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Hydatid Cyst In Turkey: Ten Years of Experience From A Single-Center

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Abstract

Introduction: Hydatid cyst is a zoonotic disease of Echinococcosis granulosis, which occurs in human and is a serious health concern in many parts of the world including Turkey. The aim of this study was to contribute to the health statistics related to hydatid cyst with the data obtained from our clinic, and to discuss hydatid cysts in respect of location, cyts number and size of cysts.

Methods: Cases diagnosed as hydatid cyst in the Pathology Department of Antalya Education and Research Hospital between 2008-2017 were evaluated based on criteria such as age, gender and location of the cyst.

Results: A total of 177 lesions were detected in 166 patients, comprising 72 females and 94 males with a mean age of 42.1 years (range, 3 - 76 years). Location was determined as the liver in 113 (63.8%) cases and the lung in 35 (19.8%). In 9 cases, 2 different locations and in 1 case, 3 different locations were determined in the same presentation. In 30 lesions (16.9%) an unusual site other than the lungs or liver was detected.

Conclusions: Hydatid cyst is a serious public health problem in Turkey, just as in other developing countries. As hydatid cyst can be found in all areas of the body, it should be kept in mind when patients in endemic areas present with cystic lesions.

Keywords: Hydatid cyst, Echinococcus granulosus, locations, one single center experience.

Introduction

Hydatid cyst (synonymous with hydatid disease), cystic echinococcosis, is a zoonotic parasitic disease caused by the Echinococcus family. Three forms of echinococcosis are observed in humans; cystic echinococcosis (CE) caused by E.granulosis (EG), alveolar echinococcosis caused by E. multilocularis, and polycystic echinococcosis caused by E.vogeli and oligarthra [1,2]. One of the most important and endemic forms of echinococcosis in

humans is E.granulosus which threatens human health. CE leads to huge economic losses in Turkey and around the world in areas including the Middle East, South America, New Zealand, Australia, and South-East Asia [2, 3, 4].

EG is a 5 mm long hermaphroditic tapeworm. Humans become infected by the larval stage of this parasite, the adults of which live in dogs and other carnivorous animals. After consumption of food or water contaminated by dog faeces containing parasite eggs, most of the embryos die but some become cysts and migrate to the liver, lungs and/or other organs. Humans become accidental intermediate hosts by ingesting the Taenia egg [1, 2, 5]. This parasite may settle almost anywhere in the body, but hydatid cysts most commonly are seen in the liver and the lungs, although they may also be detected less often in locations such as the spleen, kidney, pelvic urinary tract, and soft tissue [6]. They can be seen in one organ or different organs as one or multiple cysts at the same time [3, 4].

The aim of this study was to present the data of 177 lesions detected in 166 patients with hydatid cyst over a 10-year period, with particular emphasis on the management of cyst locations.

Material and methods

A total of 166 patients with hydatid cyst were diagnosed and treated between 2008 and 2017 at the Antalya Education and Research Hospital. All patients are currently alive and have been continuously followed up. Evaluation was made of the hospital records and histopathology slides of these 166 patients with hydatid cyst. Hematoxylin eosin stained slides were retrospectively examined by two pathologists (HTY, CSA). The cases were reviewed in respect of age, gender and cyst location. All cases were classified based on the location, number of lesions or other organ involvement and clinical outcome.

Results

A retrospective evaluation was made of a total of 177 lesions detected in 166 patients with hydatid cyst. The total 166 patients comprised 72 (43.3%) females and 94 (56.7%) males, with a mean age of 42.1 years (range, 3-76 years).

Of the 177 lesions detected in 166 patients, the location was determined as the liver in 113 (63.8%), the lungs in 35 (19.7%), the spleen (5.6%) in 10, soft tissue in 5 (2.8%), the kidney in 4 (2.2%), the heart in 3(1.6%), the pancreas in 2(1.2%), and the neck midline, appendix, bladder, ovary and peritoneal cavity in 1 lesion each. The size of the lesions ranged from 1-20 cm.

In 9 patients, 2 lesions were determined in different locations, and in 1 patient, 3 lesions in different locations. Thus, the incidence of multiple lesions was 6%. All the sites of this zoonotic disease are summarized in Table 1. The most common sites were the liver and lungs.

Cystectomy was applied to 131 patients, and cystectomy with organ resection for hydatid cyst in 32 patients, comprising 14 of 35 lung cases, and 10 spleen, 3 kidneys, and 1 ovary location. Lobectomy was applied to 14 cases, splenectomy to 10, nephrectomy to 3 and oophorectomy to 1.

In the histopathological examination all patients had laminar laminated membrane with germinal layer (Figure 1). Also 35 cases had laminated membrane with germinal layer and fibrous capsule. Only in 25 cases had seen laminated membrane with germinal layer with protoscolex (Figure 2).

Discussion

Although hydatid cyst has been eliminated in some countries, EG remains endemic in some regions especially

in developing countries. Therefore, hydatid cyst still represents an important medical problem in many countries, Turkey included. In some countries, the annual incidence of hydatid cyst is lower than 1 case per 100,000 inhabitants, while in others it may be as high as 200 cases per 100,000 inhabitants. In Turkey, the annual incidence is 50 cases per 100,000 inhabitants [2, 4, 7].

