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Prevalence of HydatidCysts in Herbivorous Animalsand their Relationshipto Humans in Misurata City

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Abstract

The total number of slaughterers was estimated to be 8462, of which 6420 were camels, 497 were cows and 1545 were sheep in Misurata abattoir. The slaughters were examined for hydatid cysts of Echinococcusgranulosus .The results showed that the number of infected animals was 920 animals, 10.9% of the total number of herbivores slaughtered in Misurata 8462, with the highest infection rate of 672, 73.04% (672/920) in camels, followed by 222 sheep, With a percentage of 14.36% (222/1545), followed by cows with 26, 5.23% (26/497). The results indicated that the highest incidence of hydatid cysts of Echinococcusgranulosusin the liver was sheep (46.7%), followed by camels (45.6%) and cows (7.7%). The results indicated that the highest incidence of Echinococcusgranulosusin the lung was in the camels (84.1%), followed by sheep (14.1%) and cows (1.7%).The Data revealed that the highest incidence of water sacs in the intestines was in sheep by 80% , followed by camel by 20%, while cows had no intestinal infection .The study indicates that the liver is more affected and the vitality of the cysts in the liver were more than those in the lungs, so the liver is an important organ in the continuation of the life cycle of the worm, The liver is considered to be the preferred organ of the Libyan consumer. The infidels tend not to sacrifice the entire infected liver and only the injured part, which is disposed of in an improper manner and often eaten by dogs, is separated, leading to the spread of infection.

Keywords:*Echinococcusgranulosus,Hydatidosis, Herbivorous Animals, Infection, Prevalence.*

INTRODUCTION

Hydatidosis is a widespread zoonotic disease infecting large numberof animals and humans (Bouree , 2001) . It is caused by the larval stage for dogs and by eggs for humans and animals of any one of the four species of genus *Echinococcus*Rudolphi , 1801 . Those four species are *Echinococcusgranulosus* (Batsch , 1786) , *Echinococcusmultilocularis*(Leuckart , 1863) ,

Echinococcusvogeli (Rausch and Bernstein , 1972) and *Echinococcusoligarthrus*(Diesing , 1963) (Thompson and Lymbery, 1988).

Adult *Echinococcus* spp. are small , true tapeworms belonging to the class Cestoda within the phylum platyhelminths . Subfamily Echinococcinae (Thompson , 1995 ; Rausch , 1997) .Hydatidosis has been reported in both urban and rural communitieswhere dog , the main definitive host , have been access to raw offal through home-slaughter from poorly regulated abattoirs or from scavenging carcasses or discarded offal (Watson-Jones *et al* ., 1997) . Man can be infected by ingesting eggs from canine faeces on vegetables or fruits or from handling dogs (Onah*et al* ., 1989) . In addition to economic importance,hydatidosis is a great threat to public health and many human cases require surgical interference (Haridy*et al*., 2000) .

The prevalence rates of cystic hydatidosis in livestock are indicatorsof environmental transmission and potential risk for human (Ibrahem and Craig, 1998). Hydatid disease is endemic in many animals raising countries particularly in Middle East, Mediterranean (FAO , 1993 ; Clavel*et al* ., 1999 and Erman*et al*., 2001) , North Africa (Matossian*et al*., 1977 and Gebreel*et al*., 1983) . Hydatid disease appears to be endemic in Libya (Gebreel*et al*., 1983) . However little work has been published in Libya (Dar and Taguri , 1978 ; Gebreel*et al*., 1983 ; Kalani*et al*., 1984 ; Gusbi , 1987 ; Gusbi*et al*., 1987 ; Awan *et al*., 1990 ; Shambesh*et al*., 1992 , 1999 ; Khan and Kidwai , 1996 ; Khan and El-Buni , 1999 ; Tashani*et al*., 2002 and Mohamed *et al*., 2004) . This study is aimed todetermine the current prevalenceof cystic echinococcosis in various domestic herbivorous animals slaughtered for human consumption in Misurata, and tostudy the morphological characters of larval stage of *Echinococcusgranulosus* in these animals . It is also to analyse the different factors which may responsible for transmission and spread of the disease in Misurata.

Materials and Methods

Data were obtained from the Registry Office at the Main Slaughter Center in Misurata. 8462 slaughters were collected during one year from January to December 2016. Approximately, 6420 slaughters were camels, 497 were cows, and 1545 were sheep in Misurata abattoir. All the slaughters were examined for hydatid cysts of *Echinococcusgranulosus*. Graphs and percentage formulas of slaughters were calculated using Microsoft office excel 2016 program.

The materials and methods suitable for this study are chosen according to the following:

1. Compiling statistics on the prevalence of hydatid cysts in pet herbivores and their relation to humans in Misurata(2016)

2. . The study is based on the descriptive approach on the spread of hydatid cysts in pet herbivores and their relation to humans.

