Management of Intrabiliary Rupture of Liver Hydatid Disease

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Özet: Karaciğerin hidatik hastalığında intrabilier rüptür sık görülen bir komplikasyondur. Böyle bir komplikasyon oluştuğunda safra kanalının hidatik kist elemanlarıyla tıkanması ihtimali oldukça yüksektir. Bu durumun sonucu olarak kolanjit olsun veya olmasın tıkanma sarılığı gelişebilir. Tedavide temel prensipler tüm kist elemanlarının ilgili karaciğer bölgesinden tamamen çıkarılmasını ve ana safra kanalının eksplore edilmesini kapsar. İleri dönemde bir tıkanma sarılığı ihtimaline karşı transduodenal sfinkterotomi ya da sfinkteroplastiye gerek duyulabilir. Biz de bu yazıda intrabilier rüptür gösteren 11 karaciğer hidatik kist vakasını değerlendirdik. 10 vakada koledok eksplorasyonu ve T-tüp drenaj yapılırken bir vakada da transduodenal sfinkterotomi uygulandı. Genel mortalite sıfır olup sonuçlar yüz güldürücü oldu.

Anahtar Kelimeler: Hidatik hastalık, intrabilier rüptür, cerrahi tedavi.

Hydatid disease of liver has been known for many years as a parasitic infestation. One of the most important complications of the disease is the intrabiliary rupture causing jaundice. The frequency of this complication has been reported to range between 5 and 20 percent in different series (1,2,3). This syndrome was first described by Dew in 1928, as a special form of obstructive jaundice (4,5). Many reports have been published especially for the last 20 years (5,6,7,8). If a hydatid cyst of liver ruptures into the biliary tree, scolices and other cyst components gain access to biliary flow and therefore they can lodge in the common hepatic duct eventually. As a result of this condition the likelihood of develop-

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Summary: MANAGAMENT OF INTRABILIARY RUPTURE OF LIVER HYDATID DISEASE

Intrabiliary rupture of hydatid cyst is a commonly seen complication of liver hydatid disease. When such a complication occurs the possibility of the obstruction of the bile duct by the hydatid cyst elements is quitely higher. As a result of this condition obstructive jaundice may develop with or without cholangitis. The basic principles in treatment of this syndrome are surgical removal of all cystic elements from involved part of the liver and the exploration of the common bile duct. Sometimes, transduodenal sphincterotomy or sphincteroplasty is also required as a precaution against the future obstructive jaundice. In this report we evaluated 11 cases of intrabiliary rupture of liver hydatid disease treated by exploration of common bile duct and Ttube insertion in 10 cases and transduodenal sphincterotomy in one. Overall mortality was 0 %, and the results were perfect.

Key Words: Hydatid disease, intrabiliary rupture, surgical treatment.

ment of obstructive jaundice is greatly increased. Depending upon whether the biliary obstruction is complete or incomplete the jaundice may be progressive or transient (9,10). If the jaundice is to be apparent by time of surgery, an operative cholangiogram is essential to exclude the presence of retaiend material in the common bile duct which will require choledochotomy and exploration (2,4,5,11,12). We have evaluated early diagnostic and theraupuetic results in 11 patient of hydatid cysts of the liver presenting intrabiliary rupture.

MATERIALS and METHODS

Eleven patients (9 females, 2 males) treated surgically for intrabiliary rupture o the hydatid cyst

ŞAKRAK ve Ark.



Figure 1: Computed tomographic scan of the abdomen in patient with a medium seized hydatid cyst which was complicated by intrabiliary rupture.

at a ten year period (1983-1993) were studied. During the same period a total of 274 patients with hydatid disease of liver were operated on. Mean age was found 42 years. The main symptoms and findings are outlined in Table 1. The most common symptom was abdominal pain and the most common clinical finding was hepatomegaly at the time of admission. The main diagnostic examinations are seen in Table 2. While Alkaline phosphatase was found elevated in 10 patients, elevated serum bilirubin in 6 patients, elevated SGOT and SGPT levels in 4 patients were noticable. Among various diagnostic examinations, abdominal ultrasonography was found diagnostic for the masses of hydatid cyst of liver in 10 patients. Computed tomography could be performed only in 4 patients and gave the most correct knowledge regarding both the extent of cystic area and the localiation of the cyst (Figure 1). On the other hand, intraoperative cholangiography was used to demonstrate the relation be-

Table I: Symptoms and clinical findings in 11 patients.

