

## **Short communication**

# **Observation on Hydatid Cyst Infection in Kordestan Province (West of Iran) using Epidemiological and Seroepidemiological Criteria**

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### **Abstract**

Echinococcosis is the major helminthic parasitic infection in Iran. The health hazard and economic loss in man and livestock is significant. In this study 3 major topics as the prevalence of hydatid cyst in human population, in livestock and echinococcosis in stray dogs, were studied. Total of 1114 serum samples in different age groups in Sanandaj and Divandareh area of Kurdestan province in west of Iran were examined by indirect immunofluorescent test (IFA). In Sanandaj area 3.3% and in Divandareh 9.5% of serum samples were positive for hydatidosis. In livestock using abattoir inspection the rate of infection was 51.9% and 28.02% for sheep and cattle, respectively. Nine stray dogs (44%) autopsied in Sanandaj were positive for Echinococcosis.

**Keywords:** *Echinococcosis, Hydatid cyst, Livestock, Iran*

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### **Introduction**

Hydatid disease is one of the major parasitic problems in man and live stocks in Iran. This multi- host parasite is prevalent all over the country particular in the west and north-west of Iran. Annually the economic loss in livestock due to this parasite is significant.

According the world data Iran is one of the hyper-endemic areas with human infection rate of more than 1% of total population of the country (1, 2). *Echinococcus granulosus* is the major cause of disease in Iran. The stray dogs as the final host and sheep as the intermediate hosts have major role in the transmission of the disease all over the country. The west part of Iran is more affected by this parasite than the other

parts due to environmental condition of the region (1, 2).

According to the importance of the disease and obtaining data for its prevalence, the present study was conducted in Kordestan Province, west of Iran.

### **Materials and Methods**

In this study, 3 major topics were considered as 1) the sero-epidemiology of hydatid disease in human population using indirect immunofluorescent antibody test (IFA), 2) abattoir surveillance of infection in livestock by carcass inspection of sheep and cattle in slaughter houses and 3) a limited study on the stray dogs' autopsy. Total of 1114 serum samples in San-

andaj and Divandareh region, in Kordestan Province, west of Iran, were collected and transferred to the School of Public Health Laboratory, Tehran University of Medical Sciences, in deep-frozen conditions. The serum samples were tested by indirect immunofluorescent antibody test (IFA) for hydatid cyst infection. The infection rate of slaughtered cattle and sheep also was determined by inspecting 2316 livers and lungs in Sanandaj abattoir. Nine stray dogs were autopsied and *Echinococcus* adult worm were determined in small intestine of each dog.

## Results

Distribution of human hydatid cyst in Sanandaj and Divandareh is presented in Table 1. The highest infected cases observed in age group of 20-40 years old. Seventy percent of infected cases were female; most of them were housewives. There was direct relationship with illiteracy of the families and the infection rate (Data not shown).

Abattoir data of hydatid cyst infection mostly concentrated on the local livestock. The infection rate in sheep was much higher than cattle with 51.09% in sheep and 28.2% in cattle, respectively (Table 2). The lungs were more infected than livers.

Out of nine stray dogs hunted around Sanandaj area, 4 were positive for *E. granulosus* infection (44%).

**Table 1:** Distribution of human hydatid cyst in Sanandaj and Divandareh using serological test of (IFA)

Locality	Number of serum samples	Number of positive cases	Infection rate (%)
Sanandaj	397	13	3.3
Divandareh	714	68	9.5
Total	1114	81	7.3

**Table 2:** Distribution of hydatid cyst infection in slaughtered livestock in Sanandaj area

Animal	Number inspected	Number Positive	Infection rate (%)
Sheep	1242	645	51.9
Cattle	104	303	28.02
Total	2316	945	40.9

## Discussion

Distribution of hydatid cyst infection in domestic animals exists in whole parts of Iran but the percentage of infection is differed in different provinces. The highest rate usually can be seen in west part of Iran for example in Hamadan with 20% infection rate in stray dogs and high prevalence in man, mostly females (3). Also in Varamin area in south of Tehran 68 out of 700 serum samples (9.7%) were positive by IFA test (4). Relationship between sheep herds and dogs is very close, infected faeces of dogs scattered near by the sheep herds and due to dryness of the area usually with movement of sheep the eggs float in the air and the eggs with dust swallowed by the sheep. Most of the pastures in the west contaminated by the *Echinococcus* eggs and the egg are very resistant to draught which chances of transmission will be increased. The stray dogs usually feed on the abattoir ofals and easily they will have access to the infected viscera of slaughtered animals because the abattoir control in most part of the country is poor and infected ofals usually not condemned. The number of hunted dogs was limited, which cannot be statistically relating it to stray dogs' population in the area.

The number of human infected cases is high and the hospital data demonstrate a high level of hydatid cyst surgery taken place annually. The economic losses due to hydatid disease in domestic animals are significant in sheep and cattle (losing weight and most of the infected liver will be out of use) (5).

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