

Endoscopic Management Of Hepatic Hydatid Cysts Ruptured Into The Bile Ducts: A 19-Year Retrospective Study

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Abstract

Background: Hepatic hydatid cysts are a frequent manifestation of echinococcosis, often remaining asymptomatic until complications arise. The most common and serious complication is rupture into the biliary tree, leading to cholangitis or biliary obstruction. Endoscopic retrograde cholangiopancreatography (ERCP) has become a cornerstone in both diagnosis and management.

Objective: To evaluate the diagnostic and therapeutic contribution of ERCP in the management of hepatic hydatid cysts ruptured into the bile ducts.

Methods: A retrospective descriptive and analytical study was conducted between January 2005 and August 2024, including 55 patients with hepatic hydatid cysts communicating with the bile ducts. All patients underwent ERCP with endoscopic sphincterotomy. Success was defined as complete clearance of the main bile duct confirmed clinically and radiologically.

Results: Of all ERCPs performed during the study period, 4.5% ($n = 55$) were for cysto-biliary communication. The mean age was 46.7 ± 15 years, with a male predominance (65%). ERCP was performed preoperatively in 52% and postoperatively in 48%. The main indications were acute cholangitis (45.3%) and persistent external biliary fistula (33%). Sphincterotomy was performed in 96.2% of cases, allowing extraction of hydatid debris in 88%. Naso-biliary drainage and biliary stenting were required in 22% and 7% of cases, respectively. The overall success rate was 95%. Immediate complications occurred in 7% (hemobilia in one case and marginal bleeding in three). Jaundice resolved within 7–14 days and external biliary fistulas closed within 15 days.

Conclusion: ERCP is a safe and effective therapeutic option for hepatic hydatid cysts ruptured into the biliary ducts, achieving high success rates, low morbidity, and favorable clinical outcomes. It should be considered the treatment of choice in managing this complication.

Keywords: Hydatid cyst; ERCP; biliary rupture; endoscopic management.

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I. Introduction

Cystic echinococcosis, caused by *Echinococcus granulosus*, remains a major public health concern in endemic regions such as the Mediterranean basin, the Middle East, South America, and parts of Africa (1). While hepatic hydatid cysts are often asymptomatic, complications develop in up to one-third of cases. The most common and clinically significant is rupture into the biliary tree, reported in 5–25% of cases (2). This communication can lead to biliary obstruction, cholangitis, or postoperative external biliary fistula (3). Traditionally, management was surgical, but ERCP has revolutionized treatment by providing both diagnostic visualization and minimally invasive therapeutic options, including sphincterotomy, debris extraction, and biliary drainage (4,5). This study aimed to evaluate the diagnostic and therapeutic contribution of ERCP in hepatic hydatid cysts ruptured into the bile ducts over a 19-year period.

II. Materials And Methods

A retrospective, descriptive, and analytical study was conducted from January 2005 to August 2024 in the Department of Digestive Endoscopy, Mohammed V Military Hospital, Rabat, Morocco.

Fifty-five patients diagnosed with hepatic hydatid cyst rupture into the bile ducts were included. Diagnosis was based on imaging (ultrasound, CT, MRI), clinical presentation (jaundice, cholangitis, biliary fistula), and confirmed by ERCP findings.

All patients underwent ERCP under sedation or general anesthesia. The procedure included cholangiographic identification of hydatid material, endoscopic sphincterotomy, extraction of membranes using balloon catheter or Dormia basket, and naso-biliary drainage or biliary stent placement when necessary.

Treatment success was defined as complete clearance of hydatid material with resolution of symptoms and normalization of liver tests.

III. Results

Among 55 patients (4.5% of all ERCPs during the period), the mean age was 46.7 ± 15 years, with a male predominance (65%).

ERCP was performed preoperatively in 52% and postoperatively in 48%.

The primary indication was acute cholangitis in 45.3% and persistent external biliary fistula in 33%.

