



Case Report

Gastric Outlet Obstruction Due To Impacted Gall Stone-“Bouveret’s Syndrome - A Case Report and Review

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ABSTRACT

Gallstone ileus is an uncommon condition accounting for only 1-2 % of all mechanical small Bowel Obstruction. Gastric outlet obstruction due to impaction of gall stones in the duodenum was first reported by BOUVERET in 1896. Since the first case report, very few cases have been documented in the literature. Here we report a case of Bouveret’s Syndrome as heightened awareness of this syndrome may lead to decreased morbidity and mortality.

Keywords: Gall stone, Bouveret syndrome, Gastric outlet obstruction.

INTRODUCTION

Gallstone ileus is mechanical obstruction of the intestine caused by impaction of a gall stone, and accounts for 1 – 2 % of all mechanical small Bowel Obstruction.^[1-6] The point of obstruction may be anywhere along the intestine but generally, the larger the stone the more proximal the obstruction. Duodenal obstruction remains rare and is usually seen in patients with long standing gall stone disease with previous acute or chronic cholecystitis. The rarity of this syndrome and lack of awareness of this condition often results in a delay in the diagnosis and proper management leading to increased morbidity and mortality.

Thus we present a case of Bouveret’s Syndrome and its subsequent management

thereby highlighting the emergent need for early diagnosis and proper management that can be lifesaving and prevent many life threatening complications.

CASE PRESENTATION

A 60 year old female patient presented to us with 15 days history of right upper abdominal pain, nausea, vomiting (nonbilious, non projectile, non-blood tinged) and abdominal distension since 3 days.

She had a previous history of hospitalization for an acute episode of cholecystitis with cholelithiasis as evidenced by an old ultrasound abdomen reports and discharge card; she was planned for an elective lap cholecystectomy after 1 month.

On examination, patient was febrile, conscious, co-operative well oriented with time place & person with pulse rate of 98 beats per minute, BP of 120 / 80 mm Hg, general physical examination was unremarkable. Per abdominal examination - soft, tenderness and localized guarding over the right hypochondrium, mild abdominal distention with sluggish bowel sounds. Other systems were normal.

A working diagnosis of small bowel obstruction was made and patient was admitted for further evaluation and management, and was kept NBM (Nil by mouth), ryles tube aspiration with prompt intravenous resuscitation was started along with urinary catheterization, a watch on abdominal distention was kept by serial monitoring of abdominal girth and patient was subjected to required tests for further evaluation.



Figure1: Ultrasound abdomen showing impacted gallstone and dilated stomach.

All laboratory investigation including LFT (Liver function tests) were within normal limits. Chest X ray (PA view) showed no air under the diaphragm, Erect X-ray abdomen showed pneumobilia with mild dilatation of stomach. Upper G.I (Gastro intestinal) endoscopy revealed a large hard non fleshy mass occupying whole

lumen of second part of duodenum with ulceration of visible surrounding mucosa which was not retrievable endoscopically. Ultrasound showed gallstone with dilated stomach. Emergency CECT(Contrast enhanced CT) abdomen was done which showed impacted calculus in the neck of gall bladder with cholecystitis causing oedema and compression of second part of duodenum (Wall) and CBD (Common bile duct) resulting in GOO(Gastric outlet obstruction), suggestive of Mirizzi's syndrome. MRCP showed prominent hypo intense focus in the neck.

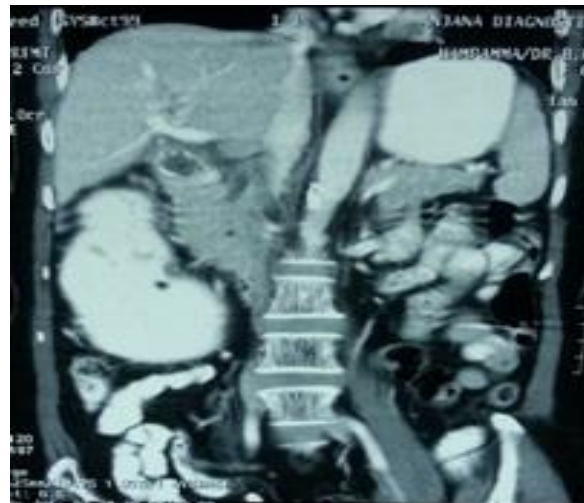


Figure 2: CECT Abdomen showing impacted gallstone in the neck of gallbladder, causing odema and compression of second part of duodenum and CBD. Dilated stomach also visualized.



Figure 3: MRCP showing Isoattenuating stones.

DISCUSSION

Gallstones disease is common with a high prevalence, however it is symptomatic in only 20-30% of the patients.^[1-8] The most common complications are – Acute cholecystitis, Acute pancreatitis and ascending cholangitis, less frequent complications include Mirrizi's syndrome, cholecystocholedochal fistula and gallstone ileus.

Gallstone ileus is mechanical obstruction of the intestine caused by the impaction of a gallstone seen in 0.3-0.5 % of all the patients with cholelithiasis,^[1] that occurs due to migration of the gallstone via fistula formation between the extrahepatic biliary system and G.I.T,^[8] as seen in our case.

