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Endoscopic sphincterotomy in the treatment of postoperative biliary fistulas of hepatic hydatid disease

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Abstract

Background: Ten patients with postoperative external biliary fistula treated by endoscopic sphincterotomy are reported.

Methods: Nine of these patients were operated for hepatic hydatid disease and one for a liver abscess. Mean daily output of bile through the fistulae which were present for 5–39 days was approximately 500 cc.

Results: Treatment was successful in nine patients with closure of the fistulae in 2–15 days (mean, 7 days). No response was obtained in one patient who was reoperated, and an intrahepatic biliary duct was found to be completely eroded by the cyst wall.

Conclusions: Endoscopic sphincterotomy should be the first-line treatment for postoperative external biliary fistulae related to hepatic hydatid disease.

Key words: Hydatid cysts — Liver — Complications — Endoscopy

Hydatid disease of the liver is caused by species of the tape-worm *Echinococcus* and is endemic in many parts of the world [7]. Intrabiliary rupture of the cysts is the most common complication of the disease, seen in 5–25% of the patients [1, 9]. Frank ruptures are usually diagnosed preoperatively and dealt with via a biliary drainage procedure, while simple openings may only be seen during surgery or be overlooked and result in postoperative biliary fistula formation [1]. In a series of 495 patients operated on for hepatic hydatid disease in our center between 1977 and 1994, 44 patients (8.8%) developed external biliary fistulas (unpublished data), adding considerable morbidity to the operation. Recently endoscopic methods were reported to be an effective alternative to surgery for the treatment of this complication [4, 14]. The experience of our unit with endoscopic treatment in a series of patients with hepatic hydatid disease complicated by postoperative external biliary fistulae is reported.

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Materials and methods

Between March 1994 and February 1995, ten patients underwent endoscopic retrograde cholangiopancreatography (ERCP) and endoscopic sphincterotomy (ES) for the treatment of their postoperative biliary fistulas in the Hepatopancreatobiliary Surgery Unit of Istanbul Medical Faculty in Istanbul, Turkey. Five of these patients were operated in our unit and are a part of the series mentioned above, while the remaining five were referred to us from various state hospitals in Istanbul for endoscopic treatment. Six patients were female and four were male with a mean age of 41 years (range 19–54). The indications for their previous liver surgery were hydatid disease of the liver in nine patients and a liver abscess in one. Hydatid cysts were single in all except one patient with sizes ranging from 8 to 20 cm. Their locations were in the right lobe of the liver in seven patients, left lobe in one, and in both lobes in the remaining patient.

In none of the patients were the biliary communications evident preoperatively. At surgery, hydatid liquid was clear without bile stain in all patients. In three patients, after evacuation of the cyst contents, a single minor communication with the biliary tree was identified on the cyst wall. After the performance of methylene blue injection through the cystic duct to detect any other opening, these simple openings were sutured. For the management of the remaining cyst cavity, external drainage was preferred in six patients; five with thick and calcified cyst walls and one with a liver abscess, while in the remaining patients with early stage cysts omentoplasty was performed in two, pericystectomy in one, and introflexion in one.

Postoperatively, the daily output of bile through the drainage catheter ranged between 200 and 900 cc (mean 500 cc) (Fig. 1). The interval between the onset of the fistula and the endoscopic procedure was 5–8 days in five patients, 2–3 weeks in three patients, and more than 3 weeks in the remaining two patients.

Results

At ERCP, the fistulas were visualized in all patients. None of them had any hydatid material and thus any obstruction of the biliary tree. The sizes of the common bile ducts were not dilated. ES was achieved without complications in all ten patients. In nine, the fistula output decreased by 50% in the first 2 days and closed in an average of 7 days (range 2–15 days) (Table 1). In one patient (case 5) who had undergone surgery for complicated hydatid disease of the liver and in whom the endoscopic procedure was undertaken 30 days after the formation of the fistula, the output was not affected. This patient was reoperated and an intrahepatic

