

Image Quiz for Surgeons

Chirurgia (2016) 111: 283-285
No. 3, May - June
Copyright© Celsius

Bouveret Syndrome - An Exceptional Complication of a Very Frequent Disease

Daniel Gavrilă¹, Cosmin Galusca¹, Madalina Berbecel², Mirela Boros³, Traian Dumitrascu¹

¹Center of General Surgery and Liver Transplant; ²Intensive Care Unit; ³Radiology and Medical Imaging Department
Fundeni Clinical Institute, Bucharest, Romania

Rezumat

Sindromul Bouveret – o complicație de excepție a unei maladii frecvente

Sindromul Bouveret reprezintă o complicație rară a litiazei biliare. Este prezentat cazul unui pacient cunoscut cu litiază biliară care ulterior s-a complicat cu stenoză digestivă înaltă. Sunt descrise simptomatologia, semnele clinice, aspectele imagistice și conduita terapeutică.

Cuvinte cheie: litiază biliară; sindrom Bouveret; stenoză digestivă înaltă

Abstract

The Bouveret syndrome is an exceptional complication of the gallbladder lithiasis. Hereby it is described the case of a patient with a history of gallstones complicated on the long-term outcome with gastric outlet obstruction, due to a large gallstone of the duodenum, migrated via a cholecysto-duodenal fistula. The clinical, radiological features and the patient management are described.

Corresponding author:

Traian Dumitrascu, MD, PhD
Center of General Surgery and Liver
Transplant, Fundeni Clinical Institute,
Fundeni Street no 258, 022328, Bucharest, RO
E-mail: traian.dumitrascu@srchirurgie.ro

Key words: gallbladder lithiasis, Bouveret syndrome, gastric outlet obstruction

Introduction

Gallstones are an important healthcare problem worldwide, albeit geographical disparities were observed. In the European countries the age-adjusted necropsy prevalence of gallstones varies between 3.4% and 13.2% in males, and between 6.8% and 33.7% in females (1,2). Overall, the prevalence of gallstones in the ultrasound surveys performed in Europe varies between 5.9% and 21.9% (1,2). The prevalence of gallstones increases with age, and it is the highest between 60 and 80 years (2).

It appears that in most of the cases the gallstones remain asymptomatic during a lifetime (2). Cholecystitis represents the most frequent complication of the symptomatic gallstones (3).

Biliary ileus represents an uncommon complication of the gallstones; thus, only 0.3% – 0.5% of the patients with known gallstones will develop a biliary ileus (4-6). However, biliary ileus is considered a severe complication due to its high morbidity and mortality rates (4;6). Furthermore, a gallstones ileus accounts about 1% to 4% of the causes of mechanical intestinal obstruction (4-6).

Hereby, it is presented the diagnosis and surgical management in a patient with gastric outlet obstruction due to a duodenal gallstone, migrated via a cholecysto-duodenal fistula.

Case report

A 74-year-old Caucasian man, with aortic metallic valve replacement, chronic anticoagulation and known asymptomatic gallbladder lithiasis for several years, presented at the emergency with a 48-hours history of nausea and vomiting. The physical examination revealed succussion splash in the left upper quadrant of the abdomen; thus, a naso-gastric tube was inserted and about 2,000 ml of gastric content was rapidly evacuated. Laboratory tests showed a white cell count of 12,200 per cubic millimeter, elevated serum creatinine levels of 2 milligrams per deciliter and elevated blood urea nitrogen levels of 100 milligrams per deciliter. Abdominal computed tomography showed the presence of gas into the gallbladder wall (Fig. 1 A, filled white arrow), pneumobilia (Fig. 1 A, open white arrow) and a large gallstone in the duodenum (Fig. 1 B, open white arrow), with secondary dilated stomach (Fig. 1, white asterisk). It was also observed an air-filled fistula that extends from the gallbladder fosa to the first part of the duodenum (Fig. 1 B, filled white arrow).

At laparotomy it was revealed acute gangrenous cholecystitis (Fig. 2, open white arrow), a cholecysto-duodenal fistula (Fig. 2, filled white arrow) and a large gallstone (6 cm) in the first part of the duodenum (Fig. 2, white asterisk). Removal of the gallstone from the duodenum was performed, along with cholecystectomy and suture of the duodenal defect. The postoperative outcome was uneventful and the patient was discharged on the postoperative day 10 (Fig. 3).

Discussion

Although gallbladder lithiasis is a common disease worldwide, however, a Bouveret syndrome represents an exceptional complication, and few cases were previously reported (7). Thus, a Bouveret syndrome represents only 3% - 6% of the patients with a gallstone ileus (4).

