Urgent surgery in hydatid cyst disease

Hamid H. Sarhan
Department of surgery, Medical College- Al-Nahrain University ,

Abstract

Hydatid still represents a serious problem in endemic areas. Medical treatment, aspiration of the cyst, laparoscopy, and surgical intervention all were used in the treatment of hydatid cyst. This study was assessing cases of hydatid cysts presented as urgent cases; in respect to their location, age and sex, type of presentation, surgical procedures, and results of surgery. Out of 94 patients operated upon for hydatid cyst, 20 were urgent. Urgent presentation included obstructive jaundice, infected hydatid cysts with intra-abdominal abscess formation and a patient with pressure effect on the cerebral hemisphere. Type of surgical treatment depends on site of the cyst, size of the cyst, and type of complications. The liver was affected in 18 out of the 20 urgent patients; one affected the spleen, and another the brain. The average age of the patients was 44.5 years; 13 were females (67%). Ten patients were operated upon for obstructive jaundice, 6 for intra- abdominal abscess, 3 for intraperitoneal rupture of the hydatid cyst, and one patient was sent to the neurosurgical department due to cerebral hydatid cyst. The mean hospital stay was 12 days .Postoperative complications followed four operations including one of billiary fistula, and two of persistent obstruction of common bile duct following surgery for obstructive jaundice; while one patient developed subphrenic abscess following operation for intra-abdominal abscess in the spleen. No mortality occurred. Most of the cases of hydatid cysts are operated upon selectively. Urgent hydatid cysts patients are of great concern to the surgeons in endemic areas. Obstructive jaundice represents the most common cause of urgent hydatid cyst surgery and is associated with highest morbidity and hospital stay. Despite the high morbidity and long hospital stay following urgent surgery, no mortality occurred and all the patients discharged in good condition.

Keywords: Hydatid, Elective, Urgent, Surgery.

Introduction

Hydatid disease is a parasitic infection of man caused by the larval stage of Echinococcus cestodes, mainly *Echinococcus granulosus* species. In endemic areas where this disease is still representing a serious health problem, every part of the body can be affected by hydatid cyst, but the liver remains the most affected organ (1). The disease could present as painless or painful mass in the abdomen or elsewhere; may be discovered by the patient during self examination; or by routine investigations done by the physician for some other incidental problems; it can also be discovered during laparatomy for other causes and lastly it can be presented as an emergency situation that needs urgent interference (2).

Although medical treatment (3); aspiration of some hydatid cysts under ultrasound guidance(4,5) and laparoscopy(6,7) are all used in the treatment of some hydatid disease patients; yet the treatment of most hydatid cysts and all those presented urgently are by surgery. The type of surgery used in hydatid cyst patients usually depend on the involved organ; the state of development of the cyst, and the presence of complications (2).

The aim of this study is to assess cases of hydatid cysts presented as urgent cases; in respect to their location, age and sex, type of presentation, surgical procedures, and results of surgery.

Patient and Methods

A total of (94) patients with hydatid cysts affecting hepatic lobes and other sites in the body, underwent various surgical procedures for their treatment over a period of five years between January 2001 and January 2006, were studied retrospectively. Usually an elective procedure was required but in twenty patients urgent surgery was needed .In patients presented with obstructive jaundice; all patients were admitted to hospital urgently. History, physical examination, investigations

including abdominal ultrasound (US), plain x-ray, CT scan in some cases, and magnetic resonant cholangiopancreato- graphy (MRCP) were done for most of the patients. Hematological; hepatic; and renal function tests were routinely performed. Despite all these diagnostic means, the diagnosis remained difficult in some cases. All the patients operated on, and were followed –up postoperatively for any complications.

