

## References

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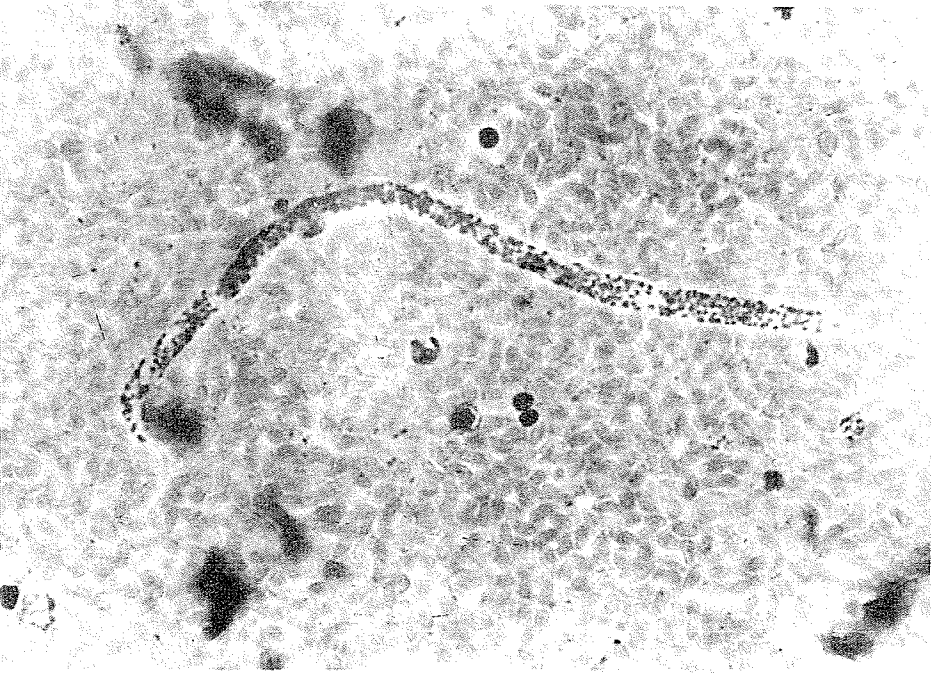


Fig. 3. *D. evansi*, microfilariae in the blood smear, giemsa stain, magn. X 40.

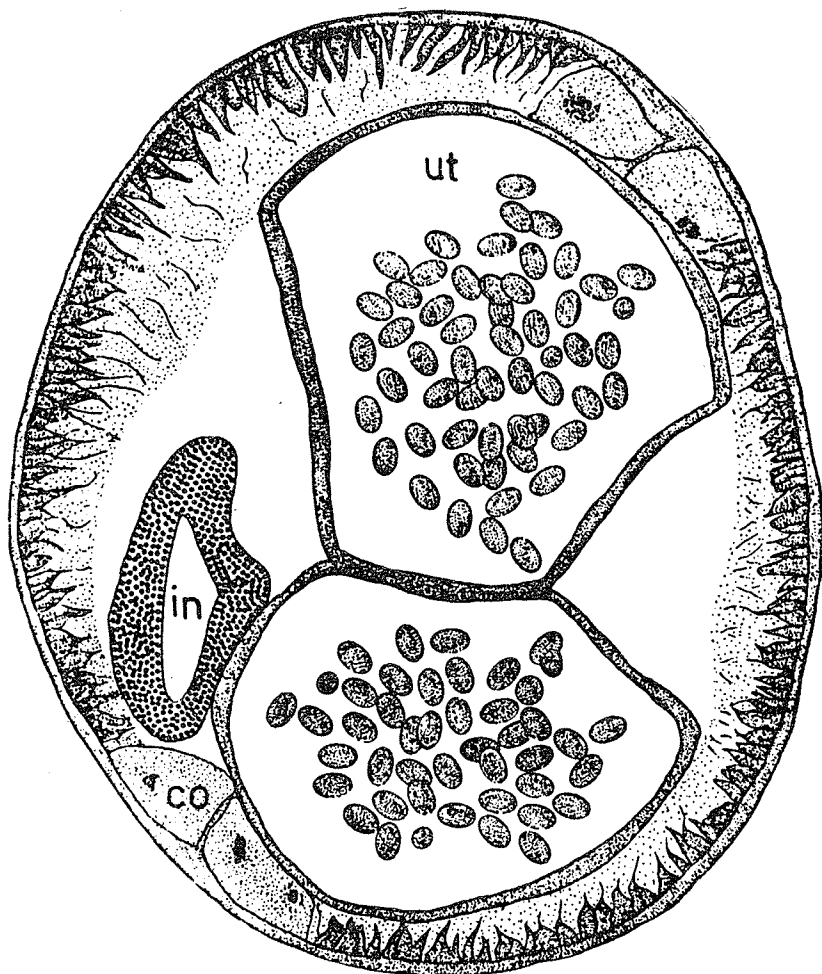


Fig. 2. *D. evansi*, Transvers section of female showing uterus (ut), intestine (in), and cords (co).

