

Massive Duodenal Ulcer Perforation Managed with Pyloric Exclusion and Endoscopic Retrograde Retrieval of Duodenostomy Tube: A Case Report

Nour AlGharabally MD, Shamlan ALQinai MD, Omar AISherif MD, Mohammed Noor MD, Khalid AlZamel MD, Fai AlWahhabi MD

Department of Surgery, Jaber Al Ahmad Hospital, Kuwait



BACKGROUND

- Duodenal ulcer perforation is a surgical emergency with mortality up to 30%
- Small perforations: primary repair or omental (Graham) patch
- Massive ulcers with friable edges, contamination, or proximity to ampulla require complex procedures
- Pyloric exclusion with gastrojejunostomy offers a viable damage-control option

PATIENT PRESENTATION

History of Present Illness:

- 75-year-old female with history of peptic ulcer disease, otherwise healthy
- One week of flu-like symptoms then 3 days of progressive generalized abdominal pain
- Denied fever, nausea, vomiting, or change in bowel habits

Physical Exam:

- Hemodynamically stable on admission
- Soft abdomen; mild epigastric tenderness; no peritoneal signs

Laboratory Data:

- Leukocytosis: WBC 12.44 x 10⁹/L; otherwise normal biochemical parameters

Imaging:

- AXR: Multiple air-fluid levels beneath right hemidiaphragm; no definitive pneumoperitoneum
- US: Perihepatic septated encapsulated fluid collection; features of acute calculous cholecystitis
- CT Abdomen: Hydropneumoperitoneum right subdiaphragmatic; gas-fluid pocket consistent with gastroduodenal perforation; free oral contrast extravasation into left iliac fossa

REFERENCES

Soreide K, et al. Perforated peptic ulcer. Lancet. 2015;386:1288-1298.
Bertleff MJ, Lange JF. Perforated peptic ulcer disease. Dig Surg. 2010;27:161-169.
Vaughan GD, et al. Pyloric exclusion in severe duodenal injuries. Am J Surg. 1977;134:785-790.

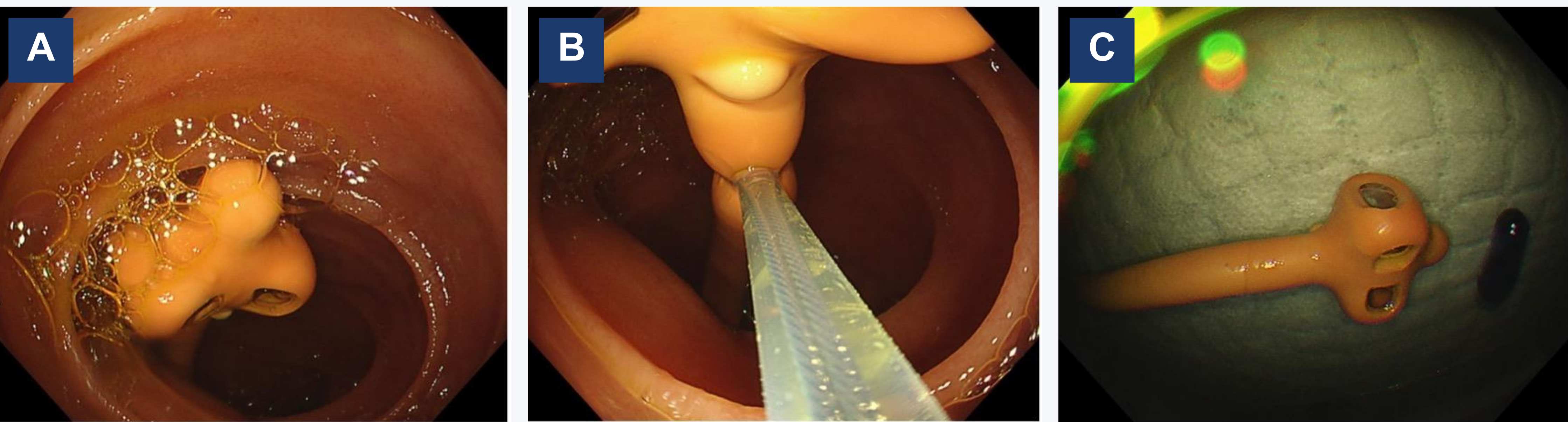


Figure 1: Scope at Malecot drain insertion site Figure 2: Snare extraction of Malecot drain Figure 3: Retrieved Malecot drain

CLINICAL COURSE

OPERATIVE
• Diagnostic laparoscopy converted to open due to extensive peritoneal contamination • 4.5 cm D1 perforation (~80% circumference); friable margins; dense omental adhesions; widespread pyogenic membrane • Ampulla of Vater involvement; RUQ inflammation precluded cystic duct cannulation • Vasopressor requirements → damage-control: pyloric exclusion + gastrojejunostomy + tube duodenostomy
POST-OP (ADMISSION)
• 1 day ICU monitoring, then surgical ward • POD9: octreotide initiated to reduce duodenostomy output; diet advanced gradually • 30-day hospital stay; discharged on antibiotics, PPIs, biweekly renal/electrolyte follow-up
WEEK 6
• Readmission: tube slippage + mild AKI • Managed with IV hydration; IR confirmed tube position; tube reinforced and clamped • US: no intra-abdominal collections
WEEK 9
• Elective endoscopic Malecot tube retrieval • Pediatric scope used for retrograde duodenal access via gastrojejunostomy limb • Fluoroscopic methylene blue + contrast confirmed intact duodenal tract • Drain snared and retrieved orally; discharged stable with full recovery

DISCUSSION

This case highlights the feasibility and advantages of pyloric exclusion and endoscopic duodenostomy tube retrieval for massive duodenal ulcer perforation.

Pyloric Exclusion

- Indicated when primary repair is tenuous: massive defect, friable edges, proximity to ampulla
- Diverts gastric contents, allowing duodenal healing under protection
- Combined with gastrojejunostomy maintains enteral continuity
- Tube duodenostomy decompresses stump and monitors output
- Preferred over upfront resection in hemodynamically unstable patients

Endoscopic Tube Retrieval

- Bedside removal risks disrupting a well-epithelialized tract
- Endoscopic approach enables direct mucosal visualization at insertion site
- Fluoroscopic guidance (methylene blue + contrast) confirms luminal integrity before withdrawal
- Pediatric scope may be required to navigate gastrojejunostomy limb retrograde into duodenum
- Snare retrieval via oral route is safe and well-tolerated

Conclusion

- Pyloric exclusion is a viable damage-control strategy for massive duodenal ulcer perforation where standard repair is not feasible
- Endoscopic retrieval of Malecot duodenostomy tube offers safety advantages: direct mucosal assessment, confirmation of luminal integrity, minimized tract disruption risk
- This combined approach should be incorporated into postoperative management protocols for complex duodenal perforations