All the patients with obstructive jaundice were prepared preoperatively by vitamin K injection, mannitol infusion, and cefotaxime injection .In patients with obstructive jaundice due to intrabiliary rupture of the hydatid cysts, the patients were explored usually by a right sub- costal incision or a right Para median incision. The common bile duct was explored, cleared from daughter cysts & debris of the hydatid cyst, fully irrigated using normal saline, and T-tube put in the common bile duct. Hepatic hydatid cyst was dealt with by meticulous evacuation of the cyst avoiding any spillage of the cyst content, closure of any obvious biliary communication, reduction of cysts size, and drainage of the remnant cystic area using tube drain. The T-tube was kept for about 15-20 days and not removed until the biliary drainage was reduced in amount and the T-tube cholangiography showed free passage of the of the contrast to the duodenum.

In the remaining patients with obstructive jaundice, the obstruction was by huge cysts located in the inferior surface of liver and pressing on the gall bladder and the common bile duct. Surgical treatment include injection the cyst with hypertonic saline (25%) as scolicidal agent, careful evacuation of the hepatic hydatid cysts, avoiding spillage of the contents, reduction of the cyst size, and drainage of the cyst cavity. There was no need for exploration of common bile duct. Postoperatively, patients with obstructive jaundice were treated with antibiotics and intravenous fluid.

In patients presented with shock and acute abdomen. They gave history of trauma prior to admission. The cause of acute abdomen was unclear preoperatively and an emergency laparatomies were done for them using midline incisions, disclosing ruptured hepatic hydatid cysts, thus confirming the diagnosis. The ruptured cystic cavity was cleaned from cystic remnant and adhesions, remnant of the cyst inside the peritoneal cavity removed, and thorough wash of the peritoneal cavity using normal saline done. Two tube drains were left, one in the peritoneal cavity and the other beside hepatic cyst cavity. Intravenous fluid, antibiotics, antihistamine, and steroids started preoperatively and continued postoperatively.

In patients presented with signs and symptoms of intra-abdominal abscess, including abdominal pain, fever, rigor, sever abdominal tenderness. Ultrasound showed a cystic mass in the liver and spleen, with diagnosis of infected hydatid cysts and intra-abdominal abscesses formation. All hepatic cysts were explored by a right subcostal incision. The cysts were aspirated before evacuation and the pus send for culture and sensitivity, the cystic content evacuated, and the cystic cavity left open with tube drain inside it .The patient with splenic abscess was explored by a left Para median incision, the pus aspirated from the cyst for culture and sensitivity and splenectomy performed.

In patients presented with multiple organs involvement including hepatic hydatidosis, bilateral breasts, and anterior abdominal wall. While she was waiting for elective operation, she developed epileptic fits; a brain C .T. scan was performed proving the patient to have a cerebral hydatid cyst. The patient was referring to the neurosurgical department for urgent craniotomy.

Results

A total number of 94 patients with hydatid cysts were operated upon. The age range from 7 to 65 years, the mean age was 30 years (±18.4 SD) .Sixty two patients (66%) were females and 32 (34%) were males. Eighty-three patients (88%) having hepatic hydatid cyst table 1; most of the cysts were in the right lobe. The cysts were multiple in 36(43.4%) patients while single in 47 (56.6%) figure 1. Twenty patients (21%) were operated on urgently figure 2, with the mean age of 44.5(±10.5 SD) and a range of 25-65 years, 13 of them (67%) were females table 2. The liver was affected in 18 (90%) patients table 3. Most common cause

of urgent complications was ruptured hydatid cysts (50%) figure 3.

Ten patients (50%) presented with obstructive jaundice. The cause of the obstruction in seven patients was rupture of the hydatid cyst into the biliary ducts; five were due to rupture of huge hydatid cysts (larger than 10 cm) into the common bile duct, which was found to be hugely dilated, the cysts located in the right lobe of the liver and were multiple in three cases, while in the other two patients, the cysts were small and even not palpable on the liver surface while the common bile duct was moderately dilated.