In patients with gallstones, repeated attacks of cholecystitis set up a pericholecystic inflammatory process with the result that the gall bladder may become firmly adherent to some part of G.I.T, thus forming a fistula through which the gallstone migrates. Our patient also had repeated attacks of acute cholecystitis in the past,^[9,10] Less than 1% of gallstones migrate into the gut causing 25% of non-strangulated small bowel obstruction in the elderly population. Stones smaller than 2-3cm usually pass viz are either vomited or evacuated spontaneously via rectum. Gallstone must be at least 2.5 cm in diameter to cause intestinal obstruction in the normal bowel.^[11,12] The gallstone found in our case measured approximately 5.4 cm. The most common locations of biliary enteric fistula in decreasing order of incidence are cholecystoduodenal, cholecystocolonic, cholecystogastric and choledochoduodenal.^[8]

Cholecystoduodenal fistula is the most common type and accounts for 75-80% of the biliary fistulas,^[13] and results in the migration of the gallstone into the duodenum. Gastric outlet obstruction

syndrome due to a cholecystoduodenal fistula and impaction of a gallstone in the duodenum is known as “Bouveret's Syndrome”.

The first case of Bouveret's syndrome was first reported in 1896 by Bouveret.^[14] Its incidence is around 3% in all patients with gallstone ileus,^[3,13,15] risk factors being age>70 years, female gender, gallstone larger than 2.5 cm and post-surgical altered G.I anatomy^[16] mean age being 74.1 ± 11.1 years with Male: Female = 1.86.^[17]

The clinical features are non-specific and range from nausea, vomiting, abdominal pain or discomfort, haemetemesis,^[18] anorexia, constipation, melena and early satiety. Haemetemesis and malena are due to bleeding that might be seen in 8 % of the cases and it could be secondary to the stone or due to the erosion of the gastroduodenal artery or from the erosion of the cystic or hepatic artery.^[19,20] However all classic features are not shown by all patients, our patient presented with only features of intestinal obstruction. Common signs include dehydration, abdominal distension, obstructive jaundice, and pyrexia,^[21] electrolyte abnormalities.^[9]

A combination of investigations is required for establishing the diagnosis. Plain X-ray Abdomen is the first step in the approach to these patients so that surgery can be performed as early as possible^[22], as it is shown to be diagnostic in 21% of the cases^[18] Findings include-air in the biliary tree (pneumobilia) may or may not have a visible calculus just over the right border of the transverse process of T₁₂-L₁ vertebrae^[23] and was present in our case. Subsequent plain abdominal radiographs may be useful to demonstrate the migration of the gallstone^[24] contrast X-rays can also be taken to enhance the fistula but in our case emergency operative intervention was

applied rather than delaying for further subsequent X-rays.

Ultrasonography may reveal gallstone in 75% of the patients with Bouveret's syndrome, of which 23% in duodenum and pneumobilia in 45% of cases is seen. Ultrasonography is difficult, due to the overlying bowel gas, but if successful it depicts the "Double Arch sign" which is considered pathognomonic as shown in a study by DuQuesnay^[25,26] but not seen in all cases. Our case showed fluid filled distended stomach, contracted gall bladder, thickened gall bladder wall and dilated duodenum features as mentioned by Cappell M.S, Davis M.^[17]

Gastroscopy and upper G.I endoscopy reveals gastro duodenal obstruction in virtually all cases and may show obstructing stone in 69% of cases also seen in our case. The first diagnosis of Bouveret's syndrome by gastroscopy was made by Grove in 1976^[10] and first endoscopic retrieval achieved by Bedogni et al in 1985^[27] but it can't be retrieved endoscopically if stone is big as in our case.

Abdominal CT showed pericholecystic inflammatory changes extending into the duodenum, air in the gall bladder, pneumobilia or cholecystoduodenal fistula filling defects (Gallstones), thickened gall bladder wall, contracted Gall bladder, and a gastro duodenal mass or lesion as shown in a study by Cappell M.S, Davis M.^[17,10]

"Rigler's triad" is pathognomonic for the bile stone ileus and consists of ectopic gallstone, pneumobilia, distended stomach, and is either identified by plain abdominal X-ray or CT scan and was present in our case, as evident by pneumobilia in X-ray, distended stomach on USG and gallstone, but It might not be complete in all patients.^[28,29] MRCP is also useful especially if the patient is unable to tolerate oral contrast material and if easily available as in

our case, it showed isoattenuating stones. It was first described by Pickhardt et al.^[30,31]

Thus although Bouveret's syndrome is an atypical variant of a relatively rare disease, a timely diagnosis with appropriate imaging is possible and important. Treatment options include endoscopic and surgical management. Endoscopic removal should always be tried first; however the success rate of this procedure is just 30-40%. Other minimally invasive techniques such as laser lithotripsy and extra corporeal shock wave lithotripsy or intra corporeal endoscopic electrohydraulic lithotripsy^[32] are available. Endoscopic retrieval couldn't be achieved in our case owing to the bigger size of the stone.

Surgical options include Enterolithotomy or gastrotomy with or without cholecystectomy and fistula repair, with gastrojejunostomy may be done as they have high success rate as done in our case owing to the acceptable surgical morbidity and mortality proved in a study by Cappell M.S, Davis M.^[17]

In low risk patients, staged laparoscopy also appears to be safe^[33] however in such patients imaging of biliary tree is essential to detect silent choledocholithiasis.^[34] Fistula repair is considered unnecessary as fistula may spontaneously close, especially if the cystic duct is patent and residual gallstones are not present.^[35] The decision to use minimal invasive surgery versus laprotomy should be made as on individual patient basis and operator experience.

CONCLUSION

This case of gastric outlet obstruction due to gallstone ileus in a 60yr old lady presenting with features of intestinal obstruction clearly illustrates the considerable morbidity and mortality associated with Bouveret's syndrome. 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.

Therefore, although Bouveret's is an atypical variant of a relatively rare disease, pre operatively establishing the diagnosis is a challenge and post operatively managing the complications even more challenging. Therefore heightened awareness of this syndrome, a timely diagnosis with appropriate imaging and management may lead to decrease in morbidity and mortality.

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