Hepatic Hydatidosis , Analysis Of 126 Cases

Dr. Abdulhadi Jassim Tlefih M.B.Ch.B. - D.S. - C.A.B.S
Medical collage. University of Karbala

Abstract

Background: Hydatid disease (H D) is a serious health problem in endemic areas, as in our country. It can affect any organ in the body especially the liver. Surgery is still the procedure of choice in most cases of H D, despite other methods of treatment available.
Objectives : The aim of this study is to know the prevalence of hepatic hydatidosis (H H) , and to study presentation , types of treatment, surgical procedures and complications**.**
Methodes: 126 patients with H H were treated in Hammad Shihab military hospital in 5 years period (from July 1997 to June 2002) . 122 patients were treated surgically.
Results: (74.6%) of patients hailed from rural area. Most of the patients were female, with male to female ratio (M : F) was 1 : 2 . (32.53%) of patients were between 31 and 40 years and the mean age was (35.46) years .
(75.3%) of patients presented with abdominal pain or discomfort . The disease was discovered incidentally in (17.46%) . Isolated liver was involved in (66.7 %). The right lobe of the liver was affected in (80.95 %) . (67.4 %) of cases had single hydatid cyst (H C) . Synchronous pulmonary hydatid cyst (P H C) occurred in (7.9%) of cases.
Post operative complications ocurred in (3.2 %) included (1.6%) developed recurrent hepatic hydatid cyst (H H C) , (0.8%) had subphrenic abscess and (0.8%) experienced biliary cutaneous fistula .
Conclusion: The right lobe of the liver was the commonest location of H H C . The commonest presentation was abdominal pain or discomfort. All patients with HHC should be investigated for synchronous P H C.
Key words: hydatidosis , presentation , synchronous , recurrent

الملخص

تمهيد: يشكل مرض الاكياس المائية مشكلة صحية خطيرة في المناطق المتوطنة ، كما هو الحال في بلادنا . يصيب هذا المرض أي عضو من جسم الانسان خصوصا الكبد . لا تزال الجراحة هي العلاج الامثل لمعظم حالات الاكياس المائية بالرغم من توفر طرق اخرى للمعالجة .
الاهداف: معرفة مدى انتشارمرض الاكياس المائية في الكبد ، ودراسة كيفية مجئ المرضى و طرق المعالجة و التداخلات الجراحية و المضاعفات الحاصلة .
الطرق: هذه دراسة لمائة و ست و عشرين مريض مصاب بالاكياس المائية في الكبد، تمت معالجتهم في مستشفى حماد شهاب العسكري خلال خمس سنوات (من تموز 1997 الى حزيران 2002) ، منهم 122 مريض عولجوا جراحيا .
النتائج: وجد ان (74.6 %) من المرضى من سكان الريف , و كان اغلب المرضى من الاناث ، و كانت نسبة الذكور الى الاناث (1 : 2) ، وان (32.53 %) من المرضى من الفئة العمرية 31- 40 سنة ، وان معدل عمر المرضى (35.46) سنة .
كان مجئ (75.3 %) من المرضى بسبب الام و اضطرابات في البطن ، وقد اكتشف المرض عرضيا في (17.46 %) من المرضى . و كان الكبد مصابا لوحده في (66.7 %) وان (80.95 %) من اصابات الكبد

كانت في الفص الايمن وكان (67.4 %) من اصابات الكبد نتيجة الاصابة بكيس واحد ., و وجد ان (7.9 %) من الحالات متزامنة مع اصابة الرئة بالاكياس المائية .
المضاعفات كانت طفيفة (3.2 %) و شملت (1.6 %) لكيس مائي راجع في الكبد و (0.8 %) خراج تحت الحجاب الحاجز و (0.8 %) لناسور صفراوي جلدي .
الاستنتاجات: الفص الايمن من الكبد هو الموقع الاكثر اصابة بالاكياس المائية. المجئ الاكثر شيوعا هو الام و اضطرابات في البطن . يجب التحري عن وجود اكياس مائية في الرئة متزامنة مع الاكياس المائية في الكبد .