3. Discuss the results in detail in light of available data and make appropriate recommendations according to the results of the study.

Results

1 - Overall Incidence of *EchinococcusGranulosus*Infection

The results obtained in this study showed that the number of infected animals was 920 animals, 10.9% of the total number of herbivores slaughtered in Misrata 8462, with the highest infection rate of 672, 73.04% (672/920) in camels , followed by 222 sheep , With a percentage of 14.36% (222/1545), followed by cows with 26, 5.23% (26/497). (Figure 1).

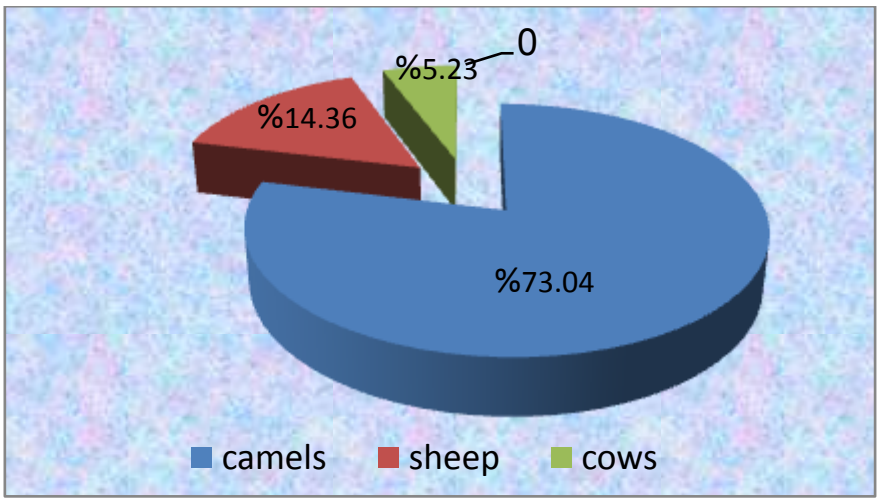

Figure (1) : General Average of *Echinococcusgranulosus*Infection.

2 - Relationship between the Overall Rate of Infection with *Echinococcusgranulosus* and Liver Disease

The results showed that the highest incidenceof hydatid cysts of *Echinococcusgranulosus*in the liver was in sheep 84, 46.7% (84/180), followed by camels 82, 45.6% (82/180), cows 14, 7.7% (14/180). (Figure 2, 3).

Figure (2): Liver Disease in Sheep.

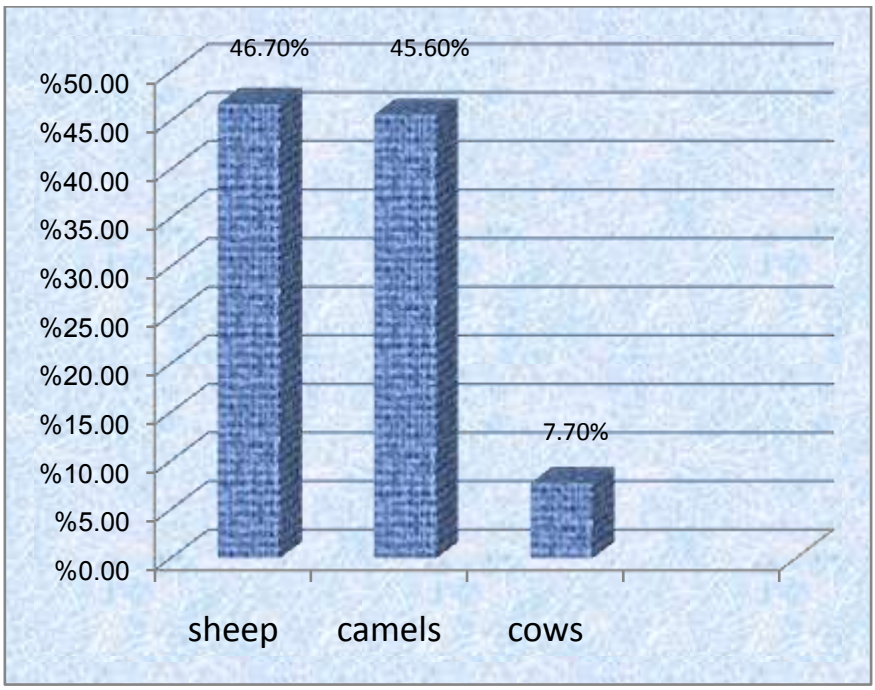

Figure 3: Relationship between the Overall Rate of Infection with *Echinococcusgranulosus* and Liver Disease.

3 - The relationship between the Overall Rate of Infection with *Echinococcusgranulosus* and Lung Disease.

