Original Article

A Survey of hydatidosis surgical cases in Kermanshah province of Iran during 2012-2013

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Summary

A retrospective and cross-sectional study was undertaken to determine the incidence of cystic hydatid disease among patients hospitalized in two hospitals in Kermanshah 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. Forty surgical cases of hydatidosis were found in Kermanshah. 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 to be necessary. Moreover, contaminated vegetables could be a potential route of infection.

Key words: Hydatid cysts, survey, patients.

Introduction

Echinococcosis/hydatidosis is a zoonotic disease, causes considerable economic losses and public health problems in many countries of world. Cystic echinococcosis is considered endemic in the entire Mediterranean zone including all countries from the Middle East (Andersen et al., 1997). In the Middle East generally, despite the provision of modern abattoirs and municipality by laws, the domestic and feral cycles of *E. granulosus* are indistinguishable and unlike other large endemic areas of the world, a close

association with dogs is not a definitive risk factor (Dar and Taguri, 1979).

But the domestic dog as a definitive host of the adult *Echinococcos granulosus* plays the most important role in spread of infection in the Middle East countries via contamination of environment (Tavakoli et al., 2006). 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 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 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 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 the hospital, of which 37 (42.53%) and 13 (42.53%) were female and male, respectively (Table 1). The highest rate of infection was obtained in age-group of 21-30 (23%) (Table 2).

Table 1. Frequency Distribution of operated Hydatid Cysts patients in Kermanshah according to the involved organs and gender during 2012-2013.

	Liver (%)	**Lung (%)**	**Other organs (%)**	**Total (%)**
Male (%)	22 (25.29)	13 (14.94)	2 (2.3)	37 (42.53)
Female (%)	36 (41.38)	11 (12.65)	3 (3.44)	50 (57.47)
Total (%)	58 (66.67)	24 (27.59)	5 (5.74)	87 (100)

Table 2. Frequency Distribution of Operated Hydatid cysts according to the age-group during 2012-2013.

Age	No. (%)
>10	2 (2.3)
11-20	12 (13.8)
21-30	20 (23)
31-40	17 (19.54)
41-50	6 (6.9)
51-60	11
61-70	7
71-80	10

The incidence of hydatidosis in regard to the professional patients is summarized in diagram1.Hosewives 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.

Out of 87 operated patients with hydatid cyst, 72 cases were from Kermanshah, 5 from Kurdistan, 7 from Lorestan, and 3 from Ilam (Fig. 1).

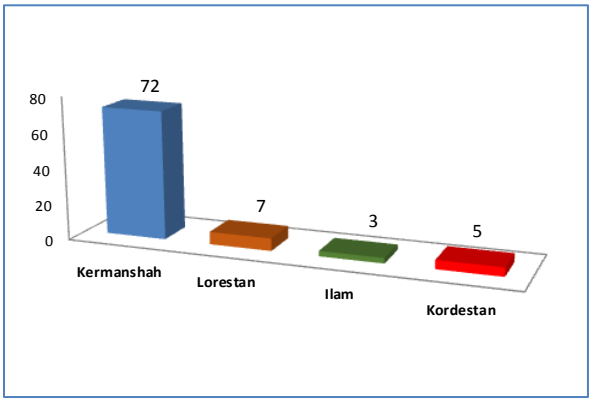

Fig 1. Hydatid cyst operated cases according to the residential region of the patients

Regarding the residential status of patients, the highest number of patients was from Kermanshah and the lowest from Sangar and Sahneh (Fig. 2).

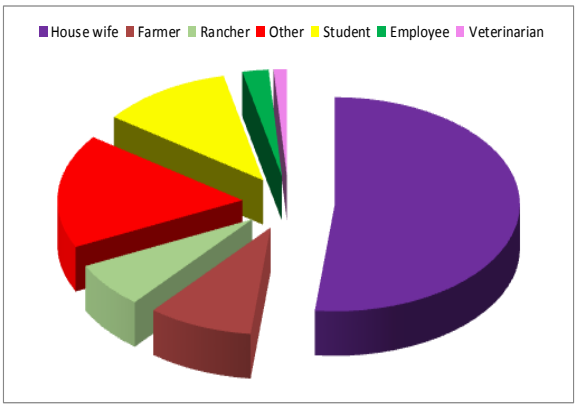

Fig 2: Operated hydatid cyst cases according to the profession of the patients in Kermanhah Province during 2012-2013.

