Hydatid Disease in Yemeni Patients attending Public and Private Hospitals in Sana'a City, Yemen

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Abstract

Objectives: Hydatid disease is endemic and represents a major health problem in Yemen. The aim of this study is to determine the magnitude of the problem of hydatidosis in patients attending Public and Private Hospitals at Sana'a city, Yemen.

Methods: 66 patients with hydatid disease were identified during the period from August 2006 to February 2007. Complete medical history for all CE patients were collected and analyzed.

Results: Among the 66 CE patients, 67% were females and 33% males. Liver was the most common involved organ. Single cyst was more frequently detected than multiple cysts and approximately 94% of the cysts were ≥5 cm. Moreover, Public hospitals were the main source of patients with CE disease.

Conclusion: Hydatidosis is still an endemic disease and an important health problem in Yemen which needs to be studied further. Therefore, accurate information on the distribution of the disease is the first step for the control and prevention of the disease. Moreover, it is crucial to investigate the role of different intermediate hosts and genotypes of *E. granulosus* in humans and animals.

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Introduction

Hydatidosis or Cystic echinococcosis (CE) is an important zoonotic disease that constitutes a major public health problem in many countries around the world.[1] The disease is concentrated in the sheep-raising and pastoral areas. Although hydatid disease has been entirely eradicated in some countries, it remains a serious endemic health problem in certain parts of the world such as the Middle east, Mediterranean area, South America and Australia.[2,3]

In Yemen, hydatid disease is still endemic and hepatic hydatid cyst represents a major health problem.[4,5] This study aims to detemine the magnitude of the problem of CE in patients attending Public and Private Hospitals at Sana'a city, Yemen.

Methods

Yemeni hospitals both public and private in Sana'a city attract patients from all over the country. In this descriptive study, complete medical history of all CE patients were collected and analyzed.

The study included patients attending the outpatient and inpatient departments of surgery at Yemeni public and private hospitals in Sana'a city.

CE patients were diagnosed by various imaging techniques, including US, CT, X-ray and MRI for a period of seven months between August 2006 and February 2007. Detection and removal of the cysts through operation as well as microscopic examination of the aspirated hydatid fluid were confirmatory. The ethics committee approved the study and informed consent was obtained from all participants.

Results

A total of 66 CE patients were identified. They include 22 males (33%) and 44 females (67%) aged between 5 years to >30 years. The majority of the patients were >30 years old (40.4%) and public hospitals had a higher proportion of infected people (79%) than private hospitals which accounted for only 21%. (Fig. 1)

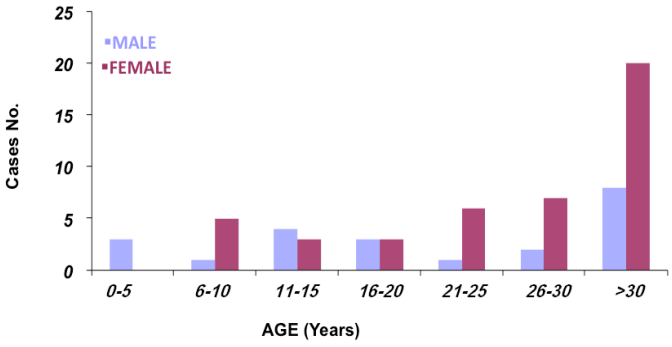

Figure 1: Distribution of CE cases according to age groups and gender

The features of the cysts (site, number and size) were identified and are presented in Table 1 and Fig. 2. With regards to the number of cysts, 40 patients (61%) had a single cyst in each effected organ while 26 patients (39%) had multiple cysts (Fig. 2). Cysts less

than 5 cm were demonstrated among 4 patients (6%), while cysts greater than 5 cm were detected in 62 patients (94%). (Fig. 2)

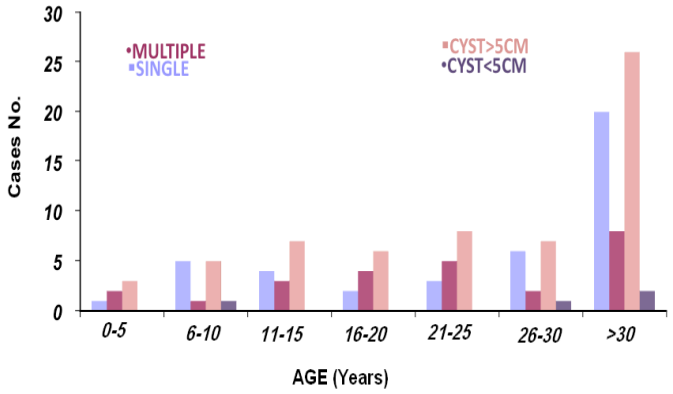

Figure 2: Distribution of CE cases according to age groups and cyst features

In terms of the site of the cysts and the affected organs, the results showed that, 38 patients (57.6%) had isolated hepatic hydatid cysts, while 17 patients (25.8%) had isolated pulmonary hydatid cysts. Only three patients (4.5%) had combined affected organ. The remaining 8 patients had hydatid cysts in the ovary (2 patients), kidney (2 patients), uterus (2 patients), brain (1 patient) and iliac fossa (1 patient).