The main presenting symptoms for a Bouveret syndrome are nausea, vomiting and abdominal pain (7).

The pathogenesis of this clinical entity is the gallbladder that becomes adherent to the duodenum due to the inflammation and wall erosion induced by the presence of a usually large gallstone that is discharged through a cholecysto-duodenal fistula (6).

The diagnosis of a Bouveret syndrome is sometimes challenging and includes both clinical and imaging signs. The imaging Rigler triad (duodenal obstruction with a dilated stomach, pneumobilia and ectopic gallstone in the duodenum) is highly suggestive for the diagnosis (8).

Endoscopy (with or without lithotripsy) is usually the first therapeutical option, particularly in patients with an influenced biological status, but surgery has the highest successful rate, at the expense of relatively high morbidity and mortality rates (4,6,7).

A recent review discusses the benefits and risks of a one-stage vs. two-stage surgery for gallstone ileus (9). It appears that entero-lithotomy alone or followed by a delayed (two-stage) treatment (cholecystectomy and cholecysto-duodenal fistula repair) is the preferred approach because it was associated with

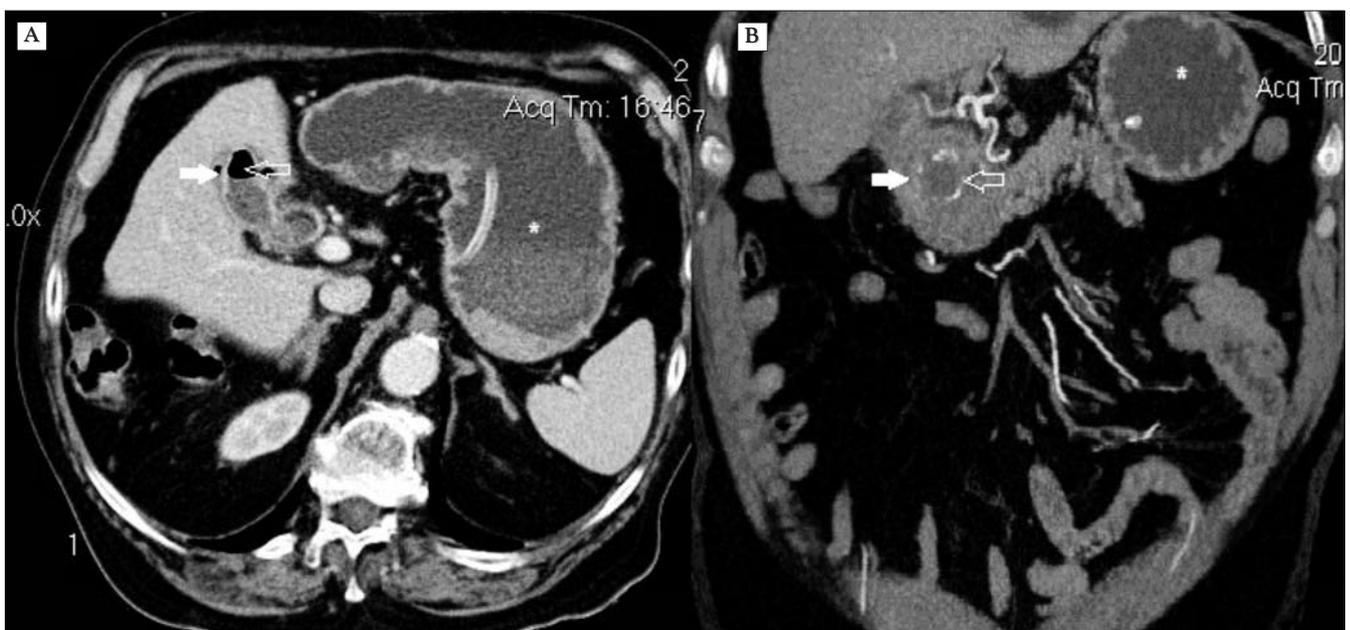


Figure 1. Abdominal computed tomography showing (A) the presence of gas in the gallbladder wall (filled white arrow) and pneumobilia (open white arrow); (B) a large gallstone in the duodenum (open white arrow) with secondary dilated stomach (white asterisk) and an air-filled fistula that extends from the gallbladder fosa to the first part of the duodenum (filled white arrow).