Symptoms and Clinical Findings	No of Patients	
Abdominal pain	10	
Nausea	9	
Henatomegaly	8	
Palpable abdominal mass	5	
Jaundice	5	
Fever	3	
Splenomegaly	3	
Malaise	3	
Rebound tenderness	3	



Figure 2: Peroperative cholangiogram shows the communication between hydatid cyst cavity and the right the left hepatic ducts. Additionally, hydatid elements ruptured into biliary tree are seen.

tween cystic cavity and biliary tree in 11 patients and presence of hydatic components were basically confirmed in five of them (Figure 2).

No patient in our serious had any previously operation for hydatid cyst of liver. Of the patients, in nine, besides hydatid disease of liver, cholelithiasis was also documented by abdominal ultrasonography. Antibiotic prophylaxis was used in all patients with or without evidence of cholangitis or infected cyst formation.

Table II: Laboratory and roentgenologic examinations.

	No of Patients
Elevated alkaline phosphatase	10
Increased leucocyt count	8
Elevated serum bilirubine	6
Decreased hematocrit, hemoglobin	5
Elevated SGOT, SGPT	4
Abdominal ultrasonography	10
Intraoperative cholangiograpy	5
Computed tomography	4

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Table III: Localizations of the cysts in the liver.

	Single cysts	Multiple cysts	
Right lobe	7	1	
Left lobe	2	-	
Bilateral lobe		1	

RESULTS

Distributions of cysts located at the liver are listed in Table 3. According to operative findingis there were seven patients in whom cysts are each located at the right lobe as a single large cyst and one patient in whom multiple hydatid cysts were located only at he right lobe. Left lobe of the liver was involved by single cyst in two patients. Bilateral lobar involvement was present only in one patient. In this case there were also the numerous cystic masses varying in size from 1 mm to 10cm on the visceral organs such as omentum, transverse colon, small intestine, mesentery and lateral abdominal wall as well (Table 3).

The types of surgical procedures performed in treatment of patients are shown in Table 4. It can be said that we depend upon a variety of factors such as location and size to cyst and presence of communication between cyst cavity and biliary tree or presence of associated disease. For example total cystectomy was carried out in two patients with single large cysts as the optimal surgical treatment for cysts. Partial cystectomy was performed in whom a medium sized cyst was so embedded in the dome of the right lobe of liver that even partial cystectomy wasn't able to be done. Merely cyst drainage could be employed. One patient had daughter cysts in the choledochus with no identifiable liver cyst. But findings regarding intrabiliary rupture of all patients were also supported by clinical and explorative findings and therefore common bile duct was explored in each case.

While deep jaundice developed in six patients with intrabiliary rupture, concurrent cholelithiasis was found in three patient. Jaundice was attributed to cystic elements including pieces of germinative membran, scolices and daughter cysts which were passed into the biliary tree. Intraoperative cholangiography showed a filling defect and obstruction of the terminal portion of the common bile duct successfully in five patients (Figure 2). However the common bile duct was dilated in all patients with or without jaundice. In ten patients all cystic elements were removed following choledochotomy and Ttube catheter was inserted into comon bile duct. Of these ten patients, three had cholangitis and one had pyogenic infection of cyst.

In a patient with evidence of portal hypertension and signs and findings of peptic ulcus, partial cystectomy was performed for relief of symptoms due to pressure of cystic mass situated near the porta hepatis. Following cystectomy, ECBD (Exploration of Common Bile Duct) was done and all daughter cysts were removed from the common bile duct. There after, a cholecystectomy and a transduodenal sphincteroplasty were added. Furthermore, a truncal vagotomy and a pyloroplasty was performed for the treatment of peptic ulcus.

Despite antibiotic prophylaxis, four patients developed wound infection postoperatively. All then improved with good wound care.

While no death was recorded, there was no patient which required a reoperation for any reason. When discharging, none of the patients had fistulas or drain.