In the remaining three patients, the obstruction was due to pressure effect of huge hydatid located in the inferior surface of the liver, pressing on the gall bladder and common bile duct, table 4. In eight patients the diagnosis was evident preoperatively and depend on clinical features, US, and MRCP; while in other two cases, there were difficulty in preoperative diagnosis because the hepatic cysts were small, deep, and not palpable on the surface of the liver. In these two cases the diagnosis become clear only after exploring the common bile duct, where small daughter cysts and debris were found. The range of hospital stay in patients with obstructive jaundice was a 7-21 day while mean was 14.5 days (±4.9 SD).

Three cases (15 %) presented as an acute abdomen with signs and symptoms of peritonitis and shock table 2; the diagnosis being unclear preoperatively. After explorative laparatomy, those patients proved to have intraperitoneal rupture hepatic hydatid cysts. In two patients the cyst was huge in size (larger than 10 cm) and located in the right lobe of liver, while the other one was also big but occupying the left lobe of the liver. All patients did well postoperatively; the range of hospital stay was 7-9 days.

Six of the patients (30%) presented with signs and symptoms of intra-abdominal abscess table 3. Five of them were hepatic cysts, affecting the right lobe of the liver, while one was a huge cyst involving the middle and lower part of the spleen, treated by splenectomy. Most of the patients did well and discharged within 7-9 days.

One woman presented with multiple organs hydatid cysts, involving the liver, both breasts, and anterior abdominal wall, was prepared for elective surgery. Suddenly she developed epileptic fit. Brain CT scan revealed cerebral hydatid. Elective surgery postponed and the patient referred for urgent craniotomy. She did well after craniotomy and was operated upon for other hydatid cysts electively four months later.

Postoperative complications following urgent surgery occurred in four patients (20%) table 2. Two cases due to persistent postoperative obstruction of the common bile duct, send for endoscopic sphinecterotomy. Other patient developed biliary fistula following removal of T tube, treated conservatively. Last patient developed subphrenic abscess following splenectomy for splenic hydatid cyst, need a second exploration on the 15th postoperative day for drainage of abscess.

The mean hospital stay of the patients with urgent surgery was 12 days; the preoperative diagnosis was difficult in six cases (30 %). No mortality is documented in urgent surgery table 2.

Discussion

Hydatid disease is usually dealt with by the surgeon as an elective procedure and patients can wait for surgery; where preoperative anti-helmenthic drugs can be given in some cases (3), aspiration of some cysts under US guidance were performed in others (4, 5), and even laparoscopy procedures may treat some others(6.7). In certain situation all these trails are out of question where urgent surgery is needed to cure the patients.

Urgent surgery in hydatid cyst disease is a matter of concern to the surgeons working in the endemic areas. Urgent patients with hydatid cysts could be either due to rupture of the hydatid cysts, pressure effect on vital structure, or might be due to infection of the hydatid cyst with abscess formation. In this study, 20 patients (21%) were operated upon urgently out of the total number of 94 with hydatid cyst. Ten patients (50%) were due to ruptured hepatic hydatid cyst to the common bile duct or the peritoneal cavity causing obstructive jaundice or acute abdomen (8.9). Six patients (30%) were due to infection of the hydatid cysts with intra-abdominal abscess formation

(10) , while 4(20%) due to pressure effect on the common bile duct in three, producing obstructive jaundice, and on cerebral hemisphere in one, producing epileptic fits (11) .

Obstructive jaundice, whether due to rupture of hydatid cysts into biliary tree or due to pressure effect on the common bile duct, was most frequent presentation in this series (11, 12).

Investigations were directed to support the diagnosis , helping us to reduce morbidity as well as mortality., but in spite of clinical suspicion and the investigations performed , the diagnosis remained unclear in some until exploration done(13).In our series, the diagnosis was difficult to established preoperatively in 6 patients (30%), despite thorough clinical assessment and investigations, these include three patients with acute abdomen due to intraperitoneal rupture of hepatic hydatid, two with obstructive jaundice due to the cysts being small and deep, so the diagnosis become clear only after exploration of the common bile ducts, and one patient with multiple organs involvement, developed epileptic fits few days before elective surgery. So we should investigate hydatid cyst patients thoroughly, especially when there is multiple organ involvement by the disease.

