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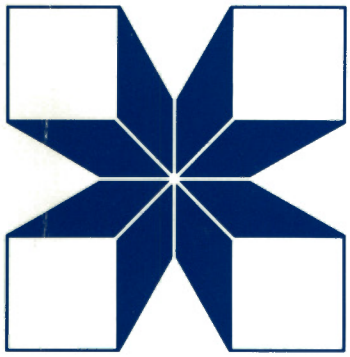

CANADA

ZOONOTIC AND PARASITIC DISEASES

PROCEEDINGS OF THE THIRD INTERNATIONAL AND PAN-ARAB SEMINAR HELD IN AMMAN, JORDAN, 17–20 OCTOBER, 1989

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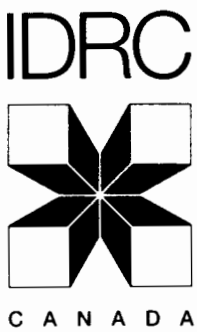

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HYDATID DISEASE: A COMPARATIVE STUDY IN THE MEDICAL CITY TEACHING HOSPITAL AFTER 10 YEARS

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Abstract

In a study based on patients admitted to the MCTH Baghdad during three years period (1971-1973 Vs. 1980-1982), hydatid disease was found to be still a public health problem. In this tudy, the patients were admitted from all parts of Iraq; about 50% of the cases were referred from provinces other than Baghdad. The total number surgically proved hydatic disease 392, with an average of 131 per year. More females (57.2%) than males (42.8%) were infected, the females being mostly housewives. The disease was found in all age groups but the majority were between the age of 20-30 years. About 75.2% of the cases were infected with single cyst, nd 24.8% with multiple ones. The highest percentage of infection was found in liver, the lungs being the next. About thirty one percent of the cases were recurred. These results compared with a similar study done in the same center 10 years ago.

Introduction

Hydatid disease is one of the important parasitic zonotic diseases, and in general the disease has a cosmopolitan distribution. It is caused by the larval stage, hydatid, which belongs to the genus Echinococcus. In Iraq, the only species recorded is E. granulosus which cause the vesicular or unilocular echinococcosis (5, 6). This species is the most common one in its geographical distribution among all other species of the same genus.

Hydatid disease is one of the serious public health problem in many countries. The Middle East has been cited as among those areas of the World in which hydatid disease is most prevalent. In this country the disease is considered as one of the most serious helminthic disease. In recent years more information and studies has been done by many workers on its geographical and prevalence rate both in man and animals, to name but a few (4, 7, 10, 13, 15, 19).

A decade ago, an internationally approved recording system was introduced into the Medical City Teaching Hospital (MCTH). Using this system, a study was done on the prevalence of the disease in man for three years period 1971-1973 (2).

The overall incidence with hydatid was 0.8% or 8 per 1000 patients admitted for all reasons. Important gaps in our knowledge of this disease still exist, preventing efforts directed at its proper diagnosis, treatment, prevention, control and finally eradication of the disease in this country, an objective which has been accomplished by several countries. Due to the fact that, in Irq, the medical services has been improved for the last decade, where new and well equipped hospitals were built with different specialties, and the surgery was one of these. The objective of this study, therefore, was to assess the seriousness of this disease in comparison with the study which was done 10 years ago in the same center, by examining the records of surgically proved cases with hydatid disease for three years, during the period 1980-1982 inclusive.

Patients and Methods

The MCTH was chosen for this study. It is the largest hospital in Iraq with a capacity of about 1400 beds (children hospital is included). The records of patients of the MCTH with surgically proven hydatad disease for the period 1980-1982 were studied. From each case record, the following information were obtained: site or location of the cyst in the body (single or multiple), age, sex, occupation of the patient, as well as his place of residence. The recurrent of hydatids also were recorded.

Results

Prevalance: This study revealed a total of 392 patients operated on and proved to be positive hydatid cyst in this hospital during the three years period. This gives an annual surgical case rate of about 131 per year. The average total number of patients admitted for all reasons to the MCTH was 319.68. Thus, the overall incidence of the disease among all patients admitted to this hospital was 0.4% or 4/1000 (Table 1) Vs. 8/1000 in the previous study.

Age and Sex: The prevalence was highest among the age group 20-30 years (Figure 1). The youngest surgically proved case was less than four years old and the oldest between 80-90 years of age. Females were more frequently infected than males (57.2F vs 42.8M) Fig. 2.

Table 1. The incidence of hydagid cysts in patients admitted to the MCTH in Bagdad during 1980-1982

Year	Total No. admitted	No. (+) for H.C.	No. with H.C./1000
1980	32027	131	4.0
1981	32140	130	4.0
1982	32737	133	4.0
Average	31968	131	4.0

The fractions are omitted in this table.

