IMPROVING RECONSTRUCTIVE SURGICAL TECHNIQUES FOR IATROGENIC INJURIES OF THE EXTRAHEPATIC BILE DUCTS

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Abstract

To optimize reconstructive surgical methods and improve long-term outcomes for patients with iatrogenic bile duct injuries (IBDI) and post-traumatic strictures, a clinical analysis of 137 patients (mean age 47.3 years) treated between 2019 and 2024 was conducted. Strictures were systematically classified using the E.I. Galperin criteria. The analysis revealed that high, complex cicatricial strictures (Galperin Types 0 and +1) were present in 66.7% (n=91) of the cohort. To achieve reliable biliary drainage, a standardized Roux-en-Y hepaticojejunostomy using a 60–80 cm defunctionalized jejunal loop was performed in 72.2% (n=99) of patients. This technique successfully eliminated ascending reflux cholangitis and minimized anastomotic restenosis by utilizing healthy, scar-free tissue. Ultimately, the study concludes that a wide Roux-en-Y hepaticojejunostomy serves as the gold standard for complex IBDI management, providing optimal long-term physiological biliary rehabilitation.

Keywords: iatrogenic bile duct injury, biliary stricture, Roux-en-Y, hepaticojejunostomy.

Introduction: The widespread adoption of laparoscopic cholecystectomy has maintained a steady 0.3% to 0.7% incidence of iatrogenic bile duct injuries (IBDI). These injuries rapidly progress into severe clinical complications, including dense cicatricial strictures, purulent cholangitis, and mechanical jaundice, requiring highly specialized reconstructive surgical strategies.

Aim: To optimize reconstructive surgical techniques and improve long-term physiological outcomes in patients suffering from iatrogenic extrahepatic bile duct injuries and post-traumatic strictures.

Materials and Methods: A comprehensive clinical analysis was conducted on 137 patients (mean age 47.3 years, 99 females) treated at our center between 2019 and 2024. Magnetic resonance cholangiopancreatography (MRCP) served as the primary

non-invasive diagnostic modality. The anatomical level of the strictures was systematically classified according to the E.I. Galperin criteria.

Results: The patient cohort was characterized by severe anatomical damage, with 66.7% (91 patients) presenting with complex, high cicatricial strictures at or immediately below the biliary confluence (Galperin Types 0 and +1). To achieve reliable long-term biliary drainage, Roux-en-Y hepaticojejunostomy was established as the reconstructive procedure of choice, successfully executed in 72.2% (99 patients) of the cases. The critical clinical advantage of this optimized technique was the ability to mobilize the bile duct into healthy, well-vascularized, scar-free tissue to create a wide, tension-free mucosal anastomosis. Furthermore, the utilization of an extended, defunctionalized jejunal loop measuring 60–80 cm effectively eliminated the risk of ascending enteric reflux, drastically reducing the incidence of post-operative reflux cholangitis and anastomotic restenosis.

Conclusion: For the management of complex iatrogenic bile duct injuries, a wide Roux-en-Y hepaticojejunostomy remains the absolute gold standard. Strict adherence to isolating a well-vascularized anastomotic site and utilizing a sufficiently long intestinal loop (60-80 cm) provides the highest rate of physiological biliary rehabilitation and long-term structural patency.

References

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