The residual cavity after hepatic hydatid endocystectomy: acomparative clinical study of the surgical options

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Received 18/2/2010 Accepted 5/4 /2010

Abstract

Background: hydatid cyst remains an important public health problem in endemic area. The liver is the organ most frequently infested by hydatid disease and medical therapy alone is ineffective in eliminating the parasite. The surgical treatment technique for liver hydatid cyst can not be standardized, and the surgical technique should be tailored according to the extent of the cyst and any adjunct complications of hydatid disease. *Objectives of the surgical intervention* is evacuation and obliteration of the cystic cavity. Recurrent hydatid cyst is defined as a new growth of an echinococcal cyst after complete surgical removal of the primary one and irrespective to the surgical technique. *Material and methods:* A prospective study was including (90) patients who were surgically treated for hepatic hydatid cysts, during the period March 2005 to October 2009 in Baghdad and Tikrit Teaching Hospital. 49 patients (54%) were female and the remaining 41 patients (46%) were male. This gives female: males ratio of 1.2:1. The surgical procedures were performed for all patients were endocystectomy ± omentoplasty or open peritoneal drainage or capitonnage; that's compared with regard of early and late postoperative complications and hydatid disease recurrence. The follow up was made in early and late postoperative period by abdominal ultrasound up to 2 years (6 monthly intervals). *Conclusion:* abdominal ultrasound is useful easy technique in postoperative follow-up. Endocystectomy +Omentoplasty procedure had not complicated by recurrence. Prevention and control remain the best weapons to eliminate hydatidosis.

الفجوة المتبقية بعد عملية رفع أكياس الكبد- دراسة سريرية مقارنة للخيارات الجراحية

حسن علي عجة

المستخلص

مرض الاكياس المائية يبقى من المشاكل الصحية العامة المهمة في المناطق المستوطنة. الكبد اكثر الاعضاء اصابة بهذا المرض والعلاج بالعقاقير الطبية وحدها غير كافي للقضاء على الطفيلي المسبب للمرض. التقنيات الجراحية العلاجية لايمكن ان تكون قياسية ويجب ان تفصل حسب مدى انتشار الاكياس والمضاعفات المصاحبة لها . الهدف من التدخل الجراحي هو افراغ وازالة التجويف الكيسي ، الاكياس الراجعة هي نمو جديد لاكياس الطفيلي بعد الازالة الجراحية الكاملة للكيس الاولي بغض النظر عن التقنية الجراحية المتبعة. اجريت دراسة مستقبلية شملت 90 مريضا" مصابين بمرض الاكياس المائية عولجوا جراحيا" للفترة من اذار 2005 حتى تشرين الاول 2009 في كلا" من مستشفى بغداد وتكريت التعليمي ، 49 مريضا"(54%)كانوا اناثا" و41 مريضا"(46%) كانوا من الذكور بنسبة1،2 : 1 . العمليات الجراحية التي اجريت لجميع المرضى كانت استئصال الكيس الداخلي مع او بدون وضع غشاء الثرب او الافراغ المباشر عن طريق فتح البروتون او تقليص التجويف وتم مقارنتها حسب المضاعفات مابعد العملية المبكرة والمتأخرة ورجوع المرض . المتابعة تمت في فترة مابعد العملية المبكرة والمتأخرة عن طريق فحص البطن بالامواج فوق الصوتية ولمدة سنتين على فترة كل 6 اشهر . الفحص بالامواج الفوق الصوتية هو مفيد وبسيط في المتابعة مابعد العملية . عملية استئصال الكيس الداخلي مع وضع غشاء الثرب لم يحصل بعدها رجوع المرض. الوقاية والسيطرة يبقيان احسن الاسلحة للقضاء على مرض الاكياس المائية.