Introduction

Hydatidosis, is a parasitic infection of any organ , caused by cestode Echinococcus (E) , mainly E granulosus species . It is wide spread in sheep-rearing areas of the world. Hydatid disease is a zoonosis which has affected man since ancient times . (1)

The E. granulosus tapeworm consists of 3–4 segments (proglottids). It lives in the intestine of the final (definitive) host which is mainly the dog . Millions of eggs from the terminal proglottid of the E. tapeworm are excreted in the dog faeces . (2) Contaminating playgrounds, vegetable gardens, and pastures. Sheep are the usual intermediate host , but humans are an accidental intermediate host .

In human after ingestion of eggs , hooked embryos are released and penetrate the intestinal mucosa , enter the portal circulation , and disseminate throughout various organs particularly the liver and lungs (3,4) , where the parasite developes its larval stage known as H C . (5)

H C consists of three layers. The outermost layer is the adventitia (pseudocyst), which is the periparasitic host tissue reaction , consisting of fibrous tissue.The middle layer is the laminated membrane (ectocyst) . The innermost layer is the germinal epithelium (endocyst) which secretes the laminated membrane externally and the hydatid fluid internally and from which brood capsules grow . Within these capsules the scolices develop, which are the heads of the future worms. The central cavities are filled with clear fluid , numerous brood capsules , protoscolices (hydatid sand) and daughter cysts (which are detached brood capsules). If a cyst ruptures within a host , anaphylactic reaction may occurred which can be fatal and the brood capsules can form new cysts called secondary cysts .

Treatment of H C is primarily surgical.(5) Other methods include chemotherapy, ultrasound guided fine needle aspiration, and laparoscopic surgical techniques .

Patients and methods

This is a prospective study conducted on 126 patients with H H . All patients were treated in Hammad Shihab military hospital in 5 years period (from July 1997 to june 2002) .

Most of the cases were diagnosed by abdominal ultrasonography (US) . C T scan was performed for some patients . Chest X – rays , routine haematological tests , liver and renal function tests were requested for all cases . MRCP was done for some patients with obstructive jaundice (O J) Some cases were discovered incidentally when investigations were requested for other purposes, like U S which showed a cystic lesion, or radiographic examination which showed a thin rim of calcification delineating a cyst suggestive of an E. cyst. Other cases were discovered at laparotomy for other reason.

Single patient presented with disseminated intraperitoneal hydatids was treated medically with albendazole, 3 patients presented with calcified H H C were followed up by U

S . 122 patients underwent various surgical procedures according to the site , size , number of the cysts , presence of complications and involvement of other intra abdominal organs . Through midline, paramedian or right subcostal incision the abdomen was completely explored . The cysts exposed with packing of the peritoneal cavity with absolute alcohol soaked packs .During aspiration of the cyst the fluid was inspected for bile staining, if no connections with biliary tree were evident , absolute alcohol injected and left for 10 minutes and then reaspirated .The cyst was then deroofed and completely evacuated with suturing of any biliary communication with marsupialization plus tube drainage. We used omentoplasty (packing the residual cavity with pedicled greater omentun) in all complicated cysts except those with short greater omentum or difficult cyst location .

H H C with intrabiliary rupture was treated by exploration of common bile duct, removal of all daughter cysts and debris with irrigation by normal saline and drainage of the biliary tract by T – tube, inaddition to treatment of the primary cyst .

Pedunculated hepatic and mesenteric H C were treated by complete excision of the cysts. Omental HC was treated by omentectomy .Synchronous splenic hydatid cyst (SHC) was treated by splenectomy.Synchronous renal hydatid cyst(RHC) was treated by complete evacuation of the cyst with marsupialization , or nephrectomy . Other synchronous itra abdominal H C were treated by removal of the cyst .