DISCUSSION

Hydatid disease has been a major health problem characterized by worldwide distribution for many years. Incidence of this parasitic infestation is dependent on the incidence in intermediate hosts including sheep, pigs, and cattle (9,13). Incidental human infestation commonly leads to cyst formation in the liver (11). Approximately 70 percent of hydatid cysts are located in the liver and in one quarter to one third of the cases there are multiple cysts (13).

Development of the cyst in the liver takes many years to reach large size. However patients with liver hydatid disease reveal no symptoms for years and remain asymptomatic until they are noticed incidentally on radiologic examination (10).

From a therapeutic point of view hydatid cysts of the liver can be divided into two different groups: The uncomplicated cyst and the complicated cyst and the complicated one. Symptoms

Patients No	Age Sex	Clinical Outlook	Treatment	Complication
1	27F	Ohsjaundice	Total cystectomy Omentoplasty T-tube drainage (ECBD)	None
2	36M	Cholelithiasis	Total cystectomy Cholecystectomy T-tube drainage	Wound infection
3	68F	Infected cyst Cholangitis	Partial cystectomy Cholecystectomy Cystic duct drainage	None
4	55F	Obs. jaundice	T-tube drainage/ECBD Cyst was unseen in liver	None
5	62F	Cholelithiasis Obs. jaundice Infected cyst	Partial cystectomy Cholecystectomy/ECBD T-tube drainage	Wound infection
6	55F	Jaundice Cholelithiasis	Partial cystectomy Cholecystectomy/ECBD T-tube drainage	None
7	40F	Cholangitis Ohs. jaundice	Partial cystectomy Omentoplasty Cholecystectomy T-tube drainage/ECBD	Wound infection
8	23M	Portal hypertension Peptic ulcus	Partial cystectomy Cholecystectomy/ECBD/ Sphincteroplasty Truncal vagotomy and pyloroplasty	None
9	34F	Cholangitis Ohs. jaundice	Cyst drainage Cholecystectomy/ECBD T-Tube drainage	None
10	30F	Additional gallbladder cyst hydatid	Partial cystectomy Cyst drainage/omentoplasty Cholecystectomy/ECBD T-tube drainage	None
11	31M	Cholangitis	Capittonage/ECBD T-tube drainage	

Table VI: Surgical treatment of hydatid disease in patients with intrabiliary rupture.

and findings in uncomplicated cysts are usually due to pressure to the surrounding structures. If a pathologically enlarged cyst is present as close as to the porta hepatis or in relation to the main extrahepatic bile ducts, it may cause both portal hypertension and obstructive jaundice but in the majority of the cases of hydatid disease, the commonest cause of obstructive jaundice is rupture of hydatid cyst elements into the biliary tree (7,8). One of our cases had developed portal hypertension due to compression of hydatid mass of liver which is quitely nearer to the portal hilus. Except for this patient the main cause of jaundice in other patients was various degrees of obstruction resulting from intrabiliary rupture of hydatid cyst. On the other hand the mechanism of the development of intrabiliary rupture of hydatid cyst. On the other hand the mechanism of the development of intrabiliary rupture of hydatid cyst is well established. As the cyst enlarges it compresses adjacent liver and stretches bile channels in its immediate vicinity. Lateral opening develop in these overstretched ducts producing fistulae when the hydatid cyst itself ruptures (9). It has been reported that this form of complication of liver hydatid disease has been showing an incidence of ranging from 5 to 20 percent (2,3,4,5,6,7). That is, intrabiliary rup-

ture of hydatid cyst continues to be a common and serious problem. This is often associated with transient or progressive jaundice. Computed tomographic scanning and ultrasonography appears to be the most precise means at present of determining the nature and extent of the cystic lesion in the liver, thus it is very useful in the planning of surgical approach (14). Definitive treatment of hydatid cyst of liver is surgical. A wide variety of techniques has been proposed for treating liver hydatidosis. Numerous therapeutic modalites include simple external drainage (1), partial cystectomy combined with omentoplasty (2,15), capittonage (16), pericystectomy (17,18), hepatic resection (19). Hepatic resection has been emphasised to be the best approach for large or multiple cysts occupying one lobe of the liver (4). Because this procedure has been suggested to allow eradication of the disease, and to eliminate severe postoperative complications such as biliary leakage and hemorrhage and lessen the possibility of residual disease by leaving a dry cavity (4). Recently some less invasive methods have also been described in the treatment of liver hydatid cyst. One of these is percutaneous drainage of hydatid cyst in the liver (14,20). Percutaneous radiologic drainage is advocated to serve as an alternative in the treatment of patients in whom surgery is a serious risk because of the location of the cyst or the poor general health of the patient (14).

