

Bouveret's syndrome: A rare presentation of gallstone disease

S. Kavuturu, MD¹, V. Parithivel, MD¹, J. Cosgrove, MD¹

¹ Department of Surgery, Bronx Lebanon Hospital Center, Bronx, NY, USA

ABSTRACT

Biliary-enteric fistula is a rare complication of gallstone disease and gallstone ileus is relatively a rare cause of intestinal obstruction. In most cases, the stone lodges in the distal ileum, colon or duodenum. The least common site of obstruction is the proximal duodenum or pylorus causing gastric outlet obstruction (Bouveret's syndrome). Presenting signs and symptoms of Bouveret's syndrome include nausea, vomiting, epigastric pain, and abdominal distension. Obstructive jaundice, gastrointestinal hemorrhage with or without hematemesis, pancreatitis, and duodenal perforation are less common. Abdominal radiography may show air in the biliary tree, mechanical bowel obstruction and radio-opaque gallstone suggesting the diagnosis. Abdominal ultrasound or computerized tomography is diagnostic in about 60% of cases. In most cases the treatment of Bouveret's syndrome is surgical. Surgical options include: (a) a single-staged enterolithotomy (or gastrotomy) with concomitant cholecystectomy and repair of the fistula or (b) an enterolithotomy alone with or without a second-stage cholecystectomy. Endoscopic extraction of the stone has been described in selected patients. Lithotripsy techniques have also been successfully used to fragment large stones. The authors present a case of Bouveret's syndrome as well as a brief literature review of this topic.

Cite as: Kavuturu S, Parithivel V, Cosgrove J. OPUS 12 Scientist 2008;2(2):25-26.

Correspondence to: S. Kavuturu, MD. Department of Surgery, Bronx Lebanon Hospital Center, Bronx, NY, USA.

Keywords: Bouveret's syndrome, Gallstone disease, Diagnosis and management, Operative treatment, Endoscopy, Lithotripsy.

INTRODUCTION

Biliary-enteric fistula is a rare complication of gallstone disease and gallstone ileus is a relatively rare cause of intestinal obstruction. Most commonly the gallstone lodges in the distal ileum, colon or duodenum. The least common site of obstruction is the proximal duodenum or pylorus – a clinical scenario that may result in the development of gastric outlet obstruction. This clinical entity is known as Bouveret's syndrome. We describe a case of Bouveret's syndrome as well as a brief literature review on the topic.

CASE REPORT

A 60-year-old woman presented to the Emergency Department with a history of acute abdominal pain, nausea, and vomiting of 48 hours duration. The pain was localized to the epigastrium and right upper quadrant. Her past medical history was significant for diabetes, hypertension and asthma. She reported no history of any surgical procedures in the past.

Physical examination showed no jaundice. The patient had a distended abdomen with mild tenderness in the epigastric region,

but no peritoneal signs. Laboratory evaluation showed normal hepatic transaminases, normal bilirubin, and normal white blood cell count. Computed tomographic scan of the abdomen revealed air in the intra- and extra-hepatic biliary ducts, distended stomach and a 2-cm gallstone with characteristic eggshell-like calcification within the first part of the duodenum (**Figure 1**). The patient was treated with intravenous hydration and nasogastric suctioning.

After three days of nonoperative therapy, computed tomography of the abdomen was repeated, showing that the stone migrated into the terminal ileum. Due to lack of clinical improvement, the patient underwent a laparotomy and successful removal of the gallstone via an enterotomy. She was discharged from the hospital on the fifth postoperative day, with plans for elective treatment of the cholecysto-enteric fistula at a later date. She was doing well at the six-week follow-up.

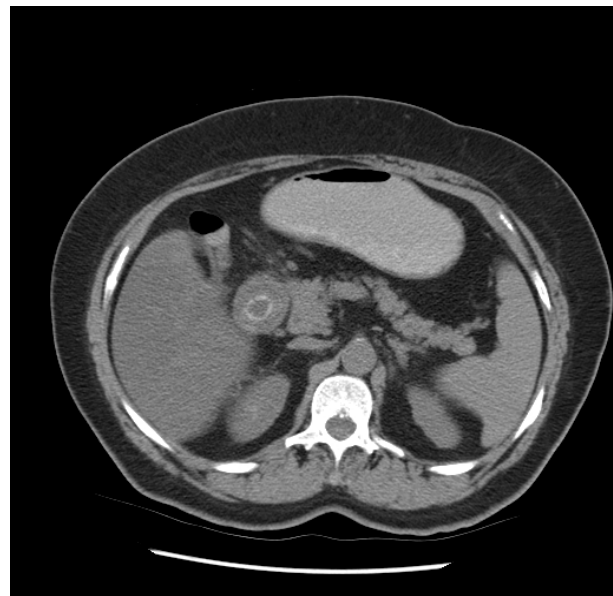


Figure 1. Computed tomography showing a 2-cm gallstone with characteristic eggshell-like calcification within the first part of the duodenum.

