




Institutional experience in the surgical management of major ERCP-related complications

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ABSTRACT

Introduction: Endoscopic retrograde cholangiopancreatography (ERCP) is a common therapeutic procedure for biliary and pancreatic diseases. However, severe complications such as duodenal perforation and necrotizing pancreatitis may require urgent surgical intervention. This study aimed to present our institutional approach to the management of ERCP-related complications, including both surgical and conservative strategies.

Materials and Methods: In our clinic, seventeen patients who were hospitalized and followed due to ERCP-related complications between January 2022 and December 2024 were evaluated retrospectively. Data on patient demographics, type of complication, management approach, hospital stay, and outcomes were analyzed descriptively.

Results: Seven patients underwent surgical intervention due to major complications such as duodenal perforation and necrotizing pancreatitis, while ten patients were managed conservatively due to pancreatitis, cholangitis, or bleeding. Early surgical intervention in appropriately selected patients was effective in controlling contamination and preventing sepsis. Conservatively managed patients responded well to supportive care, with no mortality. One patient who had undergone surgery died due to complications.

Conclusions: Management of ERCP-related complications should be individualized based on the type and severity of the complication. Early surgery is lifesaving in selected cases, while conservative treatment is sufficient for stable patients. A multidisciplinary approach is essential for optimizing outcomes.

Keywords: ERCP, duodenal perforation, necrotizing pancreatitis, surgical approach



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Introduction

Endoscopic retrograde cholangiopancreatography (ERCP) is an essential diagnostic and therapeutic procedure widely used in the management of biliary and pancreatic disorders.^[1] Despite significant technological advances, ERCP continues to carry a risk of procedure-related complications.^[2] The most common complications include pancreatitis, bleeding, cholangitis, and duodenal perforation, with an overall complication rate reported between 5% and 10% and a mortality rate of approximately 0.1% to 1%.^[3] Although most ERCP-related complications are mild and can be managed conservatively, some require urgent or delayed surgical intervention.^[4]

Duodenal perforation and necrotizing pancreatitis represent the most severe complications and can be life-threatening if not promptly recognized and appropriately managed.^[5] Early recognition and multidisciplinary management are essential to improving patient outcomes.^[6,7] This study presents our clinical experience with 17 patients who developed ERCP-related complications in our clinic. The aim was to describe our institutional approach to both surgical and conservative management, emphasizing decision-making and treatment outcomes.

Materials and Methods

This retrospective descriptive study was conducted in the Department of General Surgery at Malatya Training and Research Hospital. Medical records of 17 patients who developed ERCP-related complications between January 2022 and December 2024 were reviewed. Seven patients required surgical intervention due to major complications such as duodenal perforation or necrotizing pancreatitis, while ten patients were managed conservatively for mild to moderate pancreatitis, cholangitis, or bleeding. Demographic characteristics, type of complication, management approach (surgical or conservative), hospital stay, and clinical outcomes were extracted from patient records. Surgical management included cholecystectomy, T-tube drainage, duodenal repair, necrosectomy, and debridement. Conservative management involved intravenous hydration, antibiotic therapy, nasogastric decompression when required, and close clinical and radiological monitoring.

The decision between surgical and conservative management was based on the patient's hemodynamic status, clinical findings, laboratory results, and radiological imaging. Surgical intervention was preferred in patients with hemodynamic instability, signs of generalized peritonitis,

free perforation detected on computed tomography, or necrotizing pancreatitis accompanied by sepsis. Patients who were hemodynamically stable and had localized findings without evidence of perforation or diffuse intra-abdominal contamination on imaging were managed conservatively. The study was conducted in accordance with the Declaration of Helsinki and approved by the Ethics Committee of Malatya Turgut Özal University (No: E-30785963-020-304883, Date: 21/05/2025).

Results

In our clinic, 17 patients who were hospitalized and followed due to ERCP-related complications were evaluated. Of these, seven required surgical intervention and ten were managed conservatively. The complications included pancreatitis (n=3), cholangitis (n=3), post-ERCP bleeding (n=4), duodenal perforation (n=4), and necrotizing pancreatitis (n=3). All patients received intravenous fluids, antibiotics, bowel rest, and close monitoring. Four patients were followed due to post-ERCP bleeding, and erythrocyte replacement was administered. Three patients were followed due to pancreatitis and three patients due to cholangitis. The mean hospital stay was 9.4 days (range, 3–21 days). All patients recovered without mortality.

Patients underwent surgery for major complications such as duodenal perforation and necrotizing pancreatitis. The mean age was 58.3 (31-77) years. Surgical procedures included cholecystectomy with T-tube drainage, duodenal repair, feeding jejunostomy, necrosectomy, and debridement. The mean postoperative hospital stay was 25.6 (7-64) days. One patient died due to sepsis and multi-organ failure secondary to necrotizing pancreatitis, whereas six patients recovered and were discharged. Early surgery was beneficial in preventing diffuse peritonitis and septic complications.

Discussion

ERCP is a valuable therapeutic procedure but can be associated with serious complications.^[8] The present study summarizes our institutional experience in managing ERCP-related complications, demonstrating that both surgical and conservative strategies can yield favorable results when applied appropriately.^[9]

Surgical management remains essential for patients with diffuse peritonitis, duodenal perforation, or necrotizing pancreatitis.^[1] Early surgical intervention in appropriately selected patients has been shown to reduce morbidity and mortality.^[10] Conversely, patients with limited or mild

complications often benefit from conservative management involving supportive care and close monitoring.^[11]

Mortality was observed in one patient who had necrotizing pancreatitis complicated by sepsis.^[12] These findings align with previously published data emphasizing that timely decision-making and multidisciplinary collaboration are key factors for successful outcomes.^[13]

Conclusion

Early surgical intervention plays a vital role in managing major ERCP-related complications such as duodenal perforation and necrotizing pancreatitis. Meanwhile, conservative management is effective for stable patients with mild complications. Individualized decision-making and collaboration between gastroenterologists and surgeons are crucial for optimizing treatment and improving outcomes.

Limitation

This study has several limitations, including its retrospective design, small sample size, and single-center experience, which limit generalizability. Additionally, variations in surgical decision-making and the lack of long-term follow-up data may have influenced outcomes. Despite these limitations, this report contributes valuable clinical insight into the management of ERCP-related complications.

Disclosures

Ethics Committee Approval: The study was approved by the Ethics Committee of Malatya Turgut Özal University (No: E-30785963-020-304883, Date: 21/05/2025).

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