Katkhauda et al have suggested that laparoscopic laser resection of hydatid cyst might be performed safely in the future (21).

Further developments with benzimidasol compounds could have made possible of sterilization of the cyst by peroperative chomoterapy (22,23). Sayek and Çakmakçı showed that peritoneal hydatidosis could be avoided with the use of prophylactic mebendazole in an experimental model (24).

After carrying out the adequate surgical intervention to the hydatid cyst located at any area of the liver, exploration of the common bile duct was done in all cases. Our principle regarding operative policy in such cases is first to evacuate the main hydatid cyst or cysts in the liver by partial or total cystectomy if possible, or cyst drainage and is to treat associated diseases such as cholelithiasis, peptic ulcus concurrently. Secondly, further operation is essential to clear the biliary tree until no hydatid elements remain.

Depending on the extent and location of the cyst in the liver we performed a variety of procedures including partial cystectomy with omentoplasty in six patients, total cystectomy in two patients, simple drainage of the cyst in one patient. In spite of fact that both ultrasonography and computed tomography were employed in one patient the presence of hydatid cyst in liver or in elsewhere could never be demonstrated. However, this patient had deep obstructive jaundice when admitted. Even in abdominal exploration it could never be determined any mass related to hydatid cyst in liver but moderately dilated common bile duct was apparent. After choledochotomy numerous cystic elements inclucing pieces of germinative membran, scolices, daughter cysts were cleared. Operation was completed with a T-tube insertion into the choledochus.

The main problem dealing with hydatid disease of the liver complicated with intrabiliary rupture is the management of biliary obstruction. It may be diffucult to agree on which procedure will be the best. Whereas most authors prefer T-tube drainage (1,4,6,8), some have believed in T-tube drainage is insufficient in the management of intrabiliary rupture of hydatid cyst. According to them T-tube provides only temporary drainage and after removal of T-tube overlooked debris and daughter cysts in the biliary tree will lead to obstruction of the common bile duct again (2). The same authors advocate the wide biliary-intestinal anastomosis provided by choledochoduodenostomy and suggest this procedure is generally sufficient for the passage of retained debris. On the contrary, some surgeons have preferred sphincteroplasty to choledochoduodenostomy (25). Especially in suspected cases in which retained elements are likely present, ERCP provides a safe and accurate preoperative assessment and endoscopic sphincterotomy allows the patient to undergo elective surgery in an improved condition once the suppurative cholangitis has settled (25,26,27).

In eleven patients, after demonstrating the dilatation of common bile duct and the present of cystic materials in the duct, exploration of choledochus was immediately performed. After removal of all cystic components inside a T-tube suitable in diameter was inserted into common bile duct in each patient. Peroperative cholangiography was routinly done in each case not to forget a likely retained element of cyst inside. In repatient in whom maining one portal hypertension has developed as a result of compression of hydatid mass to the portal hilus, it was determined a choledochus showing minimal dilatation. This patient had also been suffering from a chronic duodenal ulcer as well. After partial cystectomy combined with cholecystectomy, signs and findings of portal hypertension due to pressure of the cystic mass improved fast. Also, for the treatment of chronic duodenal ulcer a truncal vagotomy combined with pyloroplasty was employed. While a wider pyloroplasty which is kind of Finney was being done, a sphinctero-

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plasty was also accomplished adequately. In the follow up period none of eleven patients with intrabiliary rupture had recurrent disease. Therefore no further operation was required. No major complication except for that wound infection was exposed. There were no other complications in the long follow up period. Our results suggest that good results can be obtained with the ECBD and T-tube drainage for the cases of intra biliary rupture of liver hydatid disease. This approach has the advantages of minimal postoperative morbidity and satisfactory drainage of the biliary tree. When recognised of risk factors inclucing advanced age, associated disease, postoperative pacreatitis and postoperative cholangits, T-tube drainage for the patients with intrabiliary rupture of hydatid disease may be preferable as a simpler and safer method.

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