

An Abattoir Survey of Liver and Lung Helminthic Infections in Local and Imported Sheep in Jordan*

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Abstract: The livers and lungs of 5596 sheep (443 local, 473 Romanian and 4680 Australian) slaughtered in Amman Central Abattoir during November-December 1999 were examined in routine meat inspection procedures for helminths. *Dictyocaulus filaria*, hydatid cyst, *Fasciola hepatica* and *Dicrocoelium dendriticum* were recovered from the examined sheep with variable prevalences. *Dicrocoelium dendriticum* is reported from the livers of imported sheep in Jordan for the first time.

Key Words: Lung parasites, liver parasites, sheep, Jordan

Introduction

Within the past 3 decades, increasing demand for red meat with reasonable prices has led to immense imports of sheep from different origins (Bulgaria, Romania, Australia and the Sudan) to Jordan. The local sheep "Awasi breed" cost is about twice that of the imported sheep. Sheep are imported alive and placed in local farms for few weeks or sometimes months before they are slaughtered.

Several studies have focused on the prevalence of hydatidosis among local farm and domestic animals in Jordan (1-5). Hasslinger et al. (6) studied the endoparasites of sheep and goats in the vicinities of Ma'an, Karak and Amman. However, virtually no information is available on the parasites of the liver and lungs among local and imported sheep.

In this report, we compared the presence and infection rates of liver and lung helminthic infections between local sheep and sheep imported from different countries, with emphasis on introduced parasites in Jordan.

Materials and Methods

A total of 5596 sheep of different origins (443 local Awasi, 473 Romanian and 4680 Australian sheep) were examined in the Amman Central Abattoir in November-December 1999. Lungs and livers were inspected in routine meat inspection procedures for the presence of helminths.

Results

The table summarizes the results of the present study. Local sheep were infected with *Echinococcus granulosus* hydatid cyst (20.3%), and *Dictyocaulus filaria*. Sheep originating from Romania showed prevalences of 5.5%, 3.2% and 57.5% for *D. filaria*, *Fasciola hepatica* and *Dicrocoelium dendriticum*, respectively. Australian sheep exhibited a prevalence of 0.6% and 12.8% for *E. granulosus* and *D. filaria*, respectively.

By far, infection with the lung worm *D. filaria* was highest among sheep originating from Australia, while it was lowest among local sheep (see Table). On the other hand, local sheep showed the highest infection with cysts

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of *E. granulosus* (20.3%). The lancet liver worm, *D. dendriticum*, and the liver fluke, *F. hepatica*, were found among Romanian sheep only.

Discussion

This is the first comparative study on the prevalence of lung and liver parasites among local and imported sheep in Jordan. *Dicrocoelium dendriticum* is recorded for the first time in Jordan.

Hydatidosis is considered to have an endemic steady state in Jordan (4), and previous studies showed prevalences of 4% (1), 27.8% (2) and 12.9% (3) among local sheep. In this report, 20.3% of the local sheep examined were infected with hydatid cyst, within the range of previous reports. Sheep from Romania were free of this infection, while those from Australia exhibited a low infection rate (0.6%).

Sheep originating from Australia exhibited the highest infection rate of *D. filaria* (12.8%), while it was lowest among local sheep (3.8%). Perhaps the arid nature of Jordan is a limiting factor for the lung worm, thus exhibiting low prevalence. Nishikawa et al. (7) found that

sheep in Syria showed higher infection rates of *D. filaria* (9.3%) and small lung worms (*Cystocaulus* (14.5%) and *Muellerius* (47%)) in areas with high annual rainfall.

Local and Australian sheep were not infected with *D. dendriticum*. Sheep imported from Romania were highly infected with *D. dendriticum* (57.5%). Local sheep are mostly raised in enclosed farms and fed on barley and alfaalfa, while those from Romania graze in open fields. In Saudi Arabia, Gawish et al. (8) found that 28% of condemned livers of sheep imported from Turkey were infected with *D. dendriticum*. Similarly, Nasher (9) reported this trematode in sheep imported from southwestern Saudi Arabia. Abu Zinada (10) recorded prevalences of 40%, 26% and 2% in Somalian, Turkish and native breed sheep, respectively. This may suggest that *D. dendriticum* became established among local sheep in Saudi Arabia due to extensive sheep imports.

Further studies should assess the adaptation of the newly imported parasites into Jordan, and the economic loss inflicted by such infections on the value of butchered meat. Additionally, quarantine regulations should address the regulations and careful inspections of live animals to avoid the introduction of exotic parasites.

Table. Infection of local and imported sheep with lung and liver helminths.

Origin	No. Examined	Hydatid cyst		<i>D. filaria</i>		<i>F. hepatica</i>		<i>D. dendriticum</i>	
		No. infected	%	No. infected	%	No. infected	%	No. infected	%
Local	443	90	20.3	17	3.8	0	0	0	0
Romania	473	0	0	26	5.5	15	3.2	272	57.5
Australia	4680	29	0.6	601	12.8	0	0	0	0

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