Sites and type of Infection in 236 cases (55.2%) there were cysts in the liver which was the highest, 117 cases (27.3%) were in the lungs, 18 (4.2%) involved the intra-Peritoneal, and 14 (3.2%) in the kidneys. The other rare sites, 43 (10%) and 0.4% were unspecified (Table 2). In the females, the liver was more frequently infected than the males, which was not the case with the lungs where both males and females were equally infected.

Out of the 392 surgically proved hydatid, 295 (75.2%) were solidary and 97 (24.8%) were with multiple cysts, and both types of cysts, the solidatry and the multiple were more in the females than in the males (Table 3).

Geographical Distribution: Almost half the number of the cases were from the City of Baghdad, and the other half (50.5%) referred to the MCTH from other governorates. The highest number, 35 (8.9%) referred from Al-Anbar Governorate (Table 4).

Occupation: was recorded for all cases with the exception of one unspecified patient (0.25%) in comparison with the previous study (Table 5). One hundred eighty two (46.9%) were identified as housewives and 53 (13.5%) of the patients as students. The rest 45 (11.4%) were staff employee, 37 (9.4%) workers, 16 (4%) free occupation, 15 educational, 14 farmers, 9 children, 7 disabled, 6 retired, 4 engineers, 2 medical occupation, and one para-medical.

Recurrent Hydatid Cyst Cases: out of 392 recorded cases, 120 (30.6%) were recurrent. More females were recurrent than males, (67.5F% Vs. 32.5M%). The majority involved the liver 72 (60%) and the lungs, 38 (25.8%) and 66 (55%) of these cases were housewives.

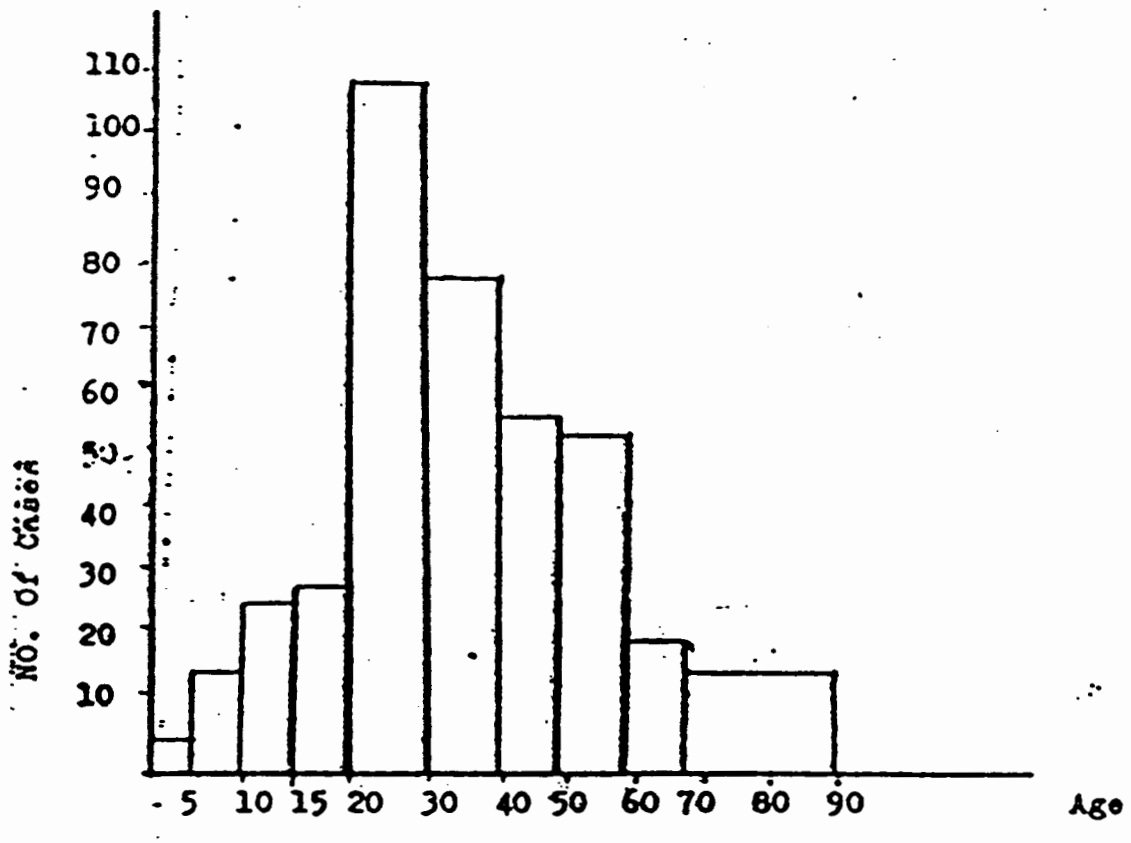

Figure 1. Age distribution of 392 patients with hydatid cyst admitted to the MCTH In Baghdad during 1980-1982.