Introduction

Hydatidosis is the infestation of humans caused by the larva of the tape worm *Ecchinococus granulosus* causing the unilocular cyst; however, mulitilocular cyst is rarely seen and its due to infection with *Ecchinococus multilocularis*[1] Humans are accidental intermediate hosts infested either by direct contact with definitive hosts (e.g. dog) or indirectly by ingestion of eggs in contaminated water and food sources[2,3]. The parasite is a cystode that grows in the small bowel of the definitive host, eggs are excreted in the faeces and when ingested liberate their larvae in the duodenum of the intermediate host (mammals or human).The larvae cross the intestinal wall and through the portal system reaching the liver where they form cysts. The liver is the organ most commonly infested.[2,3,4]. Hydatid cyst disease is endemic in several parts of the world, especially in the Middle east, South America, New Zealand and Australia, and with population migration and frequent travel. [1, 4, 5]. The disease is often asymptomatic and is frequently diagnosed while patients are under investigation for some unrelated problem. Furthermore, as a result of infection and/or rupture of hydatid cysts, symptoms and signs may mimic many disease processes, including malignancy.[7] Aim of this study is to compare between different surgical interventions in hepatic hydatid disease.

Material and methods

A prospective study was including (90) patients who were surgically treated for hepatic hydatid cysts, during the period March 2005 to October 2009 in Baghdad and Tikrit Teaching Hospitals. 49 patients (54%) were female and 41 patients (46%) were male. Each patient's medical record was reviewed prospectively for results of physical examination, serum biochemistry, chest X-ray and abdominal ultrasound. The surgical procedures were performed for all patients were endocystectomy ± omentoplasty or open peritoneal drainage or capitonnage; that's compared with regard of early and late postoperative complications and hydatid disease recurrence. The follow up was made in early and late postoperative period by abdominal ultrasound up to 2 years (6 monthly intervals). The following aspects were assessed: cavity involution; drains position, biliary fistula; peritoneal fluid collection; and hydatid disease relapse.

Results

In regard to the age distribution of our patients, the following table shows that (27/90, 30%) of our patients were found in the 20 – 29 years age group.

Table (1): Age distribution.

Age group (years)	No.	%
< 10	9	10 %
10 – 19	16	18 %
20 – 29	27	30 %
30 – 39	17	19 %
40 – 49	12	13 %
≥ 50	9	10 %

In this study female were49 (54%) and male were 41(46%) as shown in figure 1. This gives female : male ratio of 1.2:1.

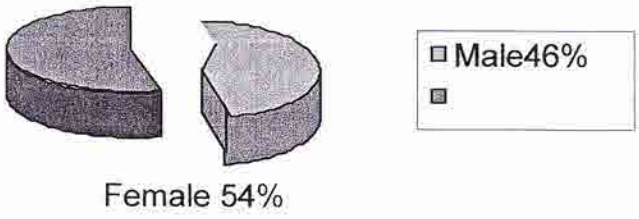

Figure 1: Gender distribution.

Regarding the clinical presentation of our patients, table 2 shows that the most commonly encountered clinical presentations was the right hypochondria pain (51/90, 67%).

Table (2): Clinical presentations.

Symptoms and signs	No.	%
Rt. Hypochondriac pain	51	67 %
Nausea and vomiting	27	30 %
Fever	24	27 %
Jaundice	18	20 %
Abdominal mass	12	13 %
Asymptomatic	9	10 %

Concerning the localization of the hydatid cysts in the liver, figure 2 clarifies that (72/90, 80%) of the cysts were located in the right liver lobe.

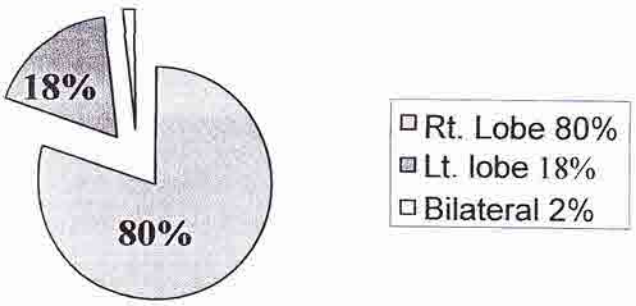

Figure (2): localization of liver hydatid disease.

Regarding the size of the hydatid cysts encountered in our study, the most commonly found diameter was in the range of 6 – 10 cm (83%).

Table (3): Classification according to the hydatid cyst size.

