

# A Survey of Hydatidosis Surgical Cases in Kermanshah Province During 2012-2013

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## ABSTRACT

A retrospective study was undertaken to determine the incidence of cystic hydatid disease among patients hospitalized in two hospitals in Kermanshah and Tabriz during 2012-2013. All medical documents of patients with hydatid cyst in two public hospitals were reviewed. A total of 87 patients including 37 Males and 50 females were examined for the presence of hydatid cyst infection. Results indicated that, 46 cases (52.87%) in 2012, and 41 cases (47.13%) in 2013 underwent operation, of which 42.53% were male and 57.47% female. The most involved organ was liver (66.67%) and the most involved professions were housewives (51.72%,  $p < 0.05$ ). Most of the operations took place in spring (31.1%) and the age of the participants ranged from 21 to 30 years ( $p < 0.05$ ). In 77.01% of patients, contact with dogs was evident the highest percent of surgeries have been observed. Most of the hydatidosis surgical cases were in Kermanshah (40 cases). In general, the frequency of stray dogs in this province, instruction of transmission route, combat against stray dogs, and treatment of livestock and dogs seem necessary. Moreover, contaminated vegetables could be a potential route of infection.

**Keywords:** Hydatid cysts; Survey; Patients

## INTRODUCTION

Hydatid cyst is one of the worldwide zoonoses which is prominent in endemic areas, particularly in North of Africa, South America, China, and Middle East. The disease exists in the most of tropical and subtropical areas of the world, and the infection rate is significant in some areas like Iceland. Due to the wide range of intermediate hosts in Iran, hydatidosis has high prevalence and turned to be one of the most important zoonoses, making its diagnosis indispensable. The infection is also important in some other Middle East countries such as Lebanon, Jordan, Syria, Iraq, and Saudi Arabia.

Epidemiological studies conducted in Iran indicated that the incidence of this disease is increasing. The infected hands have the key role in human infection. Dog has a habit of licking its anus which leads to the contamination of tongue, muzzle and body surface. The dogs' body may be contaminated by dust containing eggs, and finally human may be infected by direct contact.

The disease has been reported from all provinces of Iran. Hydatidosis was investigated from various aspects including clinical, laboratory,

and epidemiological points. According to the studies in Iran, infection rate in livestock was 1.5-64% and in between sheep and dogs 3.3-63.3% in Isfahan and Sistan-Baluchestan, respectively.

In human, most of the reports came from Isfahan, Fars, Khorasan and Arak, however the prevalence was lowest in East Azarbaijan so that only 23 cases of hydatid cysts have been reported from 2001 to 2006. The infection was higher among rural and farmers who had direct exposure to dogs. Cattle have no significant role in the transmission because the liver cysts are mostly without scolex.

In recent studies of slaughterers in Iran, the contamination rate of sheep (21%-74%), goats (15%-20%), cattle (15%-38%), and buffalo (12%-24%) was reported. In addition, in East Azerbaijan's sheep population it has been reported to be 11.1%. The high rate of ruminant's infection was in Iran. In endemic areas, the infection was higher in children who are more in contact with dogs.

The infection is also high in shepherds. According to the data of 23 provinces provided by "Diseases Management Centre of Health Ministry" in 2002, human hydatid disease of 23 (the 3 highest incidence of human hydatid disease (2.5 cases per 100,000) was

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in Semnan and the lowest incidence 0.1) was in Yazd and East Azarbaijan.

Hydatid cysts are produced in different organs of intermediate hosts, including humans. According to the location of cyst the body, clinical symptoms may vary.

Considering the importance of hydatidosis in human, significant economic losses in province's livestock, and the fact that few studies have been executed in Kermanshah, this study was conducted to detect the epidemiological status of surgically operated patients with hydatid cysts in this province and some neighboring provinces that have been referred to this center for treatment during 2012-2013.

## MATERIALS AND METHODS

The present study was cross-sectional and retrospective, undertaken to determine the incidence of cystic hydatid disease among patients hospitalized in Shohada hospital of Kermanshah and Imam Reza hospital of Tabriz during 2012-2013.

After obtaining permission from Health Department of Kermanshah Medical Sciences University, the required data were collected from zoonoses center and were recorded in the checklist. The data include demographic specifications (sex, age, profession, season, and lodging) and the any kind of hydatidosis (involved organ and relapse). To analyze the data, frequency index, the relative frequency percentage and Chi square methods were applied using, SPSS software version 18.0. Meanwhile all patients were kept unanimous.

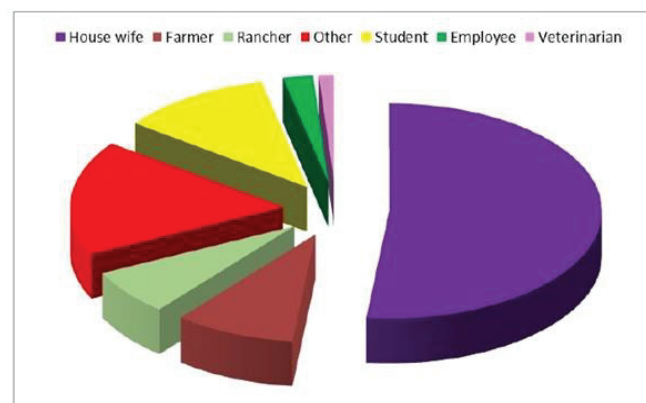
## RESULTS

Results showed that 50 (57.47%) patients with operated hydatid cysts referred to hospitals and 37 (42.53%) were female and male respectively (Table 1). The highest rate of infection was obtained in age-group of 21-30 (23%).

