

Hydatid Cyst Disease in Khozestan Province, Iran

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Background: Hydatid cyst is endemic in Iran. Liver is the most common organ involved. Lung, brain, and other organs may also be involved. The aim of this study was to evaluate the clinical manifestation and complications of hydatid cyst disease in Khuzestan, Iran.

Methods: This was a retrospective study. The study population included both children and adults admitted in Imam Khomeini hospital over a 5-year period starting from 2001. In this study, age, sex, place of residency, fever, jaundice were asked and recorded for each cases. data was analyzed by SPSS ver 16.0 (Chicago, IL,USA). T-test and Chi-square were used for comparison.

Results: Of the 289 cases, 44.6% were males and 55.4% were females. Mean±SD of age was 41.6±7.59. Liver and lung involvements were seen in 174 (60.2%) and 97(33.7%) of cases respectively. The majority (64%) of all cases were from rural area. The recurrence rate was 19.3%. Frequency of clinical manifestation in descending order included abdominal pain (58.8%), dyspnea (32.9%), cough (23.9%), jaundice (22.9%), and fever (21.1%). The mean age in patients with jaundice was significantly higher than patients without jaundice (P<0.001). Icterus was more common in male cases than female cases (p=0.024). Dyspnea was more common in female cases (P=0.0024). There was a higher incidence of dyspnea in patients with dull abdominal pain than cases without abdominal pain (P<0.001).

Conclusion: Most of the cases had liver and or lung involvement. Jaundice was more common in males than in females. Dyspnea was more common in female cases.

Introduction

Hydatid cyst is the larval stage of echinococcus granulosus which located in human and some other mammalian tissues especially liver and lungs. Less frequently, bone¹, muscle, and heart² are also involved in hydatid disease. Iran is an important endemic focus of hydatid disease³. Hydatosis remains endemic to many part of the world. The prevalence of disease was estimated at about 1-220/100000. Iran is one of endemic regions and west regions had higher prevalence compared to other^{4,5}. The aim of study was to evaluate clinical manifestation and outcome of cases with hydatid cyst disease.

Patients and Methods

This retrospective study was carried out in Ahvaz University Hospitals from 2001 to 2006 with diagnosis of hydatid cyst. From these cases, 289 cases were randomly selected. All patients underwent surgery. Age, sex, place of residency, and clinical features were recorded for each case. Data were analyzed by t-Test and Chi-square with SPSS ver 16.0 (Chicago, IL,USA).

Results

A total of 289 cases were included in this study. Of these, 129 (44.6%) were males and 160 (55.4%) were females. The ages ranged from 14 to 71 years with a mean of 41.6 ± 7.59 years. Table 1 shows the age distribution. The peak was in 40-49 years followed by 30-39 years age group. Most of the cases were females and were from rural area (Table 2). Abdominal pain was the most frequent complaint (Table-2). Liver and lung were the most frequently involved organ. As seen in table-4, omentoplasty is the most commonly used procedure.

Table 1. Age Distribution

Range	Frequency	
	Number	Percentage
<20	7	2.4
20-29	7	2.4
30-39	54	18.6
40-49	208	71.4
50-59	5	1.7
>=60	8	2.7
Total	289	100

Table-2: Demographics and clinical manifestation among cases

Sex	Number	Percentage
Male	129	(44.6%)
Female	160	(55.4%)
Place of residency	Number	Percentage
Urban	104	(36%)
Rural	185	(64%)
Clinical Features	Number	Percentage
Jaundice	65	(22.5%)
Abdominal pain	170	(58.8%)
Fever	61	(21.1%)
Cough	69	(23.9%)
Dyspnea	95	(32.9%)
Pleuretic pain	32	(11.1%)
Hemoptysis	15	(5.2%)
Nausea and vomiting	52	(18.0%)

Table 3. Organ involvement

Organ	Number	Percentage
Liver only	174	60.2
Lung only	97	33.6
Liver and lung, and other organ	18	6.2
Muscle	4	1.4
Bone	2	0.7
Renal	1	0.3
Spleen	2	0.6