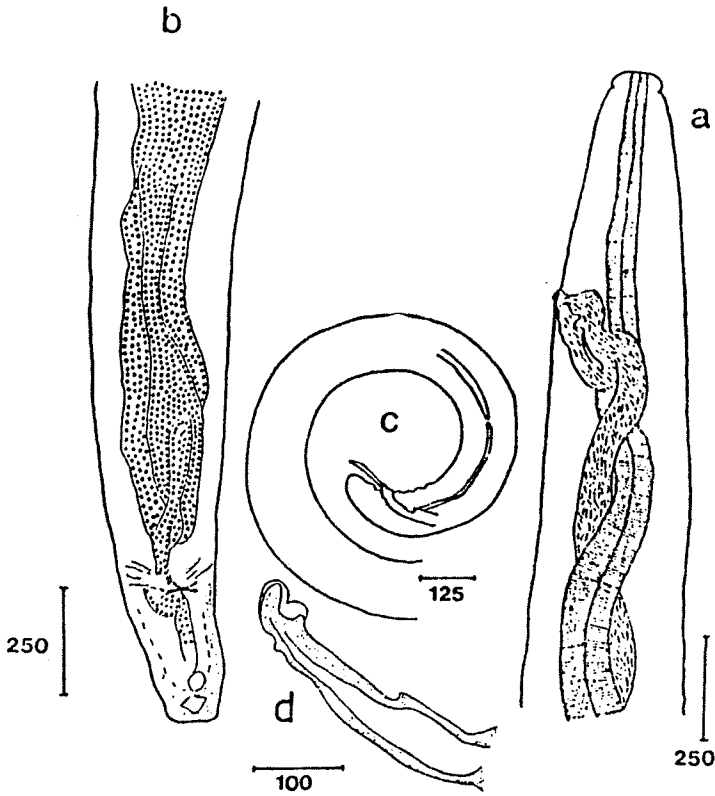


Fig. 1. *D. evansi*: a , anterior end of female  
 b , posterior end of female  
 c , posterior end of male  
 d , large spicule

Length of muscular esophagus area 640-810  $\mu$ m. the tail length is 210-320  $\mu$ m. In the near of the posterior end the length is half of its width. (Fig. 1. a,b).

The body at its extremities covered with a flexible thick cuticular wall. Microfilaria is sheathed and its length is 200-300  $\mu$ m (Fig. 2,3).

Body length of the male , 85-105 mm and width of the worm is 280-340  $\mu$ m. The posterior end of male is coiled ventrally. Tail end is blunt shape. The size of spiculus , (small , 160-180  $\mu$ m and large , 210-320  $\mu$ m). (Fig. 1. (c,d)). There is no information of the life cycle of this parasite in Iran.

### Acknowledgment

We would like to thank the valuable assistance of Dr. Abbasi , the head of Najaf-Abad veterinary networks. and H. Bahrani , B. Mohammadibeigi technical assistants for collection of the parasites in camel slaughter houses.

Table 1- Infected organs in camel from Isfahan with different kind of parasites.

Infected organs Kind of parasite	Liver		Lung		Heart		Testes		Blood	
	No	%	No	%	No	%	No	%	No	%
Hydatid cyst	24	30	56	70	-	-	-	-	-	-
<i>Dipetalonema evansi</i>	-	-	-	-	-	-	46	50	-	-
<i>D. evansi microfilaria</i>	-	-	-	-	-	-	-	-	43	46.7

From 92 male camels in Najaf-Abad, 50% showed *Dipetalonema evansi* adult worms in their testicular veins, but only in 43 (46.7%) microfilaria were found in peripheral blood smears.

In Yazd area, from 25 camels, only 3 of them (12%) were found infected with hydatid cyst.

The sheathed microfilaria of *Dipetalonema evansi* isolated from blood maintained activity for 5 days in laboratory condition.

The number of sheathed microfilariae in blood circulation varied between 2 to 30 in each blood smear. The microfilaria were kept alive for at least 5 days in test tube in the laboratory condition.

Although the other investigations observed filaria (D.e.) in most of the tissue including, heart, liver, blood vessels etc... (1), it was not possible to find them in other sites, except testes blood vessels.