For those who presented with acute abdomen after blunt abdominal trauma , urgent laparotomy was done after rapid resuscitation . Removal of all intraperitoneal cystic contents and toilet of peritoneal cavity with normal saline , and dealing with ruptured HC plus tube drainage of both the peritoneal cavity and HC . And patients were given albendazol 800 mg daily for three months

For patients who had synchronous PHC laparotomy was postponed 3 - 4 months after surgical treatment of PHC.

Patients were followed up by abdominal US every 3 months and chest X – ray every 6 months.

Results

The total number of patients with H H was 126 . 94 patients (74.6 %) hailed from rural and 32 patients (25.4) from urban area . (Table – 1)

Table 1 Residence distribution

	No.	%
Rural	94	74.6
Urban	32	25.4
Total	126	100 %

41 patients (32.5 %) were male and 85 patients (67.5 %) were female , with male to female ratio(M : F) was 1 : 2 (Table – 2).

Table 2. Sex distribution

	No.	%
Female	85	67.5
Male	41	32.5
Total	126	%100

Age of the patients ranged from 12-57 years with a mean (35.46) years . (32.53 %) of patients were between 31- 40 years (Table – 3)

Table 3. Age incidence

Age - years	No.	%
12 – 20	17	13 . 49
21 – 30	26	20 . 63
31 – 40	41	32 . 53
41 – 50	23	18 . 25
Over 50	19	15.1
Total	126	100 %

95 patients (75.3 %) presented with abdominal pain or discomfort . 71 patients (56.3 %) presented with abdominal mass or masses . 22 patients (17.46 %) were asymptomatic , 4 of them were discovered at laparotomy for other reason and 18 patients were discovered incidentally during investigation for another cause . 11 patients (8.7 %) presented with (O J) , 4 of them due to pressure on biliary tree by HHC , while 7 cases were due to intrabiliary rupture . 8 patients (6.34 %) presented with intra abdominal abscess (due to infection of H C) , with fever , abdominal pain and tenderness , rigor developed in 3 of them . 2 patients (1.58 %) presented with acute abdomen and shock , urgent exploratory laparotomy showed intraperitoneal hydatids . Single case (0.79 %) presented with disseminated intraperitoneal hydatids with history of surgery for H H C.(Table-4)

Table 4. Clinical presentation of patients with H H

Presentation	No.	%
Abdominal pain or discomfort	95	75.3%
Abdominal mass or masses	71	56.3%
Asymptomatic	22	17.46%
Obstructive jaundice	11	8.7%
Intra abdominal abscess	8	6.34%
Acute abdomen and shock	2	1.58%
Intraperitoneal dissemination	1	0.79%

Isolated liver was involved in 84 patients (66.7 %) (Figure - 1)
while 42 patient (33.3 %) had multiple organs involved along with liver which included 13 S H C , 7 R H C , 16 mesenteric and omental H C, 12 pelvic H C, 6 retroperitoneal H C and 2 anterior abdominal wall H C . (Figure – 2) 85 cases (67.4 %) had single H H C. The right lobe of the liver was affected in 102 patients (80.95 %) and the left lobe was affected in 24 patients (19.09 %) (Table – 5) Out of 126 patients with H H , 26 patients (20.6 %) showed cyst biliary communication and 3 patients (2.3 %) had calcified H C (Figure – 3)