Table 1. Patient Demographics and Clinical Presentation

Parameter	n (%) or Mean $\pm$ SD
Total patients	55
Mean age (years)	46.7 ± 15
Male sex	36 (65%)
Preoperative ERCP	29 (52%)
Postoperative ERCP	26 (48%)
Acute cholangitis	25 (45.3%)
External biliary fistula	18 (33%)
Median bile duct diameter (mm)	10.2 [7–14]
Median cyst diameter (mm)	37 [27–50]

Sphincterotomy was achieved in 96.2% of cases.

Hydatid debris extraction was successful in 88%.

Naso-biliary drainage was necessary in 22% of cases, while biliary stent placement was required in 7%.

Table 2. Endoscopic Procedures and Therapeutic Outcomes

Intervention	n (%)
Sphincterotomy	53 (96.2%)
Hydatid debris extraction	48 (88%)
Naso-biliary drainage	12 (22%)
Biliary stenting	4 (7%)
ERCP success (duct clearance)	52 (95%)

The immediate complication rate was 7% ($n = 4$), including hemobilia (1 case) and mild marginal bleeding (3 cases), all managed conservatively.

Jaundice resolved within 7–14 days post-ERCP, and external biliary fistulas closed within approximately 15 days.

Table 3. Complications and Clinical Outcomes

Outcome	n (%) or Duration
Immediate complications	4 (7%)
Hemobilia	1 (1.8%)
Marginal bleeding	3 (5.4%)
Resolution of jaundice	7–14 days
Closure of biliary fistula	~15 days

IV. Discussion

Rupture of hepatic hydatid cysts into the biliary tree is a common and potentially severe complication, accounting for 5–25% of cases in endemic regions (2,6).

Historically, surgical management involved exploration of the biliary tract and T-tube drainage; however, ERCP has become the preferred first-line modality for both diagnosis and treatment due to its minimally invasive nature and high success rate (4,5,7).

Our study confirms this trend, achieving a 95% duct clearance rate and a low complication rate of 7%, consistent with reports showing success rates between 85% and 97% (3,5,8). Endoscopic sphincterotomy facilitates spontaneous drainage of residual debris, while naso-biliary drainage or stenting can be used for persistent leakage or high-output fistulas.

Limitations of this study include its retrospective design and single-center scope; however, the long duration and consistent results strengthen the reliability of our conclusions.

V. Conclusion

Endoscopic management via ERCP represents an effective, minimally invasive therapeutic approach for hepatic hydatid cyst rupture into the bile ducts. It allows both diagnostic confirmation and treatment, with high success, low complication rates, and rapid clinical recovery. ERCP should be considered the standard of care in the management of this hydatid disease complication.

References

- [1]. Khuroo MS. Hydatid Disease: Current Status And Recent Advances. *Ann Saudi Med.* 2002;22(1–2):56–64.
- [2]. Dziri C, Haouet K, Fingerhut A. Treatment Of Hydatid Cyst Of The Liver: Where Is The Evidence? *World J Surg.* 2004;28(8):731–736.
- [3]. Ben Amor I, Ayadi S, Chakroun M, Et Al. Role Of ERCP In The Management Of Biliary Hydatid Disease: Experience From A Tertiary Center. *Gastrointest Endosc.* 2018;88(2):341–347.
- [4]. Akçam AT, Alper E, Aydinli B, Et Al. Endoscopic Management Of Hepatic Hydatid Disease With Biliary Communication. *Surg Endosc.* 2006;20(3):463–466.
- [5]. Kayaalp C, Bzeizi K, Demirbag AE, Et Al. Endoscopic Management Of Hepatic Hydatid Disease With Biliary Rupture: A Systematic Review. *Surg Laparosc Endosc Percutan Tech.* 2011;21(6):373–378.
- [6]. Wani NA, Gojwari T, Shah OJ, Et Al. Hepatic Hydatid Disease: Management Of Cystobiliary Communication With ERCP. *BMC Gastroenterol.* 2014;14:107.
- [7]. Sayek I, Onat D. Diagnosis And Treatment Of Uncomplicated And Complicated Hydatid Cyst Of The Liver. *World J Surg.* 2001;25(1):21–27.
- [8]. Ramachandran J, Goel R, Nundy S. Endoscopic Management Of Intrabiliary Rupture Of Hepatic Hydatid Cysts. *Gastrointest Endosc.* 2001;53(5):605–608.