EG embryos, which pass through the intestinal wall, are most frequently located in the liver and lungs. Unusual hydatid cyst locations are defined as those where the embryos have spread into the systemic circulation by escaping the hepatic and pulmonary filter mechanisms [2, 3, 8]. The clinical symptoms of hydatid cyst are varied and can be determined by the size, the site, and the nature of the cysts. Usually a hydatid cyst remains asymptomatic until symptoms are caused by pressure or rupture. A hydatid cyst in an extrahepatic location may pose a diagnostic challenge and sometimes the diagnosis can be made intraoperatively [5,6].

In this series over a period of 10 years, the female to male ratio was found to be 1.3/1, which is consistent with the global data that hydatid cyst is mostly seen in females. This could be attributed to the fact that in rural areas of Turkey women rather than men work more with animals and are also responsible for domestic pet care and food preparation in the home [9, 10].

When patient age was classified in decades, the most common age of manifestation was between 30 and 40 years (Table 2). This finding correlates well with the literature [2]. Likewise, in the current study, 113 lesions were located in the liver and 35 in the lungs. The rate of unusual locations was 16.9%. In literature, the rate of organ involvement other than the lungs and liver has been reported as 5.7%-13.9% and the current study results were similar [2, 5, 10-12].

There have been many published case reports in literature of hydatid cysts presenting in unusual locations [3, 5]. Involvement of more than one organ has been reported at the rate of 6.7% and multiple cysts as 2.2% [10, 11]. The results of the current study were similar to those rates with multiple organ involvement at 6% and multiple hydatid cysts at 2.4%. Furthermore, the current study recorded multiple and unusual hydatid cysts in adults [3, 5].

The appropriate treatment should be selected based on factors such as cyst number and cyst location (on the surface or deep within the organ). Although the optimal treatment is total cystectomy with no organ resection, it may sometimes be necessary to perform cystectomy with organ resection [3, 7]. In our study, cystectomy was applied to 131 patients, and cystectomy with organ resection for hydatid cyst in 32 patients.

Although it is a benign pathology, the evolution of hydatid cyst can lead to severe complications and a low quality of life for the patient, both before and after surgery. The most important factor in diagnosing hydatid cyst in any location is awareness and a high level of suspicion when patients living in or coming from an endemic region present with a cystic mass.

Conclusion

According to the WHO, hydatid cyst represents a worldwide health problem and is recorded as a neglected disease, which exerts a significant impact on the economy and on the social welfare of people in endemic countries. Therefore, several strategies can be applied to aid the prevention and control of hydatid cysts in endemic areas; (a) public education programs to inform the community about the disease, (b) prevention of feeding dogs with the carcasses of infected sheep, (c) avoiding the consumption of any food or water that may be contaminated by fecal matter from dogs, (d) washing hands with soap and water

before and after handling dogs, and (e) teaching children about the importance of hand-washing to prevent infection [1, 4]

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Tables and Figure

Table I. All the sites of this zoonotic disease are summarized.

Location	Number	%
Liver	113	63.8%
Lung	35	19.8%
Spleen	10	5.6%
Soft tissue	5	2.8%
Kidney	4	2.2%
Heart	3	1.6%
Pancreas	2	1.2%
Ovary	1	0.6%
bladder	1	0.6%
appendix	1	0.6%
Neck midline	1	0.6%
Peritoneal cavity	1	0.6%

Table II. Patient age was classified in decades

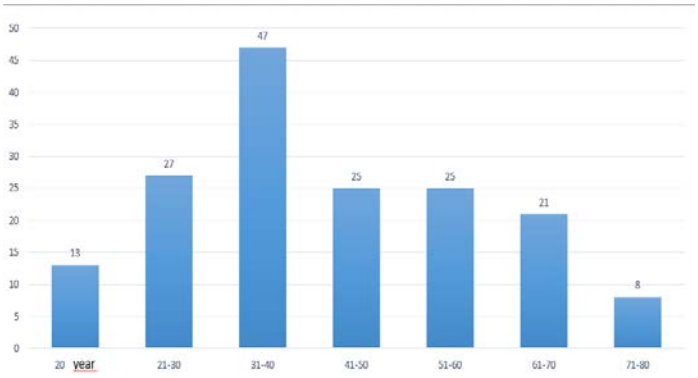

Figure 1: Wall of the hydatid cysts showing the laminated membran with germinal layer (H&E X40)

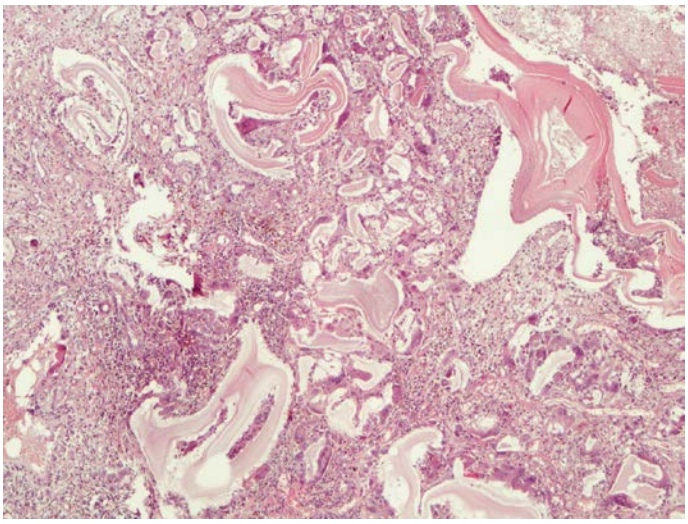

Figure 2: Wall of the hydatid cysts showing the laminated membran with protoscolex (arrow) (H&E X60)