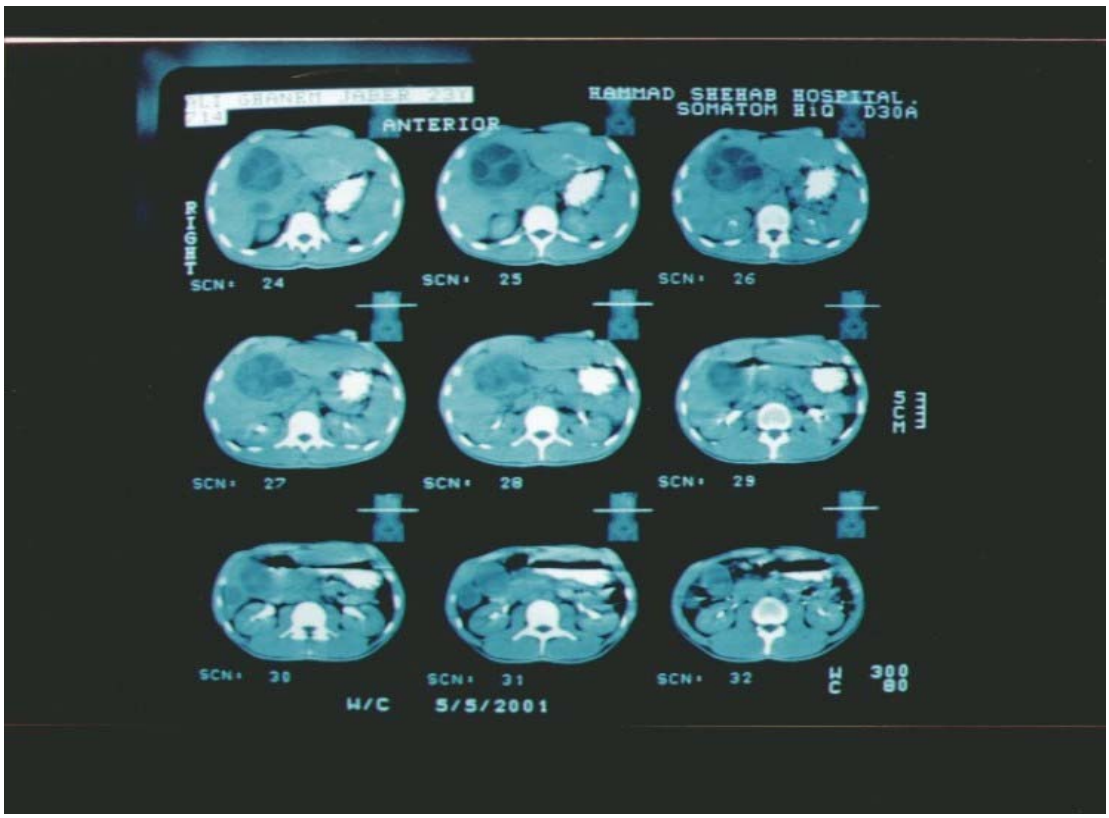

Figure 1. Abdominal C T scan showing multiple H H C involving the right lobe only

