ORIGINAL ARTICLE

The results of surgical treatment for hepatic hydatid disease

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Abstract: Background: Hydatid disease is an important health problem worldwide and surgery remains the gold standard in terms of treatment for patients with echinococcosis of the liver. In this study we aimed to present our recent surgical experience in treating patients with hepatic hydatidosis.
Patients and Methods: Fourty-eight patients with Liver Echinococcosis (LE) who were operated in our department between 2007 and 2008 were reviewed retrospectively. It was observed that cystectomy or hepatectomy had been preferred in certain patients with cysts of small size or subcapsular location.
Results: There was no significant difference in the type of surgical procedures and early post-operative complications. Recurrence rates and mean duration of hospitalization were significantly lower in patients treated by radical procedures than the patients in drainage and obliteration group.
Conclusion: Radical operations for hydatid cyst disease are safe methods and may be preffered in selected cases. Hippokratia 2011; 15 (4): 327-329

Key words: hydatid disease, hepatectomy, cystectomy, drainage.

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Echinococcosis is a severe parasitic disease which affects both animals and humans, with multiform complications and frequent relapse. Hepatic hydatidosis is a significant health problem in Mediterranean and tropical countries such as Turkey, the Middle East, South America and Australia. As an endemic disease, it causes social and economic losses for countries[1] . Although the disease may occur in all age groups, 50-55 % of cases are found in the 20-40 year age group. Movchun et al[2] reported that 53.7 % of patients were aged 40-49 years, with the average age of severe disability being 43.6 years and average life expectancy of 54.5 years.

The disease has a variable clinical course. Hydatidosis may be asymptomatic for many years. It may become evident while the liver is imaged for other reasons[3].

Various procedures have been developed to overcome these complications such as external or internal drainage following evacuations and capitonnage with or without omentoplasty[4,5]. Many controversial results have been reported but total excision of the cyst alone or with part of the liver appears to be the most effective[6-8].

In this study, the various methods of treatment, external drainage, obliteration (introflexion, capitonnage and omentoplasty) and radical (pericystectomy, partial hepatectomy) procedures, in the HLD (hydatid liver disease) was evaluated according to duration of hospitalization and the rates of morbidity, mortality and recurrence.

Patients and methods

The surgical treatment of 48 patients with LE who underwent surgery in our clinic between 2007 and 2008 were analyzed.were reviewed retrospectively. Age, gender, presenting symptoms of the patients and findings on the physical examination, location and size of the cysts, surgical procedures performed, medical treatments administered, post-operative complications, mortality rates and length of hospital stay were recorded. All cysts were classified with ultrasound as defined by Gharbi[9]. Computerized tomography (CT) was used to determine the anatomical details. Only a few patients underwent serological testing and thus results of the serological investigations could not be analyzed. During laparotomy, intra-cystic pressure was lowered by aspirating a small amount of cyst fluid after the vicinity of the cyst was protected with compresses immersed into 10% polyvinylpyrrolidone iodide. Ten minutes were allowed to pass following the application of 10% polyvinylpyrrolidone iodide into the cyst cavity. Germinative membrane was removed by means of cystectomy. Cyst drainage, omentoplasty or capitonnage was performed following partial cystectomy. Cystectomy or hepatectomy was preferred in certain patients with cysts of small size or subcapsular location. All biliary ductules that were found to communicate with the cyst cavity were sutured.

Complication rates were compared using Fisher's exact test. $P<0.05$ were considered to be statistically significant. Student's t test was used to compare the length of hospital stay.