Table 1 shows that the most common affected site in the liver was the right hepatic lobe (65.78%). In the lung, the right lobe was markedly affected (58.8%) than the left lobe (1.1%).

Discussion

Cystic Echinococcosis/hydatidosis is one of the most important zoonotic diseases in the world. High parasite prevalence is found in the Middle East as well as Arabic North Africa.[6] In Yemen, hydatidosis is still endemic and amazingly more prevalent in females than males, while hepatic cysts represent a major health problem.[4,5,7] A Survey study of the endoparasites of stray dogs in Sana'a, Yemen showed that 57% of stray dogs were infected with intestinal parasites especially *E. granulosus* and the incidence of infection was 7.1%.[7]

In this present study, infected females (67%) were double the number of infected males (33%). This finding is in agreement with other studies conducted in Yemen, which reported that females were more exposed to echinococcal infection than males.[4,7] Additionally, in Morocco and Libya, as well as in China, it was reported that females were more exposed to echinococcal infection than males.[8,9,10] On the contrary in Kyrgyzstan, it was reported that males were more exposed to the infection than females.[11] The differences in reports could be attributed to the difference in socio-economic and cultural status from country to country. It is not surprising in the Yemeni community since a considerable proportion of females continue to have some activities related to animal breeding and/or agriculture.

In the present study, the age of the majority of identified patients was more than 30 years old (40.4%). Only three patients were 5 years old, two of whom had isolated pulmonary CE and one had isolated hepatopulmonary CE. Several studies have demonstrated that CE sparked medical attention in almost all ages, from below one year to over 75 years of age, and the pattern

Table 1: Frequency and percentage of the different affected organs among the CE Patients.

Site	Frequency	Percentage %	
Isolated Hepatic CE, N=38(57.58%)	38	% Per Hepatic	% Per Total(66)
Right lobe	25	65.78	37.88
Left lobe	6	15.79	9.10
Right and left lobes	7	18.43	10.61
Isolated Pulmonary CE, N=17(25.75%)	17	% Per Pulmonary	% Per Total(66)
Right lung	10	58.82	15.15
Left lung	7	41.18	10.6
Combined organs CE, N=3(4.55 %)	3	% Per Comb. organs	% Per Total(66)
Hepato-pulmonary CE	2	66.67	3.030
Hepato-pulmonary and peritoneal CE	1	33.33	1.52
Rare organ CE, N=8(12.12%)	8	% Per Rare organ	% Per Total(66)
Ovarian CE	2	25	3.03
Renal CE	2	25	3.03
Uterine CE	2	25	3.03
Brain CE	1	12.5	1.52
Iliac fossa	1	12.5	1.52

of gradual increase in prevalence of CE with age is very general and has been observed in many endemic countries.[9,10,12,13]

The majority of patients in the present study were found in the public hospitals (79%), this could be attributed to the fact that public hospitals have good facilities with sufficient equipment and staff.

It was observed that the most common affected organ was the liver (57.58%), followed by the lung (25.75%). The higher rate of hepatic infection may be attributed to the fact that the liver acts as the primary filter in the human body and the lung is often thought to be the second filter.[14] A similar picture of organ affection to this has been reported by other studies. It was reported that the most frequent site of hydatid cysts was the liver (50-70%) followed by the lung (20-30%) and less frequently, kidney, heart, bones and elsewhere.[10,15,16,17]

In the present study, 40 patients (61%) had single cyst in each affected organ while 26 patients (39%) demonstrated multiple cysts. In addition, 4 patients (6%) had cysts sized less than 5 cm, while 62 patients (94%) had cysts sized greater than 5 cm. These findings are in accordance with other studies published which reported that the most common ultrasonographic features of hydatid cysts are their spherical shape and the fact that they are unilocular.[18,19] The results showed that the less common features were either a multicystic appearance, having a detached germinal layer or evidence of hydatid sand within the cyst.[12,18,19] The predominance of solitary and single organ involvement over multiple organ involvement was noted in the present study. In this respect, it is widely accepted that primary cysts are mostly solitary in nature.[20] However, in the present study, it was difficult to ascertain whether multiple cysts are primary or secondary.

Conclusion

In conclusion, Hydatid disease is still an important health problem in Yemen which needs to be studied further. Therefore, accurate information on the distribution of the disease should be the first step for the control and prevention of the disease. Moreover, it is necessary to investigate the role of different intermediate hosts and the strains of *E .granulosus* in humans and animals in each province.

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