

<sup>a</sup>Dr. Maral F. Thabit F.I.C.M.S./F.M  
<sup>b</sup>Dr. Qusay Abd Al- Latif  
<sup>c</sup>Dr Jihad Khder Khursheed (FIBMS)

## Hydatid Cyst Disease among Patients hospitalized at Baghdad teaching hospital: clinico-epidemiological study

## ARTICLE INFORMATION

## ABSTRACT

**Authors addresses:**

<sup>a</sup> Institute of Medical Technology

<sup>b</sup> Baghdad Teaching hospital

<sup>c</sup> National center of Early Detection of Cancer

**Email:** maral.fthabit@yahoo.com

**Article history:**

Received: May, 12, 2013.

Revised form: July, 15, 2013.

Accepted: July, 22, 2013.

**Keywords:**

hydatid disease,  
hospitalized, clinico-epidemiological

**Background.** Echinococcosis/ hydatidosis is a zoonotic parasitic disease caused by the infestation of the larval form of the tapeworm of the genus *Echinococcus*. The Liver, lungs, and kidneys are the common areas of infestation.

**Objectives:** To describe hydatid disease in hospitalized patients from a clinico-epidemiological perspectives.

**Methods:** A retrospective study was conducted over a period of 6 months extending from 15<sup>th</sup> of November 2011 to the 15<sup>th</sup> of May 2012 by reviewing records of 125 patients who were hospitalized at Baghdad Teaching Hospital during 2011 and received medical and surgical treatment for hydatid cyst disease. The information covered the socio-demographic and clinical characteristics of the patients

**Results:** The present study included 40(32%) males and 85(68%) females. The highest percentage was in the 3<sup>rd</sup> decade about 32(25.6%). The highest number of patients 87(69.6%), were from Baghdad city, 85(68%) of patients were referred from public departments, 106(85%) of patients had a negative family history for hydatid disease.

Majority of patients 109(88%) were symptomatic. Abdominal pain was the most common presenting symptom in 104(95.4%) of symptomatic patients. The liver alone was affected in 118 (94.4%) of patients. The treatment was by medications alone in 125(100%) patients or with addition of surgical treatment 82(65.5%) of patients which was by conservative procedure (partial pericystectomy). The basic investigations needed were complete blood picture (CBP), liver function test (LFT), Ultrasound applied to all patients 125(100)%, chest x-ray CXR 75(60%), computerized tomography CT 44(35%) while endoscopic retrograde cholangio-pancreatography ERCP was done in only 1(0.8%) patient

**Conclusions:** Hydatidosis is still an important and persistent health problem in Iraq, further studies are needed involving multi-hospitals covering all Iraqi governorates.

**Introduction:**

Human echinococcosis is a zoonotic infection caused by the tape worm of the genus *Echinococcus*<sup>[1]</sup>. Of the four known species of *Echinococcus*, three are of medical importance in human. Those are *Echinococcus granulosus*, causing cystic echinococcosis (CE); *Echinococcus multilocularis*, causing alveolar echinococcosis (AE); and *Echinococcus vogali*. *E. granulosus* is the most common of the three. *E. multilocularis* is rare but is the most virulent, and *E. vogali* is the most rare<sup>[2]</sup>. The definitive host (dog and fox's), and the intermediate hosts, sheep, cattle, goat, horses, camels, as well as humans are infected when they eat the eggs<sup>[3]</sup>. Hydatidosis or cystic echinococcosis (CE)

constitutes a major public health problem in many countries around the world<sup>[4]</sup>.

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 Middle East (including Iraq), Mediterranean area, South America and Australia<sup>[5]</sup>.

Common sites involved in human echinococcosis according to incidence are: Liver - 75%, Lungs-15%, Muscles - 04%, Kidneys - 02%, Spleen-02%, Bone-01%, others 01% (e.g. Brain, Breast, Heart, Orbit, etc).<sup>[6]</sup>

Many workers have shown the disease in Iraq is endemic [7][8][9] and enzootic in nature in central and northern parts of Iraq [10]. Surgically confirmed cases of human hydatidosis have been studied in Mousl [11][12][13], Baghdad [14], Arbil [9], and Al Amarah District, southern of Iraq [15]. The aim of the study: to describe the pattern of hydatid disease in patients hospitalized during 2011 from a clinico-epidemiological perspectives.

### Methods:

A retrospective study was conducted at Baghdad Teaching Hospital over a period of 6 months extending from 15th of November 2011 to the 15th of May 2012. An official permission was obtained from the director of Baghdad Teaching Hospital prior to the final approval of the Ministry of Health to conduct this study. This study included 125 cases of hydatid disease who were hospitalized at Baghdad Teaching Hospital during the year 2011 and the information was collected by reviewing the hospitalized patient's records according to the following

1-Patients information: name, age, sex, occupation, residency (rural or urban), region, source of patient referral (public or private), family history of similar condition, date of admission, days of hospitalization.