The objectives of operative treatment were the same in all the patients operated upon urgently including: saving the patients life by exploration as early as possible with appropriate surgical procedure, dealing with original hepatic hydatid cyst by complete evacuation of the viable cyst content, reducing the incidence of recurrence of the cyst and the complications of the cystic cavity remnant by reduction of its size and drainage of nearby area (2. Splenectomy need in one case and craniotomy in another(6).

In our series, ten patients (50%) were operated upon for obstructive jaundice. Seven of them need exploration of the common bile duct with T tube insertion; the T tube was kept for a longer period of time than operations for obstructive jaundice due to other causes. The morbidity and hospital stay following operations for obstructive jaundice was higher than that for other causes of urgent operations (2, 7).

Thirteen of the twenty patients (67%) were females, indicating that the females are more affected by hydatid disease than males which are similar to many studies (6). The average age of the patients treated urgently in this series was 44.5 years, which was higher than the average age of the patients in the whole 94, being 30 years; probably because the hydatid cyst need long time to reach maturity and attain a big size capable of producing complications or rupture.

Most of the cases of hydatid cysts are operated upon selectively. Urgent hydatid cysts patients are of great concern to the surgeons in endemic areas. Obstructive jaundice represents the most common cause of urgent hydatid cyst surgery and is associated with highest morbidity and hospital stay. Despite the high morbidity and long hospital stay following urgent surgery, no mortality occurred and all the patients discharged in good condition**.**

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Table (1): Organ distribution of hydatid cysts in the whole series

No. of patients	Involved organ
83	Hepatic
3	Retroperitoneal
2	Spleen
2	Renal
2	Breast
1	Diaphragm
1	Anterior abdominal wall
Total = 94	

Table (2): Data of patients operated upon urgently.

Total number	20
Mean age	44.5 years
Male	7 (33%)
Female	13 (77%)
Mean hospital stay	12 days
Difficulty in diagnosis	6 (30%) cases
Hepatic cysts	18 (90%)
Extra hepatic cysts	2 (10%)
Obstructive jaundice	10 (50%)
Intraperitoneal rupture	3 (15%)
Intra-abdominal abscess	6 (30%)
Generalized fits	1 (5%)
Morbidity	4 (20%)
Mortality	0

Table (3): Sites and presentation of the hydatid cysts in urgent cases

No. of patients	Site of the cyst	Ppresentation
10	Hepatic hydatid cyst	Obstructive jaundice
3	Hepatic hydatid cyst	Acute abdomen, intraperitoneal rupture
5	Hepatic hydatid cyst	Intra-abdominal abscess (infected cyst)
1	Splenic hydatid cyst	Intra-abdominal abscess (infected cyst)
1	Multiple organ involvement including cerebral hydatid	Generalized epileptic like fits (pressure effect)
Total 20		

Table (4): Data of the patients with obstructive jaundice

No. of patients	Size of the cyst	Cause of the obstruction	Postoperative complication
5	**Huge, more than 10 cm.**	**Rupture hepatic hydatid cysts.**	**One, biliary fistula.**
2	**Small**	**Rupture hepatic hydatid cysts**	**Two, CBD obstruction**
3	**Huge, more than 10 cm.**	**Pressure on the CBD.**	**Nil**

