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Achieving non-surgical management: through-the-scope twin clip closure of stapfer type I perforation complicating delayed post-ERCP hemostasis

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INTRODUCTION

ERCP-related duodenal perforations require prompt management to optimize outcomes (1). While endoclips, endoloops, and OTSCs are established closure methods, their technical complexity persists. This study demonstrates the efficacy of a novel through-the-scope twin clip (TTS-TC; Micro-Tech, Nanjing, China) that simplifies large-defect closure by size reduction, enabling immediate perforation sealing with reduced procedural demands.

Case report

A 67-year-old male with choledocholithiasis, acute cholangitis, and cholecystitis underwent ERCP with sphincterotomy. Post-procedure hematemesis revealed major papillary bleeding, complicated by a 1.3 cm contralateral duodenal perforation (figure A) during hemostasis. Traditional endoclips failed, but the TTS-TC successfully

reduced the defect size, enabling complete closure with TTSC (figure B). Concurrent biliary stenting, hemostasis, and nasojejunal tube placement were achieved. Postoperative broad-spectrum antibiotics and enteral nutrition led to rapid recovery (pain score 2/10, no peritonitis). The patient was discharged on day 7 and remained complication-free at 6-month follow-up (figure C).

Discussion

Duodenal perforation, a life-threatening ERCP complication (1% incidence, 8%-23% mortality), often involves Stapfer Type I injuries (25% of cases) (2). Early endoscopic or surgical intervention, combined with drainage/stent placement and conservative care, improves outcomes (1). This case highlights the novel TTS-TC system, which rapidly reduced defect size, enabled secure closure, permitted ERCP completion, and facilitated patient recovery with conservative therapy. The approach offers a promising simplified strategy for managing this high-risk complication.

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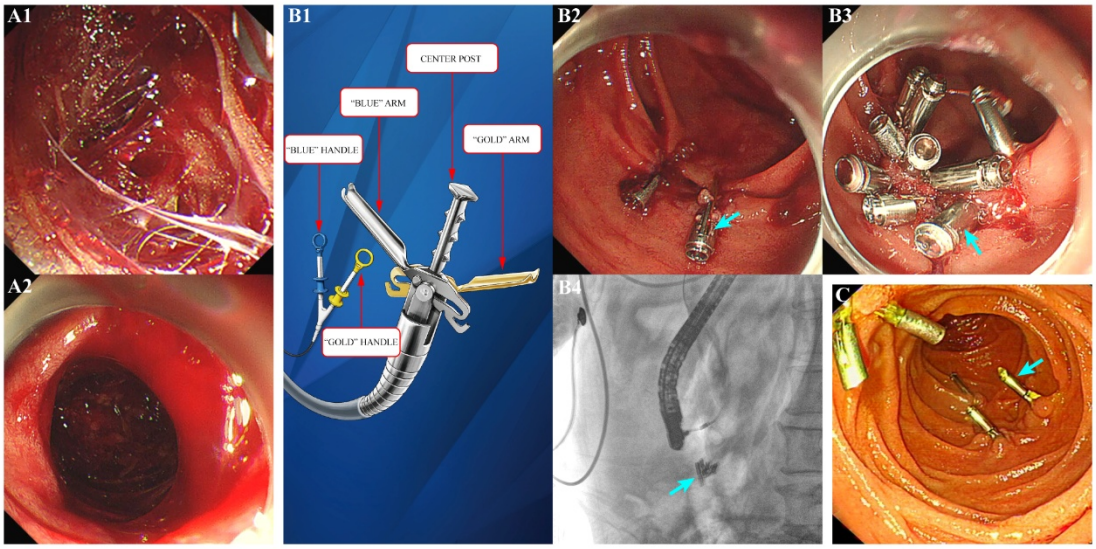

Figure A1: Visualization of retroperitoneal loose connective tissue at the perforation site.

Figure A2: Endoscopic view of the perforation (approximately 1.3 cm in diameter).

Figure B1: Schematic illustration of the primary structure of TTS-TC.

Figure B2: Post-deployment image of the TTS-TC (arrow) partially closing the perforation.

Figure B3: Complete closure of the perforation achieved by TTS-TC (arrow).

Figure B4: Fluoroscopic image showing the renal shadow (arrow indicating TTS-TC position).

Figure C: 6-month postoperative follow-up endoscopy showing retained TTS-TC arrow), with partial clip persistence.