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STUDY OF ZOONOTIC HELMINTHS OF CARNIVORES IN KHUZESTAN, IRAN

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Key words : *Zoonoses, helminth, carnivores*

Abstract

In this survey 45 carnivores including 14 jackals, 23 stray dogs, 2 foxes, 2 domestic cats, 1 wild cat, 2 swine and 1 wolf were collected. On postmortem examination, 84% carcases were infected and 13 zoonotic helminth species were recovered. *Dirofilaria immitis* was the most commonly parasite and *Toxocara canis* showed the highest intensity of infection. One species from swine and two helminth species from wolf were reported for the first time in Iran.

Introduction

The importance of parasites of carnivores as a public health hazard, particularly in rural areas where a close association exists between man and animals, is well established (9,10). Because of the heavy infection of dogs with *Toxocara canis* and contamination of man's environment with their feces, occurrence of visceral larva migrans is most probable in Iran (10).

Hydatid cyst is one of the most important parasitic diseases of man in Iran. Although its exact prevalence is not known, several reports indicate its importance as a parasitic disease in this country (7,9).

The geographic distribution of the cases of human pulmonary dirofilariasis is closely related to the prevalence of canine dirofilariasis (1).

Cutaneous larva migrans is the most common manifestation of zoonotic hookworm infection (10).

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Materials and methods

A total of 14 jackals (*Canis aureus*), 23 stray dogs, 2 foxs (*Vulpes vulpes*), 2 domestic cats, 1 wild cat (*Felis chaus*), 2 Swine and one wolf, which had been killed by accidents, were collected from the road between Ahwaz and Dezfull cities in Khuzestan, southwest Iran. The entire alimentary tract was removed, together with the heart, lungs, liver, kidney and their associated arteries. They were examined for helminth parasites.

The intestinal contents and the epithelial scrapings were washed through wire sieve (nos. 40,60 & 80). The contents of the sieves were washed again with water and the worms were collected and identified (12).

Results and discussion

From 45 carnivores examined 9 jackals , 21 stray dogs, 3 cats, 2 foxes 2 swine and one wolf harboured helminth parasites (%84). Prevalence and intensity of parasites recovered from the different species of carnivores are shown in figures 1 and 2.

Altogether, 13 species of helminth were found. *Dirofilaria immitis* was the most common helminth, %15.5. *Echinococcus granulosus , Physaloptera sp., Metastrongylus sp.* and *Railletina Sp.* were the lowest common helminths, %2.2, (Figure 1). *Toxocara canis* showed the highest number of helminth, %31, and *physaloptera sp.* the lowest number of helminth, %1, (Figure 2). All 13 species zoonotic helminths, some of them major zoonoses and others minor.

Prevalence of *Echinococcus granulosus* infection has been reported from different parts of Iran. In the recent studies *Echinococcus granulosus* infection has been reported in jackal %6.2 and %25 and dog in different areas (3). Hydatid cyst has been reported in lung and liver respectively (7).

Recent studies have shown that children with epilepsy are more likely to be infected with toxocara infection (4). In Iran, toxocara infection in carnivora was high, jackals and dogs %17, %21.8 respectively (3). Prevalence of human infection is probably very high particularly in children. Unpublished data suggested that prevalence of Toxocariosis was %11 by serological examination with

IFA (Massoud: Personal communication).

Although *Dirofilaria immitis* was found in dog in Iran, no report of human infection was seen (9), *D.repens* has been found in human skin in Iran (11).

The lesion of zoonotic hookworm (*Ancylostoma caninum, Uncinaria stenocephala*) are self-limiting. However in some cases the larvae may penetrate into deeper tissue and produce symptoms of visceral larva migrans (6). A recent repot of epidemic eosinophilic enteritis by *A.caninum* in Townsiville, Australia is an example of this problem (8). This condition can be established in Khuzestan province. Most cases of human toxocariosis and zoonotic hook worm infections are preventable by simple measures such as careful personal hygiene, elemination of intestinal parasites from pets and not allowing children to play in potentially contaminated environments (10).

Physaloptera sp., Metastrongylu sp., Taenia hydatigena, Taenia multiceps, Rictularia sp., Diplidium caninum, Spirometra sp., Railletina sp. are rare zoonotic helminths (2). These parasites have been reported in animals in other areas of country (3,5,9) and not reported in human in Iran.

Among 13 helminth, listed in figures 1 and 2 , *Metastrongylus sp.* from swine and *Uncinaria stenocephala, Raillentina sp.* from wolf are reported for the first time in Iran. *Railletina sp.* can be a transitional infection in wolf.