Results

Thirty eight of the 48 patients were female and 10 were male. The patients were between 17 and 69 years of age. The most common symptom was pain on the right upper quadrant (66%) and the most common finding on the physical examination was a palpable mass at this location (15%, Table 1) Most hydatid cysts of the liver were

Table 1: Clinical features of the patients

Symptoms	**n: %**
Right hypochondrial pain	32 (66)
Nausea and vomiting	8 (16.6)
Abdominal mass	8 (16.6)

Table 2: Localizations, Mean diameter of hepatic hydatid cysts

Localization	**n: %**
Right lobe	32 (66)
Left lobe	3 (6.25)
Both lobe	12 (25)
Spleen	1 (2)
Mean diameter of cyst (cm)	
≤5	12(25)
6-10	32 (66)
≥11	4(8.3)

located in the right lobe (66 %) but in 3 patients (6.25 %) they were found in the left lobe and in 12 cases (25 %) in both lobes. One patient had extrahepatic cysts, which were on the surface of the spleen(Table 2). The sizes of the cysts ranged from 6 to 10 cm in 32 of the cysts (Table 2). Mortality rate was 0%. Right subcostal incision was preferred in 39 patients (81.25%). Median incision followed this figure in 9 patients (18.75%).Of 48 hepatic cysts, 8 (16.6%) were treated with partial cystectomy and drainage, 14 (29.1%) with partial cystectomy and capitonnage and 14 (29.1%) with partial cystectomy and omentoplasty. One patient with cysts in the spleen further underwent splenectomy.(Figüre 1) The following methods were used: echinococcectomy with total excision of the fibrous capsule (pericystectomy) in eight (16.6 %)patients, and with resection of the left liver lobe in 3 (6.25 %) patients. Four patients (8.3%) had communication with the biliary tract, and all of them underwent choledochotomy. Severity of the patients condition depended on

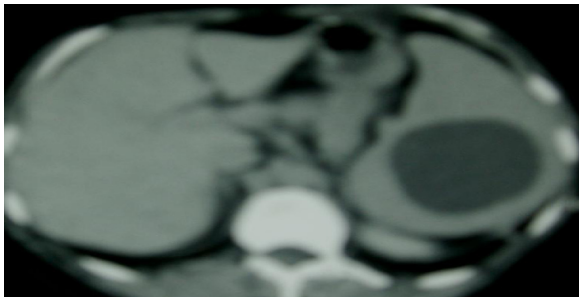

Figure 1: Cyst hydatic in spleen

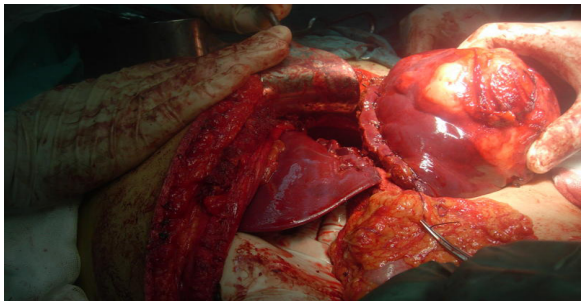

Figure 2: Sol lateral segmentektomy (liver).

Table 3: Postoperative complications

	Drainage group(n:8)	obliteration group(n:28)	radical procedures group(n:12)
Cavity abscesses	1		
Urinary infection			1
Wound infection	2	2	
Fistula	2	2	
Empyema		1	
Atelectasis			1

Table 4: Recurrence rates and hospitalization time

	Drainage and obliteration group (n:36)	radical procedures group(n:12) p
Recurrence rates	3(8.3%)	0 p <0.05
Hospitalization time	6.5 days	4.3 days p <0.05

whether the CBD was occluded by the parasitic material. In addition to echinococcectomy and liquidation of the residual cavity, choledochotomy removal of the parasitic material from the bile duct, cleansing of the bile duct with antiseptic solution and external drainage of the bile ducts was performed. Four patients underwent cholecystectomy. Postoperative complication rate was 27% Wound infection developed in four (8.3%) of the patients and was the most common early post-operative complication. Biliary fistula was observed in four patients. All fistulas in these patients healed with no need for intervention. There was no significant difference in the type of surgical procedures and early post-operative complications (p>0.05).(Table 3) Mean duration of hospitalization, and recurrence rates were (6.5 days, 8.3%) in drainage and obliteration group and (4.3 days, 0%)in patients treated by radical procedures respectively.(p <0.05, Table 4)

Discussion

Hepatic hydatid cyst is still an endemic health problem in our country as in some other areas of the world. The parasite is bound to the intestinal mucosa of animals such as dog, fox and wolf and millions of parasite eggs are scattered with each defecation of the animal. The parasite reaches the liver via portal vein and lymphatics after passing the intestinal mucosa as a consequence of ingesting contaminated foods[10].