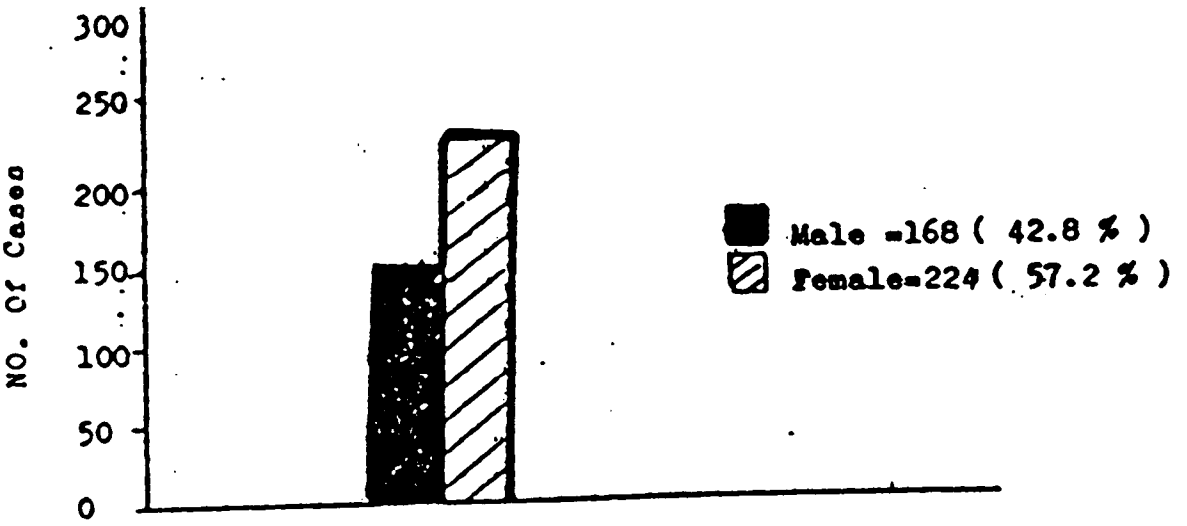

Figure 2. Sex distribution of 392 patients with hydatid cyst admitted to the MCTH in Baghdad during 1980-1982.

Table 2. Organ distribution of hydatic cyst of 392 patients admitted to the MCTH in Baghdad during 1980-1982

Organ	Number of Infected	Percent (+)
Liver	236	55.2
Lung	117	27.3
Intraperitoneal	18	4.2
Kidney	14	3.3
Other sites	43	10.0
Total	428	100.0

This difference of 36 cases from the original No. 392 is due to the fact that some patients had multiple sites of hydatid cyst.

Table 3. Types of hydatid cysts with relation to sex of 392 patients admitted to the MCTH in Baghdad during 1980 - 1982

Types of FS	Number	Sex				Total
		M	S	P	S	
Solitary	235	121	43.05	168	59.9	75
Multiple	97	41	42.2	56	57.7	24

Table 4. Geographical distribution of 392 patients with hydatid cyst admitted to the MCTH during 1980 - 1982

Province	No. of cases	Percent (%)
Baghdad	194	49.4
Al-Anbar	35	8.9
Babil	23	5.9
Diela	21	5.4
Wagit	20	5.1
Salh-Eldin	20	5.1
Dhiqar	14	3.6
Al-Tasmeem	12	3.1
Others	53	13.5
Total	392	100.0

Table 5. Comparisons between the distribution of hydatid cyst among patients of different occupations admitted to the MCTH in Baghdad during 1980 - 1982 with the study of 1971 - 1973

Occupation	Study of 1980-1982	Percent +	Study of 1971-1973	Percent +
Housewives	182	46.42	382	48.27
Students	53	13.52	37	9.81
Staff employee	45	11.47	/	/
Workers	37	9.43	55	14.58
Free occupation	16	4.08	24	6.36
Educational	15	3.82	8	2.12
Farmers	14	3.57	24	6.36
Children	9	2.28	26	6.89
Disabled	7	1.78	/	/
Retired	6	1.53	17	4.50
Engineers	4	1.02	/	/
Medical occupation	2	0.51	/	/
Paramedical	1	0.25	/	/
Unspecified	1	0.25	/	/
Soldiers	/	/	2	0.53
Total	392	100	377*	100

* The rest of the original No. (642) their occupations were not recorded.

Discussion

In order to have effective control programme and ultimately cradication of the disease, a nation wide study to determine the incidence and prevalence of the disease in human, as well as in animals is essential. If, and when undertaken, must be based on reasonable and reliable estimate of the prevalence of the disease. this will give us a good idea about its gravity and impact on health.