Table 4. Type of Surgery Performed

Type of Surgery	Number	Percentage
Cyst evacuation + washing+ omentoplasty	166	57.4
Cyst evacuation + washing + capitonage	49	17
Cyst evacuation + washing + external drainage	59	20.4
Laparotomy + thoracotomy	15	5.2
Total	289	100

Table 5. Complication of Hydatid Disease

Pre-operative complication	Number	Percentage
Biliary tract obstruction	10	3.4
Infected cyst	6	2.1
Rupture of cyst	5	1.7
Intra- and Post-operative Complication	Number	Percentage
Fever	156	54
Infection and abscess	26	9
Rupture of cyst	1	0.3
Mortality	3	1

The mean \pm SD of age of the cases with jaundice was 45.00 ± 9.21 and was significantly higher than the (40.76 ± 6.76) of the non icteric cases ($P < 0.001$). Of the 129 male cases, 37 (28.7%) had jaundice and of 160 female cases, 28 (17.5%) had jaundice. There was a statistically significant difference between male and female ($P = 0.0001$). Of the females, 63 (39.4%) had jaundice and compared to 32 (24.8%) in males who had icterus ($P = 0.001$). There was no significant correlation between age of the cases and abdominal pain ($P = 0.89$), dyspnea ($P = 0.11$) or fever ($p = 0.76$). There is significant correlation between pleuretic pain and dyspnea ($p < 0.001$). We also found no statistically significant difference between jaundice and abdominal pain ($p = 0.28$).

Discussion

E. granulosus most commonly invade the liver and lung but it may also involve almost every organ in the body⁶. From our cases, about 94% had hydatid cyst in the liver and/or lungs. In children, liver and lung are the most common involved organs⁷. The rate of liver involvement is reported to vary between 61.5% to 90.5% according to different studies^{8,9,10}. Synchronous pulmonary and liver involvement in hydatid disease may occur in 4% to 25% of cases¹¹. In our study, less than 6% of cases had synchronous liver and lung involvement. In children, liver and lung is equally involved. In adults, liver is mainly involved organ^{12,13,14}. In our study, most of the cases were adult patients. Liver involvement is our study predominated.

In this study, the male to female sex ratio was 1: 1.2. The predominance of females has been reported in other studies^{15,17,18}. In the present study, the recurrence rate was about 19.3% and was comparable to that reported by Aydin et al¹⁶. Most (71.9%) of our cases were in the 40-49 years age group followed by 30-39 years (18.6%).

In our study, abdominal pain was the most frequent complaint. In a previous study¹⁹ of 206 cases with pulmonary hydatidosis, cough (54%), chest pain (36%), dyspnea (25%), and haemoptysis (19%) were the most common clinical manifestations. In a study by Arnic et al²⁰ on pulmonary hydatid cyst cases, chest pain (44.9%) and cough (37.6%) were the most frequent symptom. Tantawy²¹ studied 30 children with pulmonary hydatid cyst. Their ages ranged from 24 months to 16 years. Cough and fever were recorded in 46.6 % of cases (Cough: 30%, Cough and Fever: 16.6%). There was no report of cyst recurrence in 1-year of follow-up. Differences in frequency of clinical manifestation between our study and other study are mainly due to the fact that we studied both liver and lung involvement. Other author studied either liver only or lung only.

In our study omentoplasty was the most frequently performed procedure for treatment. In a previous study²², it was found that hospital stay was shorter in patients who had omentoplasty in comparison to those who underwent other procedures. In 73% of cases, there postoperative fever²². Muscle hydatosis was found in 4 cases. In our previous study, we reported 3 cases with muscle hydatidosis²³.

In the present study, there were 3 deaths, a mortality rate of 1%. Surgical mortality rates are as much as 3% even after surgery for uncomplicated hydatid cyst²⁴. This low mortality rate may be attributed to the fact hydatid disease being endemic in our area, the surgeons handling our cases were highly experienced in operating the hydatid cysts.

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