Due to the dispersion of patients in Kermanshah, it seems that the hydatid infection is scattered throughout the province (Fig. 3).

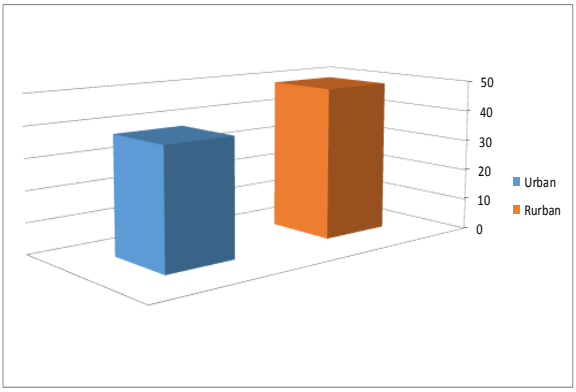

Fig 3. Hydatid cyst operations number according to the residential region of the patients during 2012-2013.

The most surgeries took place in patients who had pet dogs or occupational contact with dogs (77.01%) whereas 49 cases (56.32%) were from rural region (Fig. 3). In addition, from 38 urban region patients, 18 cases (20.69%) traveled to villages (Figure 2). Comparing the number of operations during 2012 and 2013, surgeries were higher in 2012 than 2013 (Table 3).

Table 3: Distribution of the number of operated hydatid cysts according to the year and involved organs in Shohada Hospital in Kermanhah during 2012-2013.

	Liver (%)	**Lung (%)**	**Other organs (%)**	**Total (%)**
2012	30(34,49)	14(16,09)	2(2,30)	46(52,78)
2013	28(32,18)	10(11,50)	3(3,44)	41(47,13)
Total (%)	58(66,67)	24(27,59)	5(5,74)	87(100)

Discussion

Zoonoses include numerous important diseases and have higher prominence in

human health (Tavakoli, 2006). Hydatid cysts are indigenous in Asia, Europe, South America, Australia, and Middle East. Iran possesses the highest prevalence (Sadjjadi, 2006).

The sheep infection rate in different areas of the country was 1-7% (whit the maximum infection rate in Fars). Sheep has significant role in transmission, because the cysts contain protoscolex (Saebi, 2009; Eslami, 2006). In the study of Hoghooghi et.al in 1961, about 35% of Shiraz stray dogs were infected with *E. granulosus* and this level in Toncabon was 21.7% and in Shiraz 50% (Saebi., 2009). Infection in carnivores has been reported to be 5-49% throughout the country (Nourjah et al., 2004).

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 100000 in Yazd (Saebi, 2009).

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, Nourjah et al(2004), 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) (Nourjah, 1988). The disease causes large economic losses through the surgery dispenses in human and carcass execution in infected animals.

Yousefi et al (2008) 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 (Yousefi et al., 2008).

In another study in tabriz, 23 patients had hydatid cyst operation of which the highest rate belonged to children (Hosseinpour et al., 2007). These results are not consistent with our study.

Several studies have been conducted on human hydatid cysts in most cities of Iran (Rokni, 2009; Nourjah et al., 2004). 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 (Ahmadi et al., 2008). 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 (Davami et al., 1997), which is in consistent with our study.

In other studies in Urmieh, Mashhad and Kashan, the infected age-group range was 20-30 years (Mousavi et al., 2003; Amooian et al., 2004; Arbabi et al., 2006).

In a sero-epidemiological study of hydatidosis in Ilam during 2005, the highest age-group has been reported to be 20-30 years (Aflaki et al., 2005). In other studies performed throughout the country, the most infected age-group was 20-30 years (Rokni,

2009; Nourjah et al., 2004), which is in consistent with our results.

In studies conducted in Ahwaz, 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 (Saebi, 2009). However, the highest infection rate was reported in female in Hamadan, Arak, Yazd, Mashhad, Kashan, and Khoram Abad (Rokni, 2009), this is in consistent with our results.

The results of this study revealed that according to the profession, the highest infection rate of hydatid cyst took place in housewives that is in consistent with the results of Nourjauh et al (2004). Also, Mardani et.al reported the highest infection rate in housewives (Mardani et al., 2009). In the study of Salehi et al (2012) in North Khorasan, the highest infection rate was in housewives (Salehi, 2012), which is in accordance with the results of the present study.

In this study, the most infected organs included lungs, liver, and brain that is similar to that of the other studies in Iran (Rokni, 2009; Nourjah et al., 2004).

According to the obtained information in this study, it seems that despite of all 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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