One of the most reliable indices for the disease is studying the hospital records. Although several studies have been done on human hydatid disease (3, 7, 10, 11), but still the hospital records are considered to be the only and most reliable source of data on the disease in human, since incorrect diagnosis in surgical cases of hydatid disease is rare. Errors are undoubtedly present

in data concerned with residence of patients, however. Because hydatid disease is not a reportable disease and in order to study the disease in human, the records of the MCTH were chosen for two reasons, one that this hospital adopt the WHO system of recording which is accurate and reliable, and second to compare this study with the previous one done in the same hospital, 10 years ago and also for three years period (2).

The rate of prevalence found in this study, was 0.4% or 4 per 1000 patients admitted to the MCTH for whatever reason. This is very much less than the previous estimate (0.8% or 8 per 1000)(2), in spite of the fact the average number of cases admitted for three years was 31968, which is more than the one in early 1970 (26936). This increase in the number admitted to the MCTH in Baghdad, probably due to the increase in the number of beds from 1100 to 1400. But this rate is indeed higher than many countries (8, 16, 17) and indicate the serious spread of the disease in Baghdad, as well as in other districts of Iraq.

Furthermore, this figure must be taken with some caution, because the MCTH is a referral hospital and 50.5% of the cases were referred from districts other than Engined _____, thus, the practice of referring patients from the provinces to Baghdad (MCTH) still exists in spite of the fact that many new and well equipped hospitals were built with several specialities. Therefore, one could speculate, that the decrease in the prevalence rate, 4/1000 patient, is possibly due to general improvement in the standard of hygiene and sanitation both on the personal and community levels.

As for the age distribution with hydatid disease, it was found that there was no change in the pattern from that reported 10 years ago (2). The highest prevalence was between the age of 20-30 years. The same finding was reported by many workers (1, 11, 15, 16, 17). On the other hand some (3) found the majority between the age of 20-40. Age resistance in man to hydatid disease is still a matter of speculation with little evidence to support it. Most of information on this subject was obtained from the surgically proved cases with the disease by studying the hospital records. On experimental basis, it was found that younger albino mice were more susceptible to infection with <u>E. grannelosus</u> scolices given intraperitoneally than the older ones (8).

The sex distribution (Fig. 2) show more females (57.2%) than males (42.8%) were infected with hydatid disease. This also has been reported by many workers in Iraq and other countries (3, 11, 17). However, this result does not agree with the studies of other workers, where they found more males were infected than females (3, 9, 14). Furthermore, still some studies showed no difference in the frequency of infection with hydatid disease between males and females (1, 16, 18). Experimentally, it was found that male mice were more susceptible to infection with the disease than females,

and they suggested the testosterone seems to increase the susceptibility of animals to infection (8). From these results, it seems that different authors have reported different results concerning the sex. Therefore, these differences may be due to some epidemiological factors such as occupational risk, as the majority of cases were among the housewives, or it may be due to the fact, that more females were admitted to the hospital than the males, which is the case in our study (16,91F Vs 15,049M). But one must keep in mind that about 100 beds of the total number of the MCTH beds belongs to the Department of Gynaecology and Obstetrics.

One of the interesting observations noticed in this survey study was the fact that the highest percentage of infection was in the liver (55.1%) and the lungs being the next (27.3%). This finding does agree with the majority of the investigators, but does not agree with the previous study (2), done 10 years ago and in the same hospital, where the majority of hydatid cysts were in organs other than the liver, especially the lungs. This probably could be explained by the fact that, in the early 1970, the MCTH was considered a major referral hospital for chest surgery, hence more cases were reported in the lungs than in the liver. But, nowadays and, after the awareness of the importance of the chest diseases, more sections of chest surgery with chest specialists has been established in different parts of Iraq since 1970. Therefore, the number of referred cases for chest surgery to the MCTH is less than before, which may explain less number of cases with lung hydatid.

The number of recurrent cases of hydatid either in the same organ or other organs or sites was very high, 120 (30.6%) out of 392 recorded cases. This high recurrent number may be due to one of the three following possibilities: improper surgery; or at the time of investigating the primary cyst, very small cysts were imbedded in tissues and organs, and which were overlooked macroscopically as well as by the different methods of diagnosis, and which were developed later; a third possibility is that, the same individual might be reinfected again.

From these data, one can conclude that in spite of the fact the number of recorded cases with hydatid is decreased to the half the number reported in 1976, but the disease hydatid is still a major public health problem in Iraq. Furthermore, one must keep in mind that these data may not represent the true picture of the disease in Iraq, but they should provide some base line for future estimates. Therefore, and in order to have a long term plan for effective control, prevention and finally eradication of the disease, a nation wide study to find the incidence and prevalence of the disease in human, as well as in animals is advisable using all methods of disease detection.

When this will be accomplished, we will be in a good position to assess the disease on a nation wide. Furthermore, the data which will be obtained could be used for comparison with other countries based on percent in relation to population.

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