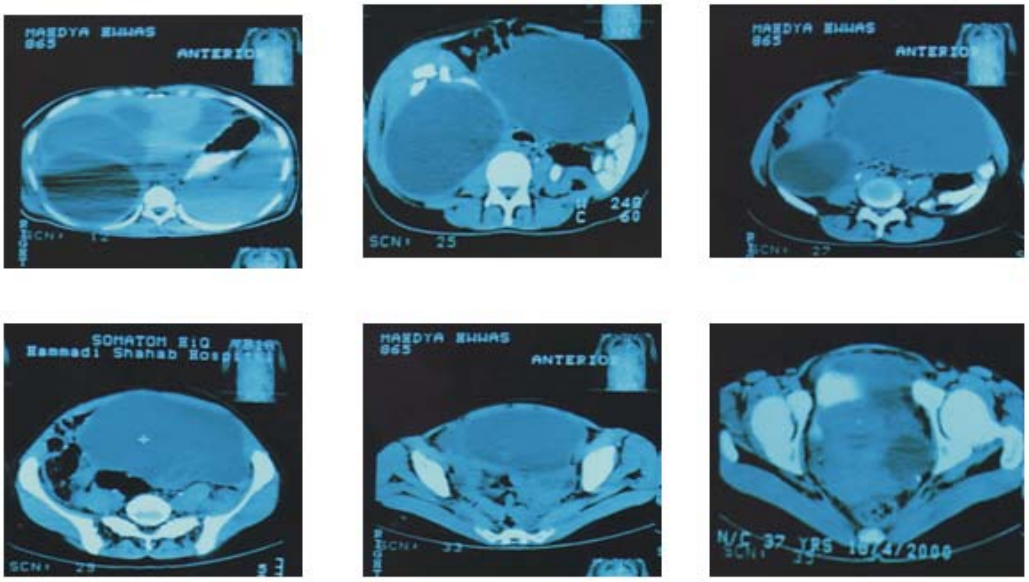

Figure 2 : Abdominal C T scan showing H C involving multiple organs including both lobes of the liver, mesentery, retroperitoneal, and pelvis in the same patient.

Table 5. Location of hepatic H.C.

Location	No.	%
Right lobe	102	80.95
Left lobe	24	19.05
Total	126	100

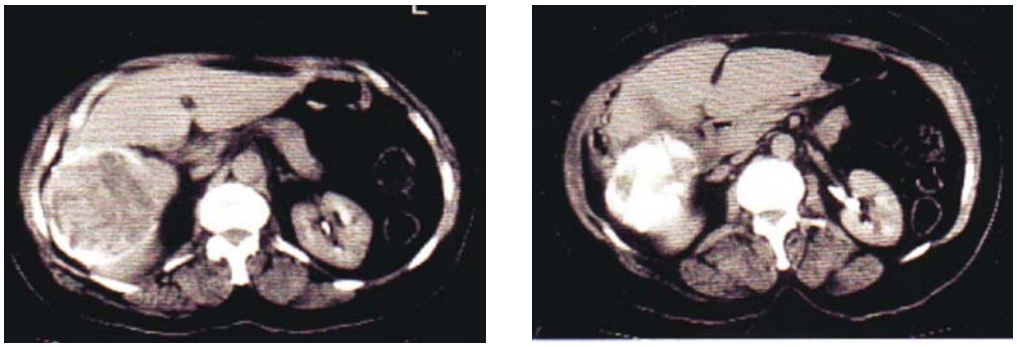

Figure 3. Abdominal C T scan demonstrating single (87 × 78 mm) calcified H H C

Synchronous P H C occurred in 10 patients (7.9 %)

Post operative complications occurred in 4 patients (3.2 %) . 2 cases (1,6 %) developed recurrent H H C . Single case (0. 8 %) developed right subphrenic abscess Biliary cutaneous fistula occurred in 1 patient (0. 8 %) . (Table – 6)

Table 6. Post operative complications

Complication	No.	%
Recurrent HHC	2	1.6
Subphrenic absces	1	0.8
Biliary cutaneous fistula	1	0.8
Total	4	3.2 %

Discussion

Hydatidosis is a major health problem. It is endemic in our country. It is well known that hydatidosis is more prevalent in rural population than urban which was shown in our series (74.6 % vs. 25.4 %) respectively. This is due to poor hygiene and close contact with dogs.

We found the maximum age incidence was between 31 and 40 years , similar result was found by Al-Sakkal N (6) .

It is mentioned that females are more affected by H C disease than males (7) , similar result was found in our study , with M : F was 1 : 2 .The same result was found by Al-Sakkal N (6) . This is because women are more in contact with livestock and the parasites due to their lifestyle habits and practices .

The clinical presentation of patients with H H is protean , it depends on the location , size of H C and presence of complications . It is largely asymptomatic until complications occur . (5) Our study showed (17.46 %) of cases were asymptomatic and detected incidentally , which is less than that reported by Talaiezadeh A H and Marghi S which was (27 %). (8)

We found the most presenting symptom is abdominal pain or discomfort(75.3 %) , a finding supported by other studies(5,8)

Our series showed (56.3 %) of cases presented with abdominal mass or masses , which is much less than that of Okelo G B (more than 75 %). (1)

Albeit H C may be found in almost any part of the body(9, 10), the liver is the commonest organ involved . (2,5,6,11 - 14) The present study showed as many as (66.7 %) of cases had isolated liver involvement.