2-Clinical (cyst information): The site of cyst (involved organ), type of cyst (single or multiple), size of cyst (larger than or less than 5cm), the main symptomatology, modality of diagnosis, treatment options.

Microsoft office Excel version 2007 program was used for data entry, analysis using simple descriptive statistics of (frequencies, percentages and figures).

### Results:

A total of 125 patients with hydatid disease were distributed as 40(32%) males and 85(68%) females. There were 34(27%) of patients from rural areas and 91(73%) patients from urban areas. Majority of the patients 85(68%) were referred from public medical departments

Age Distribution: The mean age was (38.2) years and the age range is from (5-84) years, the highest percentage occurred in the 3rd decade 32(25.6%) as shown in Table (1).

Table (1): The Distribution of patients according to their ages

Seq.	Age(year)	No. of Patient	percentage%
1	1-10	5	4 %
2	11-20	13	10.4 %

3	21-30	32	25.6 %
4	31-40	21	16.8 %
5	41-50	29	23.2 %
6	51-60	15	12 %
7	61-70	6	4.8 %
8	>70	4	3.2
Total		125	100 %

Residence: The majority of patients were from Baghdad city (87, 69.6%) distributed as Rusafa side (72) and karkh side (15) patients, followed by both Babel and Diyala governorates (11, 8.3%), as shown in table(2)

Table (2)  
The Distribution of the patients according to the regions

S eq	Region	No. of Patients N=125(100%)	Percentage %
1	Baghdad	87	
2	Babel	11	8.3
3	Dhiqar	5	4
4	Wasit	5	4
5	Diyala	11	8.3
6	Alanbar	2	1.6
7	Diwanayah	4	3.2

Symptomatology: 109(88 %) patients presented with symptoms and the most common presenting symptom was abdominal pain in 104(95.4%) of patients. It was mild intermittent or described as heaviness. as shown in Table(3).

Table (3): The Presenting signs and symptoms

Symptom	No. of patients	Percentage %
Abdominal pain	104	95.4
Jaundice	3	2.7
Abdominal mass	2	1.8
Total	109	100%

Days of patients hospitalization: The no. of days spent in the hospital by the patients as shown in Table (4), the range duration was from (1-27) days, and the average of days was (6.3).

Days of Hospitalization of Patients (Table4)

Seq.	No. of Days	No. of Patients	Percentage%
1	<5	71	56.8
2	5-10	36	28.8
3	10-15	10	8
4	>15	8	6.4

Distribution of Cysts ;( Hepatic and Extra Hepatic) are shown in Table (5), the liver was

the single organ involved in 118(94.4%), spleen only in (1.6%) and both spleen and liver in (1.6%) of patients.

Table(5): The distribution of cysts; hepatic and extra hepatic

Seq.	Site of cyst	No. of patients	Percentage%
1	The liver only.	118	94.4%
2	Lung & The liver	1	0.8 %
3	Spleen only	2	1.6%
4	Spleen & The liver	2	1.6%
5	Kidney & The liver	1	0.8%
6	Others	1	0.8%
Total		125	100%

Distribution of Cysts in the Liver: The total right lobe cysts were present in 64(54.2%) patients, the total left liver cysts were in 37 (31.3%) patients, and 17(14.4%) patients had cysts in both right and left lobes were, as shown in Table(6).

Table (6) The distribution of cysts in the Liver

patients cysts: The largest percentage of patients (92, 73%) had single cysts and the rest (33, 27%) of patients had multiple cysts. 65(52%) of patients had cysts more than 5cm in size, 37(29.6) of the patients had cysts less than 5cm in size and the remaining 23(18.4%) patients had cysts of different sizes as shown in table (7).

Table(7): The distribution of patients regarding the type and size of the cysts.

Type of the cyst	Size of the cyst	Number of patients	percentage	Total
Single Cysts	<5 cm	31	24.8%	92
	>5 cm	61	48.8%	
Multiple Cysts	<5 cm	6	4.8%	33
	>5 cm	4	3.2%	
	<5 cm & >5 cm	23	18.4%	
Total		125	100%	125

The Investigations of the patients: All included patients(125,100%) needed complete blood picture(CBP), liver function tests(LFT), and an abdominal ultrasound study while 75(60%) of patients needed chest x-ray as shown in Table(8).

Table (8) :The Investigations done for patients

Investigation	No. of patient	Percentage
CBP	125	100%
LFT	125	100%
Ultrasound	125	100%
CXR	75	60%

C.T. scan	44	35%
ERCP	1	0.8%

The Type of Management: Medical treatment was used in all included patients 125(100, mainly of antihelmenthics (Albendazole), in 82 (65.6%) of patients surgery is added (partial pericystectomy), radical procedure was not used for any of the patients as shown in fig (1).

