A retrospective survey of human hydatidosis based on hospital records during the period of 10 years

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Abstract Hydatid cyst is a parasitic infection that is widely seen endemically in the Middle East countries. We studied hydatid cyst pattern in hospitalized adult patients in our hospital from 2000 to 2010. In this study 89 patients, 50 females and 39 males who were diagnosed to have hydatid cyst were evaluated. The mean age of the patients was 37.3 and the mean hospital stay was 10.1 days. The main complaint was abdominal pain (66.2%). The most common localization of cysts was the liver and the most radiological method to diagnose the disease was ultrasonography followed by CT scan. Our recurrence rate was more than average. We had no mortality and did not find any serious postoperative complication. Safe surgery is a role for hydatid cysts.

Keywords Hydatid cyst · Liver · Ultrasonography · CT scan

Introduction

Hydatid cysts are caused by the parasite “*Echinococcus granulosus*”. Hydatid disease is prevalent and wide spread in most sheep rearing countries in Asia, Australia, South America and southern Europe. These cysts are characterized by cystic space occupying lesion in the liver, the lungs and rarely in other parts of the body (Bhabaosh et al. 2004).

Although hydatid cysts can occur in any location echinococcosis is usually found in the liver and lung. Extra hepatic hydatidosis has been described in the peritoneal cavity, retro peritoneum, spleen, kidney, adrenal glands and even in the spine, myocardium and abdominal wall (Ruiz-Rubelleo et al. 2008). Cysts may grow faster in the lungs than in the liver due to less elasticity of the lungs (Montazeri and Sokouti 2007).

Hydatid disease is an important public health problem in Iran (Montazeri and Sokouti 2007; Mirshemirani et al. 2009). Iran is a country of endemic situation for hydatidosis (Rokni 2009; Sadjjadi 2006) and regardless of utilizing ELISA test for its diagnosis in some medical labs, still encompasses the problem of diagnosing the disease in a 100% certainty (Rokni 2009).

Echinococcus granulosus is the most common cause of Hydatid cysts. Intermediate hosts for *E. granulosus* are sheep, goat, cattle, swine, deer, and human while definite hosts are dogs, wolves, jackals, and hyenas. Digestive enzymes dissolve the protective membrane of the eggs ingested by an intermediate host. Embryo passes through mesenteric venules and enters the portal circulation. If the liver does not keep the embryo, it is carried to the lungs. It is most frequently located in the right lung and lower lobes of both lungs (Sehitogullari 2007). In adults the liver is the most common organ infected by larval form of *E. granulosus* (Bhabaosh et al. 2004; Moharrem et al. 2000).

Regarding the widespread of hydatidosis throughout the world, the diagnosis of the disease is still a matter of challenge. The reason is the biology of the disease and the lack of an authentic gold standard, being accepted by all researchers (Torgerson and Deplazes 2009). Diagnosis of hydatid cyst of the liver is made by history, physical examination and radiological evaluation but serological investigations have limited value.

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Symptoms are related with size, location, rupture and infection of cysts. The cyst is identified in sonography and in some cases in CT scan.

In the present retrospective study we reviewed the gender, age, clinical features, diagnostic tools, operative techniques, complications, morbidity and mortality, hospital stay, recurrence and outcome of treatment of hydatid disease during the period 2000–2010 in Shohada Tajrish hospital, Tehran, Iran.

Materials and methods

This study is a retrospective and descriptive study performed in hospitalized patients in Shohada Tajrish hospital in Tehran, Iran from 2000 to 2010. Data was collected by searching through patient's files in hospital archives considering different factors such as age, sex, location of involvement, symptoms, management and outcome. The collected data was analyzed and the results were compared with the similar studies done earlier.

Results

89 patients, 50 (56%) female and 39 (44%) male who presented to our hospital between 2000 and 2010 and were diagnosed to have hydatid disease by clinical and radiological findings were evaluated. Pathological report was the main factor in selecting the patients. The mean age of the patients was 37.3 and the mean hospital stay duration was 10.1 days. Abdominal sonography was performed in 54 (60%) and CT scan in 31 (35%) patients which was effective for diagnosis.

Some cases had more than one cyst in one or more organs simultaneously. Isolated liver was involved in 64 cases while the lung was involved in 3 cases. Remaining 11 cases had multiple organs involved along with liver or lung, brain, spinal, cord, pelvis, spleen, kidney and heart.