The symptoms of hydatid cysts of the liver depend on the localization, size, and stage of the cyst. It has been reported that asymptomatic cases constituted 38 to 60% of all patients[11].

Complicated cysts (free rupture into the intraperitoneal cavity or biliary tract, or concomitant bacterial infection) are also symptomatic. Although liver hydatid cysts are usually asymptomatic, the most common symptoms are pain and hepatomegaly. Fever and jaundice may accompany complicated cysts.

The diagnosis is based on laboratory tests including the immunological methods and radiological imaging. Ultrasound is the most useful noninvasive diagnostic test and is also used to classify the cysts[9,12]. Nevertheless, computed tomography provides better information regarding the location and size of the cyst[13]. Serologic methods may be useful for the differential diagnoses in difficult cases[9,14].

Treatment depends on stage, localization, size, and complications of the cysts. Chemotherapy should be the first choice for disseminated disease and for patients who have a prohibitively high risk for surgery. Albendazole, an antiparasitic drug, is recommended as the chemotherapeutic agent of choice. The usual dosage is 10-15 mg/kg/day[15]. Surgery is the basic treatment for hepatic hydatidosis. The main goal of surgical treatment is to eradicate the parasite, to prevent intraoperative spillage of cyst contents and to obliterate the residual cavity. If the cyst is localized peripherally, total cystectomy or hepatic resection is recommended because of the low rate of recurrence. Complete en block surgical resection without antihelminthic chemotherapy is successful without recurrence in a follow-up period[16]. Non-anatomic hepatic resections should be performed for the cysts of relatively small size and subcapsular location whereas anatomic resections should be performed for the cysts impairing most of the hepatic segments. However, partial cystectomy and omentoplasty are the most frequently used operations for intraparenchymal hydatid cysts. Omentoplasty has been advocated for its absorptive capacity of residual fluid in the cystic cavity. Fluid accumulation and recurrence also can be prevented by using a capitonnage technique, but it is important to remember that capitonnage carries with it the risk of injuring major ducts or vessels passing just outside the pericystic layer. Exploration of the biliary tract with choledochotomy and placement of a T-tube or choledochoenterostomy are mandatory in cases of hepatic hydatidosis complicated with rupture into biliary tract. Exploration of ductus choledochus was performed in six of our patients with hydatic disease complicated with rupture into the biliary tract. Routine preoperative endoscopic retrograde cholangiopancreatography is an alternative approach in cases of hepatic hydatidosis with this complication. With this method, the common bile duct is cleaned of the germinal vesicles and an efficient drainage is provided[17,18].

A drain is usually placed to prevent abscess, biloma, or biliary peritonitis. If bile drainage lasts >/10 days, it should be considered as a biliary fistula. ERCP may be used successfully to manage these patients with a low output, that is, B/100 ml/day[19-21]. Leakage stopped spontaneously in five patients within 7 days; Relapse is a major problem in hydatid disease surgery. Ultrasonography alone is not enough to detect relapses following surgical treatment of liver hydatid cyst. The recurrence rates of the surgical techniques range between 0% and 25%, but as yet no prospective randomized study has shown superiority of one operative technique over the other[1].

Conclusion

Radical hydatid cyst operations are safe methods in selected cases. In our clinic, radical hydatid cyst operations have been performed more often in recent years and these operations may have advantages of lower recürrence rates or lower morbidity rates. Furthermore, albendazole treatment and the use of scolisidal agents are not needed in these patients, since there is no risk of abdominal cavity contamination.

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