It is mentioned that three fourths of H C are located in right liver and are singular (5) This differs from our study

which showed that the right lobe of the liver was affected in (80.95 %) and (67.4 %) were singular. But our finding approximates that of Kumar R et al which showed that the right lobe of the liver was affected in (80 %) of cases and the left lobe in (20 %) (14) ,

Intrabiliary rupture can be fatal without intervention (14) . The present study showed that 7 patients (5.55 %) with H H had intrabiliary rupture which is less than that reported by Atli M et al (8 %) (15) , and lies within the range reported by Borros J L and Marti - Bonmatil L et al (3-17 %) (16,17) , and approximates the lower limit of the range reported by Erguney S et al (5 – 10 %). (18)

We found that (20.6 %) of cases with H H had cyst biliary communication which is consistent with that found by Atli M et al in review of 116 patients with hepatic H C (21 %) . (15)

Interestingly we found synchronous hepatic and PHC in (7.9 %) of cases , which is higher than that mentioned by Talaiezadeh A H et al (4 %) (8) , but within the range reported by Sahin E et al as (4 % to 25 %) of cases . (19)

Until recently surgery was the only treatment available. Other methods include medical treatment with albendazole , fine needle aspiration under U S guidance and laparoscopy. Surgery is still the procedure of choice , it is necessary in most cases (8) This is consistent with our series where (96.8 %) of cases were treated surgically, while single case presented with disseminated itraperitoneal hydatids with history of multiple operations for H H C was treated medically with albendazole . 3 cases presented with calcified H H C were followed up by U S to reassess the disease and decision taken either to continue the observation and following up or to proceed with surgery, as calcification of H C does not imply that the cyst is dead . (5) It is mentioned that albendazole is effective in 20 – 30 % of patients , it should be considered for widely disseminated disease or patients with poor surgical risk . (5) It has not been established as an alternative to operative resection for established liver disease . (20)

Despite surgical removal of the intact cyst is the preferred form of therapy (21) , in our series the majority of operations were conservative , because radical surgery (total pericystectomy) or partial resection of the liver carries high risk of complications .

All synchronous S H C were treated by splenectomy , as splenectomy remains the treatment of choice for S H C (11), although there is a trend towards splenic conservation by performing enucleation of the cyst to avoid overwhelming post splenectomy infection (OPSI) . Synchronous R H C was treated by conservative surgery except single case required nephrectomy . Other H C were treated by removal of the cysts .

Regarding post operative complications, 2 cases (1.6 %) developed single recurrent H H C and were treated surgically . These cases were most probably due to a new cyst superimposed on old ones rather than due to intraoperative rupture and spillage, as recurrent cysts resulting from spillage are usually multiple and disseminated throughout the peritoneal cavity. It is mentioned that recurrent rates after surgical treatment range from (1 % to 2 %) but are generally 5 % or less in experienced centre . (5) This is consistent with our series . Single case (0.8 %) developed right subphrenic abscess and was treated surgically by drainage . Biliary cutaneous fistula occurred in 1 patient (0. 8 %) and was treated by excision of the fistula with omentoplasty . All patients recovered completely and discharged in good health .

Conclusion

1 - The right lobe of the liver was the commonest location of H H C .
2 – The commonest presentation was abdominal pain or discomfort , for this reason one should suspect H H as a cause in any patient complaining of these symptoms especially in rural population .
3 – All patients with H H should be investigated for synchronous P H C and treated prior to laparotomy .
4 – Accurate preoperative diagnosis and proper management with all precautions to avoid rupture and spillage will reduce the morbidity and mortality .