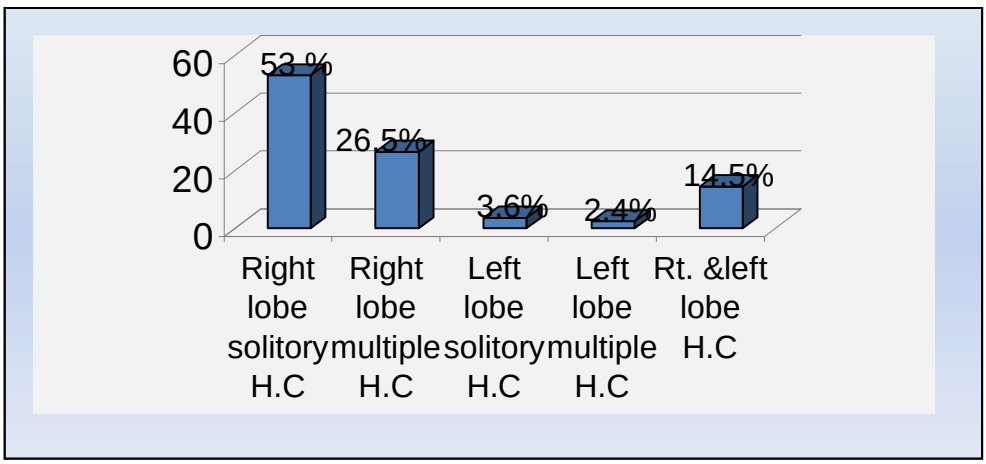

Figure (1): Site and multiplicity of hepatic cysts.

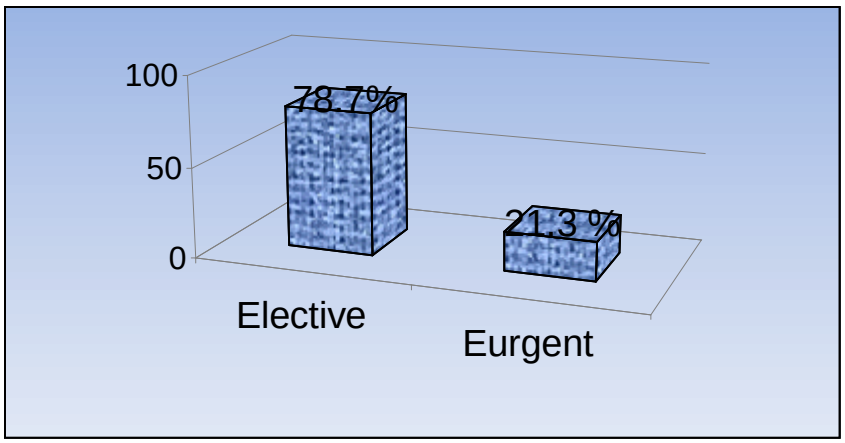

Figure (2) Incidence of urgent and elective surgery.

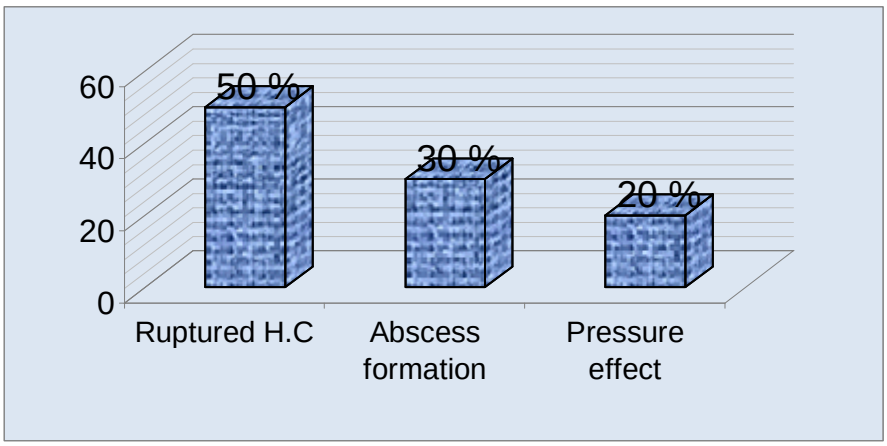

Figure (3): Causes of urgent presentation.