

CASE REPORT

BOUVERET'S SYNDROME IN MELBOURNE

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Key words: Bouveret's syndrome, gallstone ileus.

Abbreviations: CT, computed tomography; LFT, liver function test; PDS, polydioxanone suture.

INTRODUCTION

We describe a rare case of Bouveret's syndrome. Bouveret's syndrome is gastric outlet obstruction caused by a large gallstone impacted in the duodenal bulb, initially described by Bonnet in 1841¹ and Leon Bouveret in 1896.² Several surgical options exist for the management of cholecystoenteric fistula and we have performed an enterolithotomy, extraction of the gallstones, closure of the internal fistula and open cholecystectomy as a one-stage procedure.

CASE REPORT

An 84-year-old woman with severe dementia, who resides at a nursing home, presented with a 4-day history of persistent nausea and vomiting bilious fluids, associated anorexia and mild dehydration. Her other medical problems included pernicious anaemia. Full blood examination, urina, electrolytes and creatinine and liver function tests (LFT) were unremarkable. Abdominal X-ray revealed a distended stomach, pneumobilia and two large radio-opaque gallstones.

To further elucidate the cause of the gastric outlet obstruction, abdominal computed tomography (CT) was ordered, which demonstrated a large calculus in the second part of the duodenum causing distention of the proximal duodenum and stomach. A second large gallstone was found in the lumen of the gallbladder. Due to the degree of dementia and the patient's mental state, no oral contrast was given.

The patient proceeded to surgery the following day. A Kocher's incision was made and duodenotomy performed for the second part of the duodenum. This was followed by removal of a 5 cm duodenal stone, closure of the fistula with 3/0 polydioxanone suture (PDS) and an open cholecystectomy to remove the 6 cm gallstone. The procedure was completed with a retrocolic gastroenterostomy given the extent of the duodenotomy.

The inpatient hospital stay was unremarkable. The patient was commenced on oral fluids on day 4, solids on day 5 and discharged on day 10.

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Fig. 1. Plain abdominal X-ray showing gross distension of stomach and outline of radio-opaque stones on the right side.

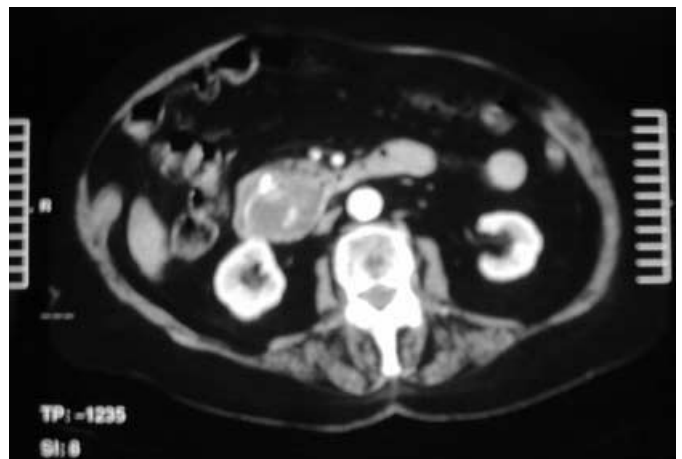


Fig. 2. CT scan of abdomen showing large calculus occluding duodenum.



Fig. 3. Two gallstones, with matching facets, removed at surgery in this case.

DISCUSSION

Patients with Bouveret's syndrome are usually over 60 years of age, although the youngest patient reported was 25 years. The surgery in the present case was a (diagnostic) laparotomy, dissection of the cholecystoduodenal fistula, duodenotomy, extraction of a gallstone and the cholecystectomy as a one-stage procedure.³

Cholecystoenteric fistula complicates 0.3–0.5% of patients with cholelithiasis. The most common fistula is cholecystoduodenal (60%), then cholecystocolic (17%), cholecystogastric (5%) and choledochoduodenal (5%). However, more than 80% of these stones are so small that they are passed in the stools without causing obstruction;⁴ only 6% of the cases develop clinical intestinal obstruction.⁵ Stones impacted in the terminal ileum range between 50 and 75% and in the proximal ileum and jejunum 20–40%, but duodenal obstruction is rare, accounting for less than 5%.^{4–6}

The typical presentation of Bouveret's syndrome is one of bilious vomiting and gastric dilation in contrast with a more distal obstruction. Jaundice and abnormal LFT are found in approximately one-third of patients.⁵

Diagnosis can be made on plain abdominal X-rays. The classical Rigler's triad of distended stomach, pneumobilia and ectopic radio-opaque gallstones is found in approximately one-third of cases.⁷ Ultrasound is extremely useful in detecting a fistula, impacted stones or choledocholithiasis. Contrast radiology can be a means to identify both the course of the fistula and the level of the obstruction. On CT, pneumobilia and a filling defect representing the stone may be seen in the duodenum.⁸ Bouveret's syndrome was reported to be demonstrated by CT for only the second time in the literature in 1995.⁹

Gastroduodenoscopy can visualize stones impacted in the duodenum. Extracorporeal shock wave lithotripsy of a 4.5 cm gallstone and endoscopic extraction of the multiple fragmented stones has been described.¹⁰ The success will depend on the diameter of the stone and applicable force of the instrument. Extraction of a gallstone via an endoscope may be a hazardous procedure in patients with large stones because lacerations and perforations may occur. Endoscopic treatment does not correct the cholecystoduodenal fistula and could not examine for additional stones in the intestinal lumen distally.¹¹

Surgery remains the treatment of choice for gallstone obstruction. The mortality rates have been quoted to be as high as 20–30% for gallstone ileus,¹² the dangers are reflected by the advanced age of the patient and the associated comorbidities. However, controversy exists between simple enterolithotomy or enterolithotomy in association with cholecystectomy and correction of the internal fistula as a one- or two-stage procedure. The potential complications for non-closure of the fistula include cholangitis, cholecystitis, recurrent ileus, erosion of mucosal blood vessels during passage of the gallstone and gall-bladder carcinoma. In most cases of Bouveret's syndrome, gastrointestinal bleeding develops from an ulcer in the duodenal bulb caused by the impacted stone and a massive arterial bleed can occur from an eroded cystic artery.^{13,14}

The treatment of biliary tract disease does not appear to increase the mortality rate provided the patients are not shocked and have been fully resuscitated. There have been reports to suggest the concomitant one-stage repair for gallstone ileus significantly reduces the overall mortality rate compared with the single enterolithotomy alone and later cholecystectomy, with a beneficial mortality rate of 6% compared with the quoted 20–30%.¹⁵ Extended operation time alone does not affect the outcome but, more importantly, prompt diagnosis and early surgical intervention do. Concomitant repair is said to be advantageous, especially because multimorbid patients may require the support of intensive medical care. The single-stage procedure has the advantage of subjecting the patient to only one general anaesthetic.

Others would recommend that secondary cholecystectomy and fistula repair should only be performed in patients with symptomatic or recurrent biliary disease, taking the view that morbidity relating to the biliary enteric fistula after removal of the impacted stone is low.¹⁶ In Japan, this combined one-stage procedure has resulted in a higher mortality (19%) than enterotomy alone (12%).⁶

In our case, we elected to perform an enterolithotomy, closure of the internal fistula and open cholecystectomy as a one-stage repair to remove both stones, each measuring more than 5 cm and which would have been difficult to remove otherwise, and for definitive cure of the disease to prevent future complications with the residual fistula. With the rapid relief of the symptoms of gastric outlet obstruction and the uncomplicated stay in hospital, we believe our choice of surgery in this particular case of Bouveret's syndrome was correct.

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