References

1. Okelo G B A hydatid disease . *Surgery* . 1988; 58 : 1383-85.
2 . Kattan Y. Hydatid cyst in pancreas . *Al – Kindy Col. Med. J.* Jan. 2003 ; vol. 1 (1) : 62 – 64.
3 . Schaefer J W, Khan M Y. Echinococcosis (hydatid disease) : lessons from experience with 59 patients . *Rev Infect Dis.*1991; 13 : 243 – 47 .
4 . Kammerer W S, Schantz P M . Echinococcal disease . *Infec Dis Clin North Am* 1993; 7 : 605 – 18 .
5 . Courtney M. Townsend JR, R. Daniel Beauchamp, B.Mark Evers, Kenneth L. Mattox . Sabiston text book of surgery . 17th edition 2004 ; 1542 – 44.
6 . Al – Sakkal N. Human hydatid diseases in Mosul. *Iraqi Medic J.* 1982 ; vol 29 and 30 : 80 – 86.
7 . Daoud K T , Schwabe C W . Epidemiology of echinococcus in middle east , A study of hydatid disease in patients from Beirut . *Am J Trop Med Hyg* . 1964 ; 31 : 681 –8 5 .
8 . Talaiezadeh A H , Maraghi S . Hydatid disease in children : A different pattern than adults . *Pak J Med Sci* July – September 2006 ; vol . 22 No. 3 : 329 – 32.
9 . Budke C M, Jiamin Q, Zinsstag J, Qian W, Torgerson P R. Use of disability adjusted life years in the estimation of the disease burden of echinococcosis for a high endemic region of the Tibetan plateau . *AM. J. Trop. Med. Hyg*. 2004; 71 (1) : 56 – 64.
10 . Colc C, Col M, Lafci H.Unusual localization of hydatid disease. *Acta Medica Austriaca* . May 2003 ; vol . 30 No. 2 : 61- 64 .
11 . Beiley and Loves Short practice of surgery 24th edition . 2004 ; P : 1077.
12 . Lewis J W Jr , Koss N, Kerstein M D. A review of echinococcal disease . *Ann Surg.* 1975 ; 181: 390 –9 6
13 . Greeuy P B, Nelson G S. Larval cestode infections . *Tropical Medicine* . 1984 ; P : 771.
14 . Kumar R, Reddy S N, Thulkar S. Intrabiliary rupture of hydatid cyst : diagnosis with M R I and hepatobiliary isotop study. *British Journal of Radiology.* 2002 ; (75) : 271 – 74.
15. Atli M, Kama N A, Yuksek Y N, Doganay M, Gozalan U, Kologlu M, Daglar G. Intrabiliary rupture of a hepatic hydatid cyst .Assosciated clinical factors and proper management . *Arch Surg.* 2001 ; 136 : 1249 – 55.
16 . Brros J L. Hydatid disease of the liver . *Am. J. Surg.* 1978; 135 : 597 – 600 .
17 . Marti- Bonmeti L , Menor F , Ballesta A . Hydatid cyst of the liver : rupture into the biliary tree . *A J R* . 1988 ; 150 :1051 – 53.
18 . Erguney S , Tortm O , Taspinar A H , Erten M , Gazioglu E .Complicated hydatid cyst of the liver . *Ann Chir* .1991 ; 45 (7) : 584 – 89 .
19 . Sahin E , Enon S , Canger A , Kutlay H , Havukcv S , Akay H . Single stage transthoracic approach for right lung and liver hydatid disease . *Jour Thoracic and cardiovas Surgery* . 2003 ; 126 (3) : 769 – 73 .
20 . Wong L S , Neto B , Min X U , Buckels J A C , Mirza D F . Hydatid liver disease as a cause of recurrent pancreatitis . *J. R. Coll. Surg . Edinb* . December 1999 ; (44) : 407-09 .
21 . Albi A , Baudin F , Matmar M , Archambeau D , Ozier Y . Severe hypernatremia after hypertonic saline irrigation of hydatid cyst . *Anaesth Analg*. 2002 ; 95 : 1806-0 8 .