2.5 % (local breeds 2.41%, foreign breeds 2.58%), while the hydatid cysts were detected in 5% of the examined goats (local breeds 3.65%, foreign breeds 6.72 %). Distribution of the detected cysts in different organs was: liver 58.89%, lungs 8.29%, heart 0.96%, quarters

10.05% and other sites 21.78%. The public health significance and preventive measures were discussed.

Key Words: *Public health, hydatid cysts, slaughtered sheep, Saudi Arabia*

INTRODUCTION

One of the most important parasitic diseases transmissible indirectly to man is hydatid disease. Public health hazards in many parts of the world as these diseases may be severe or even lethal. Close association of people with their dogs and cats in most rural areas of the region imposes a particularly serious burden of ill health on vast number of people especially among children and women and the chain of infection that involves dogs, sheep, cattle, camels, goats and others herbivorous animals is the major source of human echinococcosis (Matoff and Kolev, 1964; Gracey, 1985; Abram, 1990).

Hydatid infection is widely spread and the disease has been recorded in Saudi Arabia in a variety of herbivores which act as intermediate hosts for *Echinococcus granulosus* (Saleh and Ghandour, 1983 in Jeddah; Cheema et al, 1985 in Al-Hassa region; Farah, 1987 in Al-Gassim and Al-Rashid et al 1994 in Riyadh region).

The zoonotic importance of the disease occurs from its transmission from animals directly to man and may occur in the liver, lungs, pelvis, brain, spleen, abdominal cavity and intraorbital and also recorded in Saudi Arabia in many regions (Alltree, 1979; Al-Mohaya et al 1986; Lopera et al, 1989).

The present study was conducted to investigate the prevalence of hydatid cysts in food animals to provide some necessary data of public health significance.

MATERIALS and METHODS

Routine meat inspection of carcasses had been done by naked eye appearance, palpation and incision of different organs and flesh of the 88799 sheep and goats during the period from June 1995 to November 1996 after being slaughtered at Buraidah slaughterhousese.

RESULTS

The infestation rate with hydatid cysts in sheep with P.M. examination was 2.5% for both local and foreign breeds (Table 1), while the percentage of affected goats with hydatid cysts was 5% for all examined goats. The infestation rate was 3.62% and 6.72 % for local and foreign breeds respectively (Table 3).

As regard to the distribution of hydatid cyst in the organs it was found that 58.85%,, 8.27 %, 0.96%, 10.05% and 21.79% of liver, lung, quarter and other sites were infested respectively (Table 3).

The prevalence of hydatidosis of sheep and goats slaughtered at El-Gassim region was 2.5% and 5% respectively. These results are in agreement with that by Islam et al, 1977; Dajani, 1978 and Kadiki, 1984.

The incidence of hydatidosis was markedly lower than that reported in the surrounding countries such as Iraq (8.81%), Jordan (27.8%), Pakistan (24%), Kuwait (12.88%), Sudan (8.11%) and Bangladesh (Behbehani and Hassounah, 1976, El-Badawi et al, 1979 and Shamsul Islam, 1980 respectively, Abdel Hafez, 1986; Ashraf et al, 1986).

DISCUSSION

Domestic animals live in close contact with man, thus resulting in dissemination of animal diseases including parasitic diseases. One of the most important of these is hydatid disease which is transmissible indirectly to man.

Infection in man follows ingestion of contaminated food and water or by hand to mouth transfer of tape worm eggs from dog's faeces. Exposure occurs in handling dogs and objects soiled with dog's faeces, cats and foxes (Rausch and Schiller, 1956 ;Shihabalova et al 1969).

Eggs may survive for several months in pastures, gardens and around house holds. Ingested eggs hatch in the intestine. The larvae migrate through the mucosa and are carried by the blood to various organs where they produce cysts in which many infectious proscolices develop. This stage may occur in herbivores as well as humans (Cheema et al 1985; Al-Mohaya et al 1986; Lopera et al 1989).

Carnivores become infected by eating viscera containing hydatid cysts or fed upon wild rodents. The dog-sheep cycle is important in most

areas, while in other regions the dog-cattle cycle, dog-hprse cycle, camel-dog cycle, pig-dog cycle predominte.

Infected cats may be specially dangerous since they commonly deposit the faeces in gardens and also the embryophores may be transmitted by filth flies (Schiller, 1954).

The low incidence of hydatidosis in Gassim region could be due to the strict hyfienic measures applied in the abattoir and low number of stray dogs. Also, the weather in this area subject to the hot and sunny most of the year which may lead to the eggs loosing their viability in less than two hours in the sun (Washira et al, 1991).

These results lead us to think that sheep and goats in Saudi Arabia contribute a role in the life cycle of *E. granulosus* as mentioned by Higgins (1986).

So the suggestive preventive measures for the control of hydatidosis involves: Educate the general public to control environmental contamination by dogs and cats faeces, the danger of close association with pet animals and controlled slaughter of animals. Adequately inspect the carcasses and rigidly control the slaughter of herbivorous aniimals so that dogs have no access to uncooked viscera. Incinerate or deep-bury infected organs from dead intermediate hosts and periodically treat high risk dogs and reduce their number.

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Table 1. Incidence of hydatid cysts in sheep

Types	examined cases	infested cases	percentage of infestation
Local breeds	38018	918	2.41%
imported breeds	36761	951	2.59%
Total number	74779	1869	2.5%

Table 2. Incidence of hydatidosis in goats

Types	Examined cases	infested cases	percentage of infestation
Local breeds	8029	293	3.65%
imported breeds	5963	401	6.72%
Total number	13992	694	5%

Table 3. Distribution of hydatid cysts in examined organs of infested carcasses

organ	liver	lung	quarter	heart	other sites
number	1508	212	258	25	558
per cent	58.89%	8.29%	10.05%	0.96%	21.78%