The results showed that the highest incidence of *Echinococcusgranulosus*in the lung was in thecamels 585 , 84.1% (585/695), followed by 98 sheep, 14.1% (98/695), and 1.7% (12/695) in cows . (Table 1, Figure 4).

Figure (4): Lung Disease in Sheep.

Table (1): The Relationship between the General Rate of Infection of *Echinococcusgranulosus* and Lung Disease.

The herbivores	Number	(%)
Camels	585	84.1
Sheep	98	%14.1
Cows	12	%1.7
Total	695	%100

4 - Relationship between the Overall Rate of Infection with *Echinococcusgranulosus* and Intestinal Infection.

The results demonstrated that the highest incidence of *Echinococcusgranulosus*in the intestine was in sheep at 8, 80% (8/10), followed by camels with 2, 20% (2/10), whereas cows did not exist .(Figure 5).

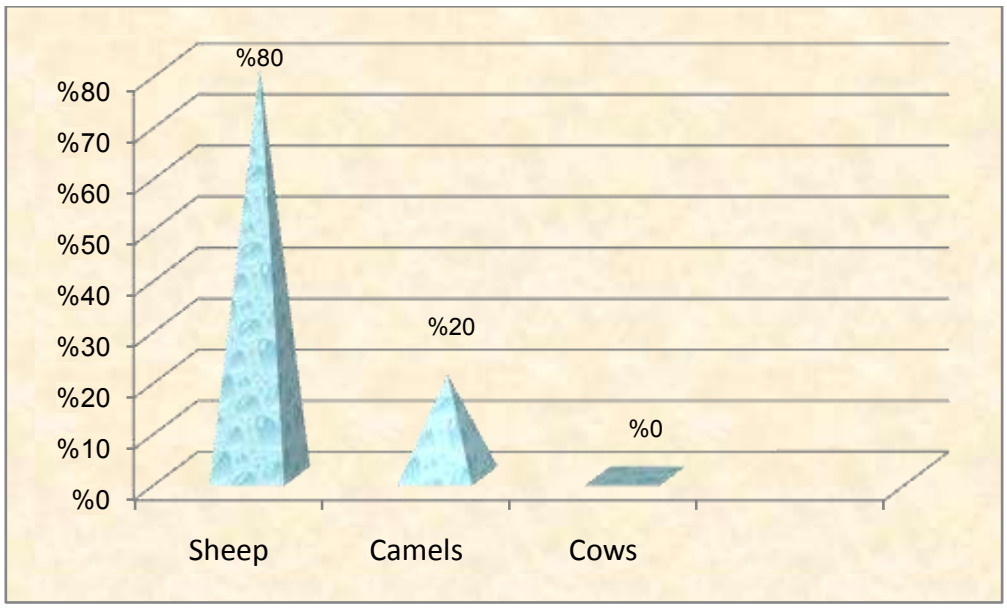

Figure 5: The Relationship between the Overall Rate of Infection with *Echinococcusgranulosus* and Intestinal Disease.

Discussion

The results illustrated that the number of infected animals was 920 animals(10.9%) of the total number of herbivores slaughtered in Misurata 8462. Whereas, the data implied that the highest percentage of infection was found in camels (73.04%) and in sheep 14.36% which is similar to a previous study by Tashani*et al*., 2002, also, in cows (5.23%) which is comparable to a prior study documented by Shambesh, 1997.

Additionally, the results indicated that the highest incidence of hydatid cysts of *Echinococcusgranulosus*in the liver was sheep (46.7%) , which is parallel to anearlier study by Tashani*et al*., 2002), followed by camels (45.6%) and cows (7.7%). This is also related to a previous study reported by Abd-Elgader, 2006.The data indicated that the highest incidence of *Echinococcusgranulosus*in the lung was in the camels (84.1%)which are similar to a previous study by Shambesh, 1997, followed by

sheep (14.1%) and cows (1.7%).The results showed that the highest incidence of water sacs in the intestines was in sheep (80%) which is comparable to a previous study detailedby Tashani et al., 2002, followed by camel by (20%), while cows had no intestinal infection.

The finding in this study explainsthe significance of elemental study of hydatid cystsin terms of harshness of infection and fertility. The study reveals that the liver is extra influenced by the lungs and the vitality of the cysts in the liver than those in the lungs,as a result the liver is an vital organ in the persistence of the life cycle of the worm, particularlyliver is considered to be the preferred organ of the Libyan consumer.

Conclusion

The results of this study indicate the importance of detailed studies of hydatid cystsin terms of severity of infection and fertility. The study point outs that the liver is more affected by the lungs and the vitality of the cysts in the liver than those in the lungs. The liver is an important organ in the continuation of the life cycle of the worm, and is considered to be the preferred organ of the Libyan consumer. The infidels tend not to sacrifice the entire infected liver and only the injured part, which is disposed of in an improper manner and often eaten by dogs, is separated, leading to the spread of infection.

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