DISCUSSION

Biliary-enteric fistula is a rare complication of gallstone disease (incidence, 0.3-0.5%) and gallstone ileus is relatively a rare cause of intestinal obstruction (3%). Most commonly the stone lodges in the distal ileum (90%), colon (3%-8%) or duodenum (3%). The least common site of obstruction is the proximal duodenum or pylorus causing gastric outlet obstruction, which is known as Bouveret's syndrome. The condition's presenting clinical signs and symptoms usually include nausea, vomiting, epigastric pain, and abdominal distension. Obstructive jaundice, gastrointestinal hemorrhage with or without hematemesis, pancreatitis, and

duodenal perforation are less common but well-known characteristics of this syndrome.¹

Abdominal roentgenograms may show air in the biliary tree, mechanical bowel obstruction, and radio-opaque gallstone suggesting the diagnosis.²⁻³ According to a review of 128 cases of Bouveret's syndrome, endoscopy revealed gastroduodenal obstruction in nearly all cases but identified the obstructing stone in only 69% of cases. Abdominal ultrasound or computerized tomography was diagnostic in about 60% of cases.⁴

In most cases the treatment of Bouveret's syndrome is surgical. The surgical options include: (a) a single-staged enterolithotomy (or gastrotomy) with concomitant cholecystectomy and repair of the fistula; or (b) an enterolithotomy alone with or without a second-stage cholecystectomy. Endoscopic extraction of the stone is described in selected patients in whom it is technically possible to dislodge and engage the stone in a Dormia basket.⁵⁻⁶ Extracorporeal shockwave lithotripsy⁷, electrohydraulic lithotripsy⁸, and laser lithotripsy⁹ have also been successfully used to fragment large stones.

CONCLUSIONS

The authors presented a case of Bouveret's syndrome in a 60-year-old woman. This diagnosis should be considered in patients with symptoms of gastric outlet obstruction, especially in the setting of known history of gallstones. Concurrent aerobilia may be present. Abdominal ultrasound or computerized tomography is diagnostic in about 60% of cases. In most cases the treatment is surgical. Endoscopic treatment should be considered, especially in high-risk surgical patients.

REFERENCES

- [1] Fenchel RF, Krige JE, Bornman PC. Bouveret's syndrome complicated by acute pancreatitis. *Dig Surg* 1999;16:525-527.
- [2] Schweiger FJ, Shinder R. Duodenal obstruction by a gallstone (Bouveret's syndrome) managed by endoscopic stone extraction: a case report and review. *Can J Gastroenterol* 1997;11:493-496.
- [3] Clavien PA, Richon J, Burgan S, Rohner A. Gallstone ileus. *Br J Surg* 1990;77:737-742.
- [4] Cappell MS, Davis M. Characterization of Bouveret's syndrome: A comprehensive review of 128 cases. *Am J Gastroenterol* 2006;101:2139-2146.
- [5] Bedogni G, Contini S, Meinero M, Pedrazzoli C, Piccini GC. Pyloroduodenal obstruction due to a biliary stone (Bouveret's syndrome) managed by endoscopic extraction. *Gastrointest Endosc* 1985;31:36-38
- [6] Torgerson SA, Greening GK, Juniper K, Farrell RL. Gallstone obstruction of the duodenal cap (Bouveret's syndrome) diagnosed by endoscopy. *Am J Gastroenterol* 1979;72:165-167.
- [7] Holl J, Sackmann M, Hoffman R, Schussler P, Sauerbruch T, Jungst D. Shockwave therapy of gastric outlet syndrome caused by gallstone. *Gastroenterology* 1989;97:472-474.
- [8] Fujita N, Noda Y, Kobayashi G, Katsumi K, Watanabe H, Shirane A. Gallstone ileus treated by electrohydraulic lithotripsy. *Gastrointest Endosc* 1992;38:617-619.
- [9] Maiss J, Hochberger J, Hahn EG, Lederer R, Schneider HT, Muehldorfer S. Successful laserlithotripsy in Bouveret's syndrome using a new frequency doubled doublepulse Nd:YAG laser (FREDDY). *Scand J Gastroenterol* 2004;39:791-794.

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit and that copies bear this notice and the full citation on the first page. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior permission and/or a \$5.00 fee.

OPUS 12 Scientist – A Quarterly Publication of OPUS 12 Foundation.
© 2007-2008 OPUS 12 Foundation, Inc., King of Prussia, PA 19406 USA.