Camel has a rather long life - span, so it is very important host for hydatid cyst in arid area (6,7). Of course, camels due to being involved in international transportation of desert and semidesert areas between Iran and eastern neighbouring countries, they may easily get parasitic infection. But the main origin of the infection in this study remained unknown.

*Dipetalonema evansi* is a nematode, specific for camels. It develops in the heart and hepatic, pulmonary and spermatic arteries as well as in lymphatic system. The vector is mosquitos of the genus *Aedes*. Light infections show no clinical symptoms, but heavy infections cause emaciation, apathy and sometimes orchitis and nervous symptoms.

type species : *Dipetalonema evansi*.

host : *Camelus dromedarius*, *Camelus bacterianus*.

geographical distribution : Asia (Former USSR, India, Turkey), Africa (Algeria, Morocco, Tunisia, Sudan) and Australia.

synonym: *Dipetalonema*, *Deraiphoronema*, *Deraiphoronema cameli*.

Morphology - female, body length, 148-210 mm, body width on the site of esophagus 410-530  $\mu\text{m}$ . The distance from nerving to the anterior end is 180-200 mm. Bulb width. 450-610  $\mu\text{m}$ . The vulve is usually situated at a distance of 520  $\mu\text{m}$  from the anterior end of female.

infections in this study usually remains unknown.

In some areas of Iran , people are used to consume camel meat which has good quality and economically fair in comparison to beef and sheep. This persuaded numerous camel breeders in Najaf-Abad (Isfahan) to produce this kind of meat. They usually obtain the imported camels in Zahedan border areas.

This animal usually travels through Pakistan , Afghanistan , and India border areas where insect borne helminths are prevalent (5).

The aim of this study is to investigate the parasitic infection of camels in Iran.

### Materials and methods

One hundred camel carcasses ( male and female ) in Najaf - Abad , Isfahan province and 25 camels in Yazd were studied. Animals were not aboriginal and usually were used for carriage between Iran and eastern neiburing countries. The camels were kept for 2 to 3 months in raising farms ( Shotorkhoon) to get weight and then were sent to slaughter house. In this study 125 camels (*Camelus dromedarius*)were observed in Najaf-Abad and Yazd areas before and after slaughtering.

First of all , slaughtered camels were observed closely. The different organs infected with hydatid cyst detected and samples were taken in 10% formaldehyde and were sent to laboratory. Before slaughtering , 10<sup>cc</sup> blood were obtained from each one of the camels in a test tube containing anticoagulant. All smears prepared from each sample then stained with giemsa method and were carefully examined for microfilaria and other parasites. In some infected testes intact filaria were freed from blood vessels , measured and drawn by camera iucida (drawing tube) (3). Then sections were prepared from infected testes stained by H. & E. method and were drawn by drawing tube for histopathology and microanatomical study (3).

### Results and Discussion

From one hundred camel carcasses in Najaf-Abad, Isfahan province , 80% showed hydatid cyst. (of those 70% and 30% found in lung and liver respectively) (table 1).

# HYDATIDOSIS AND TESTICULAR FILARIASIS (*D. EVANSI*) IN CAMEL (*C. DROMEDARIUS*) IN CENTRAL PART OF IRAN

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**Key words:** Camel, Hydatid cyst, *Dipetalonema evansi*, *Microfilaria*

In 1994, 125 carcasses of camel (100 from Isfahan and 25 from Yazd) in slaughter-houses were studied for parasitic infections.

Seventy percent of the camels were infected with hydatid cyst and half of the males (50%) had testicular filaria identified as *Dipetalonema evansi*.

All the infected male camels except 3, demonstrated sheathed microfilariae in their peripheral blood smears. Although some different helminths were identified in this survey, only hydatid cyst and *Dipetalonema evansi*, which were more prevalent, are discussed here.

These animals are of unknown origin and are used for transportation between Pakistan, Afghanistan and Iran border areas.

## Introduction

Hydatid cyst is the most prevalent metacestode infection in herbivours in Iran. The cases of human infection which are annually recorded in medical centers is very significant. Also economic losses of this metacestod considerably has high rate in live stock animals (4).

Camel (*Camelus dromedarius*), was a popular local animal in semi-arid areas of Iran. But now camel raisers try to submit the animals basically for the purpose of meat consumption, by importation from Pakistan and Afghanistan, through Zahedan border areas (2). A large number of camels, (*Camelus dromedarius*) is raised in Iran, particularly in semi-arid regions in eastern parts of the country. Therefore the main origin of parasitic

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