Type of Management

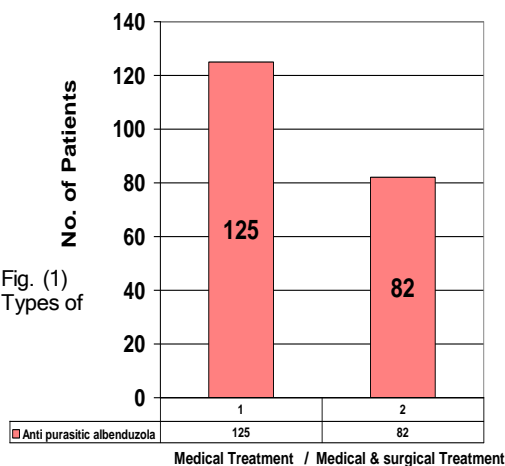


Fig. (1) Types of Management

Management

Seq.	Distribution of Cysts in the Liver	No. of Patients
1	Right	64 54.2
2	Left	37 31.3
3	Right and Left	17 14.4
Total		118 100%

## Discussion:

Hydatid disease is commonly caused by the scolices of *Echinococcus granulosus*. The disease is found in communities where animal husbandry is common. It has been reported in large numbers from the Mid-Eastern countries, Australia and New Zealand<sup>[16]</sup>. The highest percentage of patients (25.6%) were in the 3<sup>rd</sup> decade of life. The mean age was (38.2) years, this is similar to study conducted by Rafid M. Shakir<sup>[17]</sup> in which the mean age was (38.1y) and less than Laith M. Jumaa<sup>[18]</sup> study (48y) but the highest proportion was similar for both of them which was the 3<sup>rd</sup> decade. Male to female ratio was (1:2.1), probably because of the fact that females are commonly in contact with animals especially in rural areas and responsible for dealing with raw vegetables. Similarly Rafid M. Shakir<sup>[17]</sup> study showed male to female ratio (1:2.6) and Laith M. Jumaa<sup>[18]</sup> study showed that male to female ratio was (1:1.4), while Alghoury<sup>[19]</sup> study

showed male to female ratio (1:2). Patients from urban areas 91(73%) and from rural areas 34(27%), and this results differ from Laith M. Jumaa<sup>[18]</sup> study, which showed that the proportion of patients from rural areas was (72.7%). Rafid M. Shakir<sup>[17]</sup> study showed that there were 27 (54%) patients from rural areas and 23(46%) patients from urban areas. Patients who had positive family history of the same disease were 19(15%) while of the negative history were 106(85%). The result of Rafid M. Shakir<sup>[17]</sup> study showed the positive family history in 6(12%) and the negative was 44(88%)

The present study highlighting the regions of the patients in details which revealed that 87( 69.6%) of patients from Baghdad city and mainly at Al Rusafa district, this could be explained by the fact that the place of the study is in Baghdad which is also considered as high population city, and may be due to the presence of large number of stray dogs which are considered the final host.

A 109(88%) of the patients were symptomatic and 16(12%) were asymptomatic. The main presenting symptom in our collection was abdominal pain in 104 (95.4%) of symptomatic patients. The mild symptom is due to the slow growing of hydatid cyst. This results agree with Rafid M. Shakir<sup>[17]</sup> study which was the symptomatic patients 44(88%) and asymptomatic patients 6(12%), and the abdominal pain was in (76%) of patients.

The highest period of hospitalization of the patients was less than (5) days in 71(56.8%) patients, and the average was (6.3) days, this could be explained that all the included patients were treated by medical treatment and only (65.6%) needed conservative surgical treatment (partial pericystectomy) and no radical treatment was done.

The liver was the commonest site for the hydatid cysts disease, and occur in 118(94.4%) of the patients. The right lobe is affected in 64 (54.2%) of patients, the left one is affected in 37(31.3%) of patients, this could be explained due to right lobe has a greater portal venous circulation, similarly, the results of Laith M. Jumaa<sup>[18]</sup>

has high accuracy). It can demonstrate setae or daughter cysts within the study revealed that the right lobe was affected in (72.7%) and the left lobe in (18.27%) of the patients.

Single cysts were present in 92(73%) and multiple cysts in 33(27%) of the patients, while in Alghoury<sup>[19]</sup> study 40(61%) of patients had a single cysts and 26(39%) had multiple cysts.