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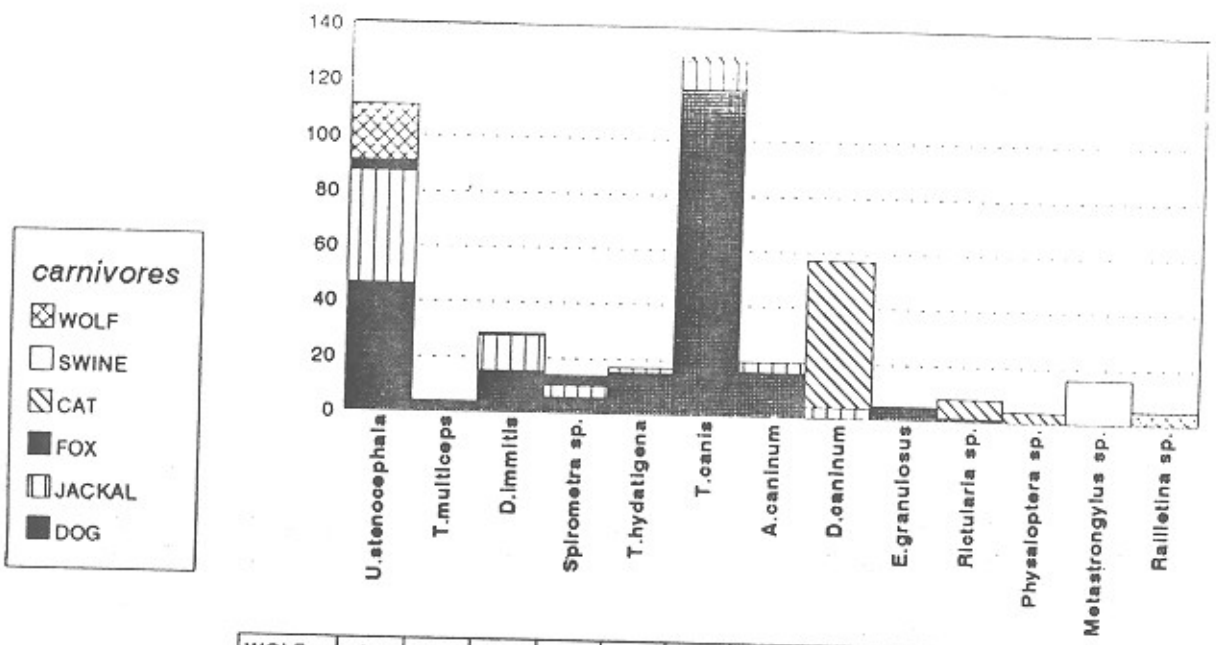
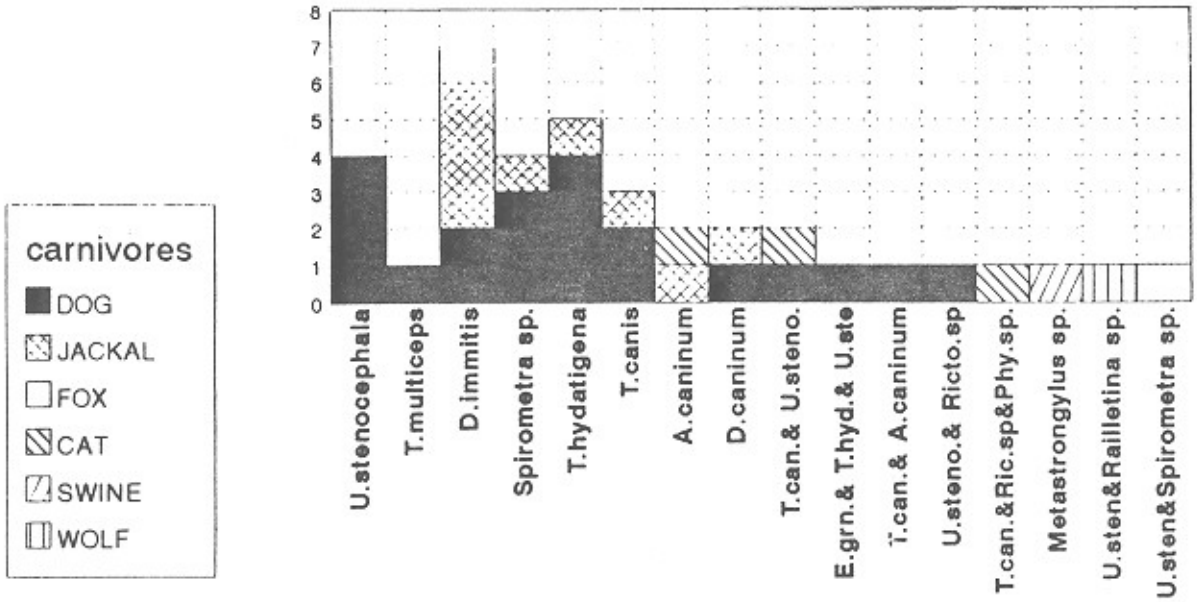


WOLF	20	0	0	0	0	0	0	0	0	0	0	0	5
SWINE	0	0	0	0	0	0	0	0	0	0	0	16	0
CAT	0	0	0	0	0	2	0	53	0	7	4	0	0
FOX	4	0	1	4	0	0	0	0	0	0	0	0	0
JACKAL	41	0	13	4	2	10	4	4	0	0	0	0	0
DOG	46	4	15	6	15	118	16	0	5	1	0	0	0

Fig. 2- Intensity of helminth infection in different animals



DOG	4	1	2	3	4	2	0	1	1	1	1	1	0	0	0	0
JACKAL	0	0	4	1	1	1	1	1	0	0	0	0	0	0	0	0
FOX	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
CAT	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0
SWINE	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
WOLF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

Fig. 1- Prevalence of helminth infection in different animals

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