Cyst size (cm)	No.	%
≤ 5 cm	6	7%
6 – 10 cm	75	83%
≥ 11 cm	9	10%

Concerning the technique used in the surgical treatment of hepatic hydatid cysts, table 4 shows that all the patient had underwent the same preliminary procedure (endocystectomy); in complement to it, (79/90,88%) had been submitted to omentoplasty. Open peritoneal communication and drainage with marcupuliazation was done in (8/90, 9%) and the remaining (3/90, 3%) had been treated by capitonnage and drainage.

Table (4): Types of surgery.

Operation type	No.	%
Surgical endocystectomy + Omentoplasty	79	88%
Endocystectomy + Open peritoneal drainage	8	9%
Endocystectomy + Capitonnage + Drainage	3	3%

In regard to the association between the types of the surgical technique and recurrence of hepatic hydatid cyst, the following table shows that; endocystectomy and omentoplasty have not been complicated by recurrence, while endocystectomy with marciupuliaztion and open peritoneal communication have been complicated by recurrence in (2/8,25%). Endocystectomy and capitonage have been associated with recurrence rate of (2/3,66%).

Table (5):- Recurrence according to the surgical types.

Types of operation	No. of patients	%	Recurr-ence rate	%
Surgical endocystectomy + Omentoplasty	79	88%	0	---

Endocystectomy + Open peritoneal drainage (marciupulizatio n)	8	9%	2	25%
Endocystectomy + Capitonage + Drainage	3	3%	2	66%
Total	90	100 %	4	4%

Discussion

In regard to the age distribution of our patients, the highest occurrence of hepatic hydatid cyst was found in the 20 – 29 years age group with a significant p-value of less than 0.05. This result is not in accord with a study done in Turkey by Demirci et al [10] in which the commonest age of presentation of hepatic hydatid cyst was in the middle age group. This difference could be attributed to unknown environmental factors. Considering the gender distribution of our patients, we have found a slight non-significant female predominance in a ratio of 1.2:1. This result coincides with that of Al-Doori H. [11] who has conducted a similar finding. Regarding the clinical presentation of our patients, this study have conducted that most of the patients were presented with right hypochondriac pain (51/90,67%). This is in agreement with: Datta PK[12] and Dangelica M[13] who also found that pain is the commonest feature of hydatid cyst and attributed to the pressure effect because of the distension of liver capsule. Concerning the localization of hepatic hydatids in our patients, most of them were located in the right lobe (80%). This result is in accord with:

Dziri C [14] and McManus DP [15]. Who found that 75% of hepatic hydatids cysts were in the right liver lobe and are singular. Regarding the size of hydatid cysts encountered in our study, the most commonly encountered diameter was in the range of 6 – 10 cm (86%).

This result goes with that of:

Bulbuller N [16] who also found that the highest incidence of hepatic hydatid cysts size is in the diameter of 6 – 10 cm.

Concerning the surgical technique, most of the patients (88%) were treated by endocystectomy with omentoplasty; (9%) by endocystectomy and open peritoneal drainage with marciupuliazation, the rest of the patients (3%) by endocystectomy and capitonage. This result coincides with that of:

Veltcher LM [17] and Ali Z [18] who also documented the use of endocystectomy as the commonest surgical procedure used in the treatment of liver hydatid cysts.

In regard to the association between the surgical technique used in the treatment of hepatic hydatid cysts and the risk of recurrence, the least recurrence rate (0%) was associated with endocystectomy and omentoplasty, this result is in accordance with that of:

Bulbuller N [16] who also conducted that the least recurrence rate after the use of endocystectomy and omentoplasty.

Al-Doori H. [11] who have found similar results.

Conclusions and recommendations:

- Early diagnosis is important, as if the diagnosis is late, cysts are complicated and the treatment is difficult and recurrence rate is increased.
- Follow-up is usually by ultrasound, and its valuable for diagnosing and localizing liver hydatid cyst.

- Surgical intervention aims to evacuate and obliterate the cystic cavity.
- Prevention and control remain the best weapons to eliminate hydatidosis.
- Repeated intensive campaign of health education by means of leaflets, posters, radio and television.

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