Abdominal U/S is the main imaging investigation used in this study due to many advantages (cheap, available, can be repeated and main cyst cavity which are important signs for differentiating hydatid from other benign liver cysts. Chest X-Ray: Is done to exclude hydatid cyst in the lung. Intact hydatid cysts of the lungs are commonly seen on x-ray as a

solitary, well circumscribed, homogeneous, they are usually round or oval, it is done for 75(60%) of patients, in Rafid M. Shakir<sup>[17]</sup> study, LFT, U/S, CXR were done for all of patients (100%).

In this study most of the hydatid cysts, were dealt with by conservative (partial pericystectomy), 82(65.6%) of patients, which is less than the ratio of Rafid M. Shakir<sup>[17]</sup> study (92%).

### Conclusions:

- The majority of patients were symptomatic; abdominal pain was the main presenting symptom, hospital stay was less than 5 days.
- Majority of cysts were hepatic and mainly in right lobe, with a size larger than 5cm.
- All patients needed CBP, LFT and ultrasound for the diagnosis.
- All patients were treated medically, conservative surgery partial pericystectomy was done in considerable percentage of patient when recommended

### Recommendations

1. Increase meat control, better stray dogs killing attacks with clear & advanced legislation.
2. Enhancement recording the information of the patients in their files completely with details.
3. Periodic ultrasound examination for the people in the endemic regions.
4. People education about the importance of the disease, its risks, and effects on the health.
5. Further studies are needed involving multi-hospitals covering all Iraqi governorates.

### References:

1. Moldovan R., Neghina AM., Calma CL, Marincu I., Neghina R., "Human cystic echinococcosis in two south-western and central western Romanian countries: A 7 year epidemiological and clinical overview", *Acta trop.* Jan 2012; 121(1): 26-9.
2. Siracusano A., Delunardo F., Teggi A., Ortona E., "Host- parasite relationship in echinococcosis: an evolving story", 2012, 634362.
3. Wiwanitki V., "A summary of Hydatid Disease in Thailand". *The Internet Journal of Tropical Medicine* (2005), vol (2), No.(2).
4. oorar R., Feldman C., "Pulmonary Echinococcosis", *Eur. Respir. J.*, (2003); 21: 1069-1077.
5. Al-Hureibi AA., Amer a., Al- Hureibi M.A., "Hepatic Hydatid Cysts: Presentation Surgical management in Yemen", *JR Coll Surg Edinb.*, (1992); 37:229-321.
6. Taori KB, Mahajan SM, Hirawe SR, Mundhada RG. "Hydatid disease of breast". *Indian Journal of Radiology and*
- 7-Gharawi AK. "Epidemiological study of hydatid in patients underwent surgical treatment in Al-

- Hussain General Hospital/Karbala". Journal of Kerbala university, (2008), vol.6.Issue 3, 87-93.
- 8-Mukhlis ES. "Infection of hydatid cyst disease and its relation with some variables". Al-Taqani Journal (2007), vol:20,.Issue:1,A25-A30.
- 9-Saeed I,Kapel C, SaidaLA,WillinghamL,Nansen P. "Epidemiology of Echinococcusgranulosis in Arbil province,nothern Iraq.1990-1998". Journal Helminthol. (2000), 74(1):83-8.
- 10-Al Abassy N., Altif F., Jawad K., and Al Sagur M., "The Prevalence of Hydatid cysts in Slaughtered Animals in Iraq", Annals of Tropical Medicine and Parasitology, (1980), 74:185-187.
- 11-Mahmound S., "Studies on Hydatid Disease in Mousl", MSc. Thesis, University of Mousl, Iraq, (1998).
12. Al- Sakar N., "Human Hydatid Disease in Mousl-Iraq", Medical Journal,(2000), 29, 80-86.
13. Amir K., Fardin R., "Hydatid Disease in Children and Youths in Mousl, Iraq", (1975), 182, 541-564.
14. Al- Jeboori, " Hydatid Disease: a study of the research of Medical City Hospital", Journal of the Faculty of Medicine, Baghdad, (1976), 18, 65-75.
- 15 M., Abdul Mounther M., "Human Hydatidosis in Amarah District Southern of Iraq", Journal of Babylon university, (2010), vol: 18, No.(4), pp. 1624-1629.
16. Lynch A.C., Stubbs R.S., "Hydatid disease in New Zealand. What remains and how should we treat it?", N. Z. Med J. (1999);112(1086):131-134.
17. Shakir M R, " Reviewof Hepatic Hydatid Cyst Prospective Study of (50) Cases", Thesis, AL-Yarmouk Teaching Hospital, General Surgery, 2011.
18. Jumaa M L, " Intrabiliary Rupture of Hydatid Cyst as a Cause of Obstructive Jaundice, Diagnosis, and Management", Thesis, General Surgery, Babylon University, 2009.
19. Alghoury A, El- Hamsary E, Azazy A, "Hydatid Disease in Yemeni Patients attending Public and Private Hospitals in Sana'a City", OMJ., (2010), 25, 88-90.