The chief complaint in 59 cases (66.2%) was abdominal pain, seven patients (7.8%) had abdominal mass, two had dyspnea and seven (7.8%) had icterus, fifteen (16.8%) had fever, eleven (12.3%) had weight loss and twenty one (23.6%) had anorexia, eighteen (20.2%) had nausea and sixteen (17.9%) had vomiting. Abdominal distension, sweating, paresthesia in lower extremities, low back pain, fecal and urinary incontinency were another rare symptoms (Table 1).

Some of the cases who had cysts in another organs included one in spleen, three in pelvis, one in spinal cord, two in brain, one in heart, one in kidney, three in lung and one in medial aspect of femur. All of the patients underwent surgery. Ten (11.1%) cyst recurrences were noted

Table 1 The chief complaint of patients in our study

Sign and symptom	Patient
Abdominal pain	59 (66.2%)
Anorexia	21 (23.6%)
Nausea	18 (20.2%)
Vomiting	16 (17.9%)
Fever	15 (16.8%)
Weight loss	11 (12.3%)
Abdominal mass	7 (7.8%)
Icterus	7 (7.8%)

during follow up. All of the patients were given Albendazole orally. We had no mortality and did not find any serious postoperative complication. No major chronic complication was noted during follow up.

Discussion

Consistent with other reports (Ruiz-Rubelleo et al. 2008; Moharrem et al. 2000), the most common localization of hydatid cyst was the liver in our study. Other organs infected included the lung, brain, kidney, spleen, pelvis, limbs and heart.

The current survey found that females were more affected than males (57% vs. 43%). This finding is similar to other reports of hydatid cyst in Iran (Montazeri and Sokouti 2007; Priego et al. 2008; Rokni 2009). However in one study in Iran the prevalence of hydatid cyst was the same between males and females (Arbabi et al. 1998). We think this is because Iranian women have more contact with domestic animals than men in rural areas. Females do most of the domestic work including feeding animals and cleaning surrounding which may be contaminated with echinococcus eggs.

Patients' age ranged from 10 to 67 years old. The peak incidence of the disease was between 20 and 40 years old. This is consistent with previous studies in Iran. In a study by Khalili et al. Khalili et al. 1988 the peak incidence of hydatid cyst was between 27 and 40 years old (Khalili et al. 1988). Other studies in Iran also proved the same result (Shiryazdi et al. 2000; Amouiean et al. 1759). This age group has more contact with livestock in farms and this can be the reason of the prevalence of hydatid cyst among them. The results show that the affected patients were in the most active years of their lives and hydatid disease may have a devastating effect on economy. No data is available about the economical impact of hydatid cyst on the economy of Iran and more research is needed to evaluate it.

As we expected, observation of clinical manifestations demonstrated that abdominal pain was the most common complaint and was present in 66% of the cases. Other

complaints included anorexia (24%), nausea (20%), fever (12%) and weight loss (12%). This was in line with previous surveys (Shiryazdi et al. 2000; Khalili et al. 1988).

The most used imaging method to diagnose the disease was ultrasonography (60%) followed by CT scan (35%). This demonstrates that ultrasonography is a valuable and available mean of detecting hydatid cyst in Iran. Serological tests are also useful in detecting hydatid cysts, but only the positive results are considered valuable and many affected patients have negative serological test (PriegoP et al. 2008). We think the diagnosis can be made with the use of ultrasonography and serological test together and there is no need to perform CT scan in many cases.

Nearly all of the patients underwent surgery and received Albendazole and only three patients were treated with conservative management. The mean duration of hospital stay was 8.5 days. In a study by Priego et al. PriegoP et al. 2008 in Spain the mean duration of hospital stay after surgery was 8.65 days (Yuksel et al. 2008). Ten cyst recurrences were noted during follow up (11%). In previous surveys the recurrence rate after surgery has been reported between 1.1 and 9.6% (Yuksel et al. 2008; Gorbach et al. 2004). This means that the recurrence rate is higher than average in our clinic. The exact cause of this is unknown but in our opinion, this may be due to lack of cooperation of patients in taking Albendazole. In several studies it is confirmed that preoperative and postoperative use of Albendazole can reduce the risk of recurrence significantly (Arif et al. 2008; bildik et al. 2007). We think the patients should become more informed about the importance of taking their medication and more communication is required between physicians and patients to improve the treatment results.

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