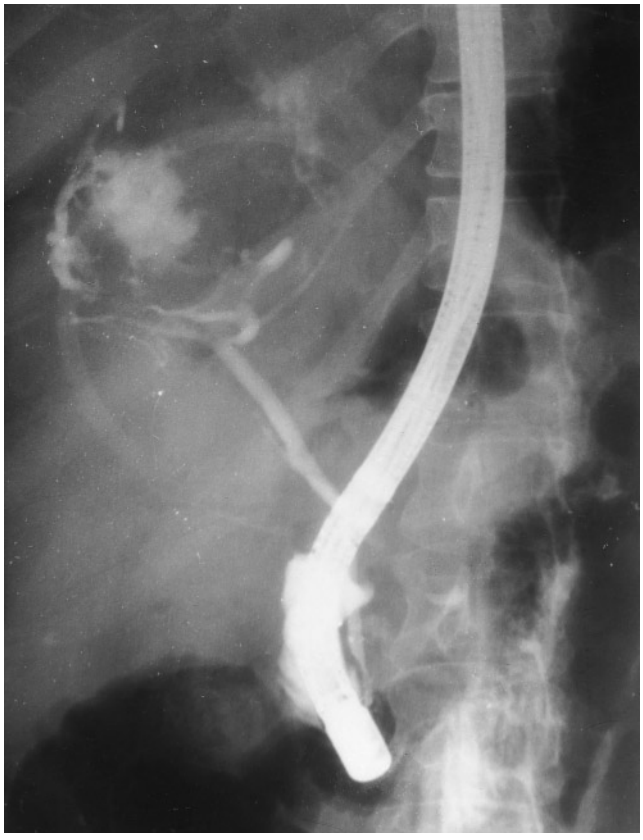

Fig. 1. Endoscopic retrograde cholangiopancreatograph showing communication between the biliary tree and the cyst cavity (case 4).

bile duct was found to be completely eroded by the cyst wall. A fistulojejunostomy was done and the patient was discharged well 10 days after the operation. In a mean follow-up of 12 months (range 6–17 months), no recurrence of fistula or any late complications were observed.

Discussion

Despite efforts at prevention of postoperative biliary fistulas during surgery for hepatic hydatid disease, a certain number of patients continue to experience this undesirable complication. Until recently, surgery was the only treatment option for persistent external biliary fistulas [2]. Endoscopic treatment modalities now offer earlier and less invasive interventions with reduced morbidity [4, 14]. The main aim in endoscopic treatment is ablation of the sphincter of Oddi, thereby abolishing the duodenobiliary pressure gradient, which should ease bile flow into the duodenum and result in closure of the fistula. This may be achieved by placing a nasobiliary drain (NBD) or a biliary stent or by an ES alone [11].

NBD or stenting seems to be less invasive than ES. Stenting has been shown to be an effective treatment option in various reports [5, 8] and carries the advantage of leaving the ampulla intact. Moreover, ES has its small but significant risk of complications although not always requiring an intervention [6]. Despite this fact, ES was preferred in our series due to the continuing possibility of hydatid remnants dropping into the biliary tree and causing obstruction and persistence of the fistula, even though this was not encountered at initial ERCP. On the other hand, stenting is more expensive and requires a repeat endoscopy for its removal.

Table 1. Clinical features and outcome following endoscopic sphincterotomy (ES)

No.	Age	Sex	Output	Duration of fistula	Closure after ES
1	42	F	200 cc	7 days	2 days
2	19	F	300 cc	6 days	2 days
3	48	F	900 cc	5 days	14 days
4	39	F	300 cc	39 days	14 days
5	54	F	900 cc	30 days	No response
6	53	M	400 cc	8 days	7 days
7	37	F	300 cc	15 days	5 days
8	41	M	500 cc	21 days	12 days
9	30	M	500 cc	5 days	3 days
10	46	M	900 cc	15 days	15 days

The disadvantage of ES compared with stenting or NBD is that cholecystitis may occur due to contamination of the ducts by bacteria following permanent ablation of the sphincter of Oddi [13]. We believe that such a risk is negligible, as cholangitis invariably follows stricturing and stasis in the bile ducts, which is rare after ES [10]. Tanaka et al. [12], on the other hand, have shown that the risk of cholecystitis in patients with intact gallbladders is not increased following ES. In their study, 91 such patients who had ES done for intrahepatic stones were followed up for a mean of 3 years. None of their patients developed acute cholecystitis and only two underwent an elective cholecystectomy for gallstone disease.

Duration for complete closure of the fistulae following the endoscopic intervention was shorter in our series (average 1 week) compared to those of Vignote et al. (average 1 month) [14]. Although not clearly known, one reason could be that their patients possibly had more chronic fistulas, in which case it may take longer for the fistulous tract to heal. We believe that earlier intervention without undue delay in patients whose fistula output does not tend to diminish may prevent prolonged morbidity. The only patient who did not respond to ES had a high-output fistula (900 cc/day) indicating a major communication between the cyst and the biliary tree. In such patients it may be difficult to divert most of the bile flow into the duodenum simply by ablating the sphincter of Oddi, especially if the bile ducts are narrow. Perhaps adding an NBD to ES with continuous suction may be more effective in these patients, as recommended by Isaac et al. [3].

In conclusion, endoscopic sphincterotomy may be an effective minimally invasive solution for the definitive treatment of postoperative biliary fistulas following surgery for hepatic hydatid disease. Early intervention may prevent prolonged morbidity and the need for surgery.

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