The incidence of hydatidosis in regard to the professional patients is summarized in diagram 1. Housewives had the highest rate (51.72%), while, veterinarians that lowest infection (1.15%). Students, farmers and staff showed 11.5%, 9.2% and 2.29% infection respectively. A percentage of 17.24 were observed for other professions. Affected organs included: liver 66.67% (58 cases), lung 27.59% (24 cases), and other organs 5.74% (5 cases) of which merely 2 cases have more than one organ involved. 4 Out of 87 patients with hydatid cyst operation, 72 cases were from Kermanshah, 5 from Kurdistan, 7

**Table 1:** Frequency Distribution of Operated Hydatid cysts according to the age-group during 2012-2013 status.

Percent	Number	Age
2.3	2	>10
13.8	12	11-20
23	20	21-30
19.54	17	31-40
6.9	6	41-50
12.64	11	51-60
8.03	7	61-70
11.49	10	71-80
2.3	2	81-90



**Figure 1:** P(A) Operated hydatid cyst cases according to the profession in Kermanshah Province during 2012-2013.

from Lorestan, and 3 from Ilam (Diagram 2).

Regarding the residential status of patients, the highest number of patients was from Kermanshah and the lowest from Sangar and Sahneh (Figure 1).

Due to the dispersion of patients in Kermanshah, it seems that the hydatid infection is scattered throughout the province.

The most surgeries took place in patients who had pet dogs or occupational contact with dogs (77.01%) whereas 49 cases (56.32%) in rural region. In addition, from 38 urban region patients, 18 cases (20.69%) traveled to villages. Comparing the number of operations during these two years, surgeries in 2012 were higher than 2013.

## DISCUSSION

Zoonoses include numerous important diseases and have higher prominence in human health. Hydatid cysts are indigenous in Asia, Europe, South America, Australia, and Middle East. Iran possesses the highest prevalence.

The sheep infection rate in different areas of the country was 1-7% (with the maximum infection rate in Fars). Sheep has significant role in transmission, because the cysts contain protoscole. In the study of Hoghooghi et al in 1961, about 35% of Shiraz stray dogs were infected with *E. granulosus* and this level in Tonkabon was 21.7% and in Shiraz 50%. Infection in carnivores has been reported to be 5-49% throughout the country.

In endemic areas children are the most affected group who are more in contact with dogs. Infection rate is also high in shepherds. The prevalence of human hydatidosis in 23 provinces has been reported by Management Centre of Health Ministry in 2002. The highest rate was 2.5 in 100,000 in Semnan while the lowest rate was 0.1 in 100,000 in Yazd. The contamination of intermediate hosts was high in Iran and is as followed: sheep (5.1-74.4%), goat (2-20%), cattle (3.5-38.3%), buffalo (11.9-70%), and camel (25.7-59.3%) (13). In a study conducted by in Iran, 4850 hydatid patients were operated study during 5 years. According to this study, the highest infection rate in human hydatid cysts has been reported from Khoozestan (4.45 cases in 100,000) and the lowest rate was in Hormozghan (0.1 in 100,000). The disease causes large economic losses through the surgery dispenses in human and carcass execution in infected animals. Conducted an investigation during 20 years (1985-2005) throughout the country. They reported 4.8 surgeries in 100,000 human cases. The average infected rate for dogs, sheep, goats,

cattle, camel and buffalo were 32.25%, 19%, 11.5%, 17.8%, 34.6% and 18.2% respectively (18).

In another study in Tabriz, 23 patients had hydatid cyst operation of which the highest rate belonged to children. These results are not consistent with our study. Several studies have been conducted on human hydatid cysts in most cities of Iran. In a study performed in Hamadan during 1999-2006, 179 cases of hydatid cyst operations have been reported in which the highest rate was in age-group of 20-39. These results are in line with our study.

The study performed in Arak during 1991-1997, 250 cases of hydatid cysts have been reported and the highest infection rate was in age-group of 10-49 which is in consistent with our study. In other studies in Urmieh, Mashhad and Kashan, the infected age-group range was 20-30 years. In a sero-epidemiological study of hydatidosis in Ilam during 2005, the highest age-group has been reported to be 20-30 years. In other studies performed throughout the country, the most infected age-group was 20-30 years, which is in consistent with our results.

In studies conducted in Ahvaz, Tehran, Tabriz, and Zahedan, the infection rate was higher in male than female, and it has been reported 60%, 58%, and 75%, respectively which are not in accordance with the present study. However, the highest infection rate was reported in female in Hamadan, Arak, Yazd, Mashhad, Kashan, and Khoram Abad this is in consistent with our results.

The results of this study revealed that according to the profession, the highest infection rate for hydatid cyst was in housewives, which is in consistent with the results of. Also, the highest infection rate in housewives. In the study of in North Khorasan, the highest infection rate was in housewives which is in accordance with the results of the present study. In this study the most infected organs include lungs, liver, and brain, which is similar to that of the other studies in Iran.

## CONCLUSION

According to the obtained information in this study, it seems that despite of all the effective challenges of veterinary organization and Health System of the country against hydatidosis, the infection rate is still high in this province and its neighboring areas. Also, due to the development of farming and animal husbandry in this area and the presence of sheepdogs in villages, the following implications are suggested:

Providing ID card for sheepdogs, treatment of infected dogs, collecting stray dogs, appropriate fencing of farms and vegetable plantations to prevent the entrance of stray dogs, training people particularly individuals at risk and housewives, destroying the infected organs of animals, and preventing unauthorized slaughtering ruminants particularly sheep in houses.

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