

Treatment of Bouveret syndrome with stone fragmentation using an endoscopic submucosal dissection knife

CME



Robert Bechara, MD, Fiona Milne, MD, Mandip Rai, MD

INTRODUCTION

Bouveret syndrome is a rare form of gastric outlet obstruction secondary to an obstructing gallstone that has considerable morbidity and mortality. While surgical intervention remains the most common mode of treatment, there is growing literature on the endoscopic approach.¹ Previous reports have described the use of basket retrieval for smaller stones and mechanical lithotripsy, electrohydraulic lithotripsy (EHL), and holmium laser fragmentation for larger stones before retrieval.²⁻⁴ The endoscopic approach, when possible, offers a less invasive option with favorable outcomes.⁵ We present a case in which an endoscopic submucosal dissection needle knife was successfully used for stone incision and fragmentation of a large obstructing gallstone.

CASE PRESENTATION

A 61-year-old man with a 3-decade history of recurrent cholecystitis presented to the community emergency department with severe right upper quadrant pain. A CT scan was performed and revealed gangrenous cholecystitis with likely cholecystoduodenal fistulous communication (Fig. 1; Video 1, available online at www.videogie.org). The patient was conservatively managed with antibiotics and a cholecystostomy drain before being discharged with outpatient follow-up in the community.

The patient presented 2 months later with acute nausea, vomiting, and abdominal pain. A CT scan demonstrated gastric outlet obstruction secondary to a 5-cm stone in the

proximal duodenum (Fig. 1A). Endoscopic intervention was performed with the patient under general anesthesia with endotracheal intubation. The stone was visualized just distal to the pylorus with the fistula noted along the lateral duodenal wall (Fig. 1B). Initial attempts to remove the stone using a standard extraction balloon were unsuccessful. As EHL was unavailable at the time, the stone was then incised and fragmented using a triangle-tip knife, using the “Precise-SECT” mode on the electrosurgical unit (Fig. 1C). The stone fragments were retrieved from the stomach using a standard extraction balloon, then further fragmented with a mechanical lithotripter (Fig. 1D). The patient had an uncomplicated recovery and was discharged with plans for outpatient cholecystectomy.

CONCLUSION

This case report highlights the successful endoscopic management of Bouveret syndrome using an endoscopic submucosal dissection needle knife for stone incision and fragmentation. There are multiple reported endoscopic therapies for Bouveret syndrome, including simple stone retrieval, mechanical lithotripsy, EHL, and laser lithotripsy. These therapies have varying rates of success but may offer a therapeutic intervention as an alternative to surgery. Further studies are needed to explore the safety and efficacy of different endoscopic techniques and establish an optimal modality for the endoscopic management of Bouveret syndrome.

Abbreviation: EHL, electrohydraulic lithotripsy.

Copyright © 2024 American Society for Gastrointestinal Endoscopy. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>). 2468-4481

<https://doi.org/10.1016/j.vgie.2023.09.016>

Department of Medicine, Division of Gastroenterology, Kingston Health Sciences Center, Queen's University, Kingston, Ontario, Canada.

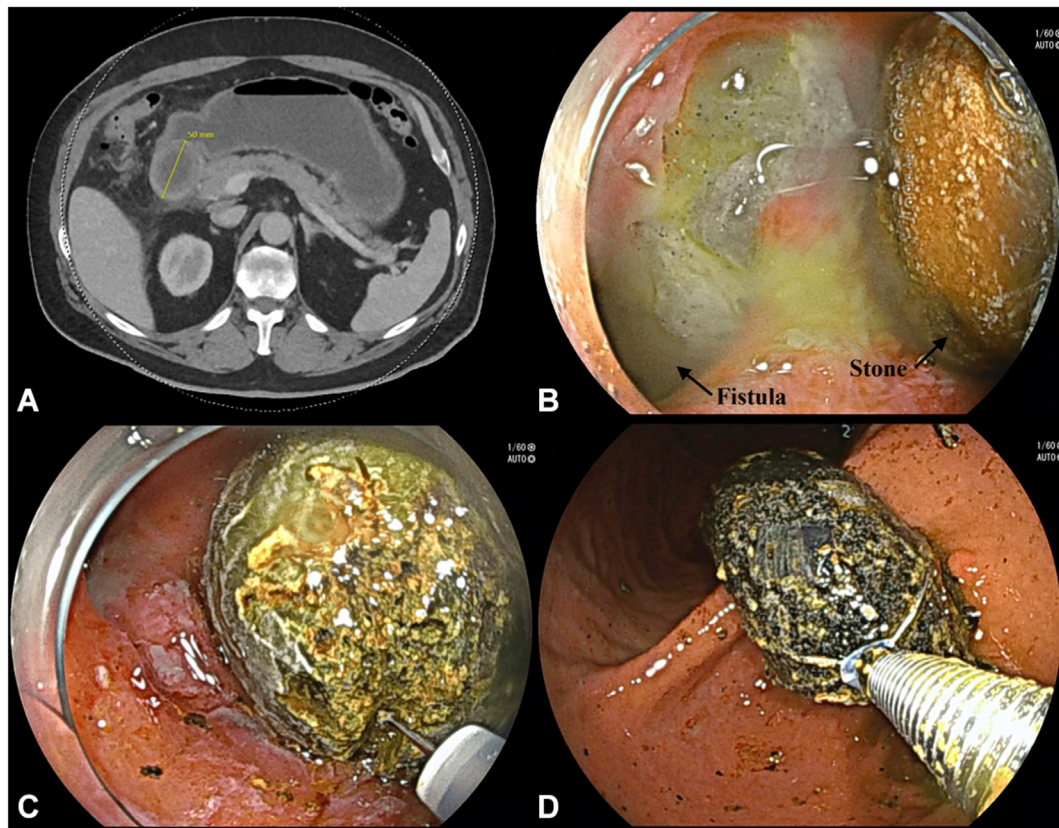


Figure 1. Bouveret syndrome management with a needle knife. **A**, CT scan demonstrating gastric outlet obstruction due to 5-cm stone in duodenal cap. **B**, View of the stone and fistula in the duodenal cap. **C**, Incision of the stone with the triangle-tip knife with waterjet. **D**, Mechanical lithotripsy of the fragmented stone.

DISCLOSURE

Dr Bechara is a consultant for Olympus, Pentax, Vantage, and Pendopharm. The other authors did not disclose any financial relationships.

REFERENCES

1. Koulaouzidis A, Moschos J. Bouveret's syndrome. Narrative review. *Ann Hepatol* 2007;6:89-91.
2. Makker J, Muthusamy VR, Watson R, Sedarat A. Electrohydraulic lithotripsy and removal of a gallstone obstructing the duodenum: Bouveret syndrome. *Gastrointest Endosc* 2015;81:1021-2.
3. Silva-Santisteban A, Mehta N, Trasolini R, Stone J, Pleskow DK. Endoscopic holmium laser lithotripsy for therapy of Bouveret syndrome. *VideoGIE* 2023;8: 115-7.
4. Dumonceau JM, Delhaye M, Devière J, Baize M, Cremer M. Endoscopic treatment of gastric outlet obstruction caused by a gallstone (Bouveret's syndrome) after extracorporeal shock-wave lithotripsy. *Endoscopy* 1997;29: 319-21.
5. Alemi F, Seiser N, Ayloo S. Gallstone disease: cholecystitis, Mirizzi syndrome, Bouveret syndrome, gallstone ileus. *Surg Clin North Am* 2019; 99:231-44.