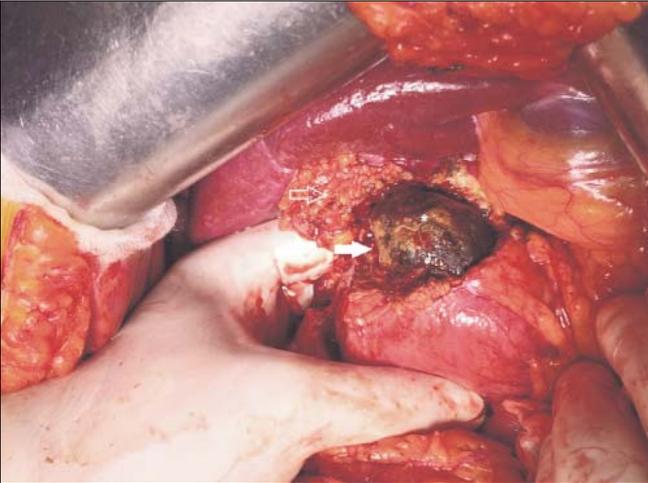


Figure 2. Intraoperative aspects at laparotomy showing acute gangrenous cholecystitis (open white arrow), a cholecysto-duodenal fistula (filled white arrow) and a large gallstone (6 cm) in the first part of the duodenum (white asterisk)



Figure 3. Barium X-ray examination on the postoperative day 7 showing normal passage into the jejunum and no duodenal fistula

low morbidity and mortality rates (9). In the above presented case, the one-stage surgery was mandatory due to the concomitant diagnosis of acute gangrenous cholecystitis. The association of a Bouveret syndrome with acute gangrenous cholecystitis was previously reported (10).

Recently, it was proposed a surgical strategy approach for patients with Bouveret syndrome (11). Thus, in young patients, with good health condition and acceptable local tissue a one-stage procedure is recommended (duodeno-lithotomy, cholecystectomy and cholecysto-duodenal fistula repair) (11). In high risk patients with poor local tissue situation a two-stage procedure is recommended – first simple duodeno-lithotomy followed at a later time (if there are recurrent biliary complications) by cholecystectomy and fistula repair (11).

Conclusion

This case illustrates the possibility of migration of a large gallstone into the duodenum with secondary gastric outlet obstruction. The diagnosis of a Bouveret syndrome should be clinically suspected, particularly in a patient known with gallstones, and furthermore confirmed by imaging techniques or endoscopy. One-stage or two-stage surgery represents the best approach, with the highest successful rate.

References

1. Acalovschi M. Cholesterol gallstones: from epidemiology to prevention. *Postgrad Med J* 2001; 77(906):221-9.
2. Aerts R, Penninckx F. The burden of gallstone disease in Europe. *Aliment Pharmacol Ther* 2003; Suppl 3:49-53.
3. Festi D, Reggiani ML, Attili AF, Loria P, Pazzi P, Scaioli E, et al. Natural history of gallstone disease: Expectant management or active treatment? Results from a population-based cohort study. *J Gastroenterol Hepatol* 2010; 25(4):719-24.
4. Beuran M, Venter DM, Ivanov I, Smarandache R, Iftimie-Nastase I, Venter DP. Gallstone ileus. *Annals of Academy of Romanian Scientists* 2012; 3(1):5-28.
5. Brezean I, Aldoescu S, Catrina E, Fetche N, Marin I, Pacescu E. Gallstone ileus: analysis of eight cases and review of the literature. *Chirurgia* 2010; 105(3):355-9.
6. Mates IN, Constantinoiu S. Biliary ileus. In: Popescu I, editor. *Textbook of hepato-bilio-pancreatic surgery and liver transplant*. Bucharest, Romanian Academy Publishing House; 2016. p. 657-73.
7. Cappell MS, Davis M. Characterization of Bouveret's syndrome: a comprehensive review of 128 cases. *Am J Gastroenterol* 2006; 101(9):2139-46.
8. Brennan GB, Rosenberg RD, Arora S. Bouveret syndrome. *Radiographics* 2004; 24(4):1171-5.
9. Mir SA, Hussain Z, Davey CA, Miller GV, Chintapatla S. Management and outcome of recurrent gallstone ileus: A systematic review. *World J Gastrointest Surg* 2015; 7(8):152-9.
10. Iancu C, Bodea R, Al Hajjar N, Todea-Iancu D, Bala O, Acalovschi I. Bouveret syndrome associated with acute gangrenous cholecystitis. *J Gastrointest Liver Dis* 2008; 17(1):87-90.
11. Nickel F, Muller-Eschner MM, Chu J, von Tengg-Kobligk H, Muller-Stich BP. Bouveret's syndrome: presentation of two cases with review of the literature and development of a surgical treatment strategy. *BMC Surg* 2013; 13:33. doi: 10.1186 / 1471-2482-13-33.