**INTRODUCTION**

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).1 Bouveret's syndrome originally described by Léon Bouveret in 1896, is a very rare condition and constitutes less than 5% of cases of gallstone ileus.2 It is reported to occur more commonly in women (65%).3 As it often occurs in elderly population, it is associated with a higher rate of morbidity and mortality. Presenting signs and symptoms of Bouveret's syndrome include nausea, vomiting, epigastric pain, and abdominal distension. Obstructive jaundice, gastrointestinal haemorrhage with or without haematemesis, pancreatitis, and duodenal perforation are less common.4 Abdominal radiography may show air in the biliary tree, mechanical bowel obstruction and radiopaque gallstone suggesting the diagnosis. Abdominal ultrasound or computerized tomography is diagnostic in about 60% of cases. Due to the large size of these stones and the difficult location in which they become impacted, endoscopic treatment is unsuccessful and most patients require surgery. Surgical options include: a single-staged enterolithotomy (or gastrotomy) with concurrent cholecystectomy and repair of the fistula, or an enterolithotomy alone with or without a second-stage cholecystectomy. Lithotripsy techniques have also been successfully used to fragment large stones. Endoscopic extraction of the stone has been described in selected patients.

We described an unusual case of large obstructing gallstone impacted in third part of duodenum (D3) and its successful endoscopic treatment. Heightened awareness of this syndrome may lead to decreased morbidity and mortality which was the main reason of reporting the case.

**CASE REPORT**

A 62 years old female, known case of hypertension and gouty arthritis, was admitted in the Gastroenterology department with 5 days history of nausea, persistent vomiting and upper abdominal pain. The past medical history revealed cholelithiasis, otherwise un-remarkable. Her vital signs were stable. The upper abdomen was mildly tender with no signs of peritoneal irritation.

Laboratory findings were Hb level 12.7 g/dl, TLC of 16 x 10 E9/L, platelets 188 x 10 E9/L, urea 80 mg/dl, creatinine 2.4 mg/dl, bilirubin 0.9 mg/dl, ALT 25 U/L, alkaline-phosphatase 120 U/L. Abdominal ultrasound revealed pneumobilia; but the gallbladder was not visualized due to excessive gases related to gastric and duodenal dilatation. CT scan of abdomen revealed a dilated stomach, cholecystoduodenal fistula along with a large stone (3.5 x 3 cm) impacted in D3, causing complete intestinal obstruction (Figure 1).

Patient underwent emergency gastroscopy, which showed dilated stomach, cholecystoduodenal fistula and a large stone impacted at D3 (Figure 2). Due to the patient's advanced age and co-morbidities, her surgeon advocated endoscopic treatment. So, this large stone was retrieved with Dormia basket (Figure 2).
Bouveret's syndrome: successful endoscopic treatment of gastric outlet obstruction caused by an impacted gallstone

used in endoscopic retrograde cholangiopancreatography (ERCP). But because of its large size, the stone was again impacted at pylorus, then mechanical lithotripter was used to crush the stone into small pieces and extracted with different sized and shaped snares. Thus, complete obstruction was relieved by endoscopic management and surgical emergency was managed endoscopically.

After 3 days, patient was discharged and advised follow-up at General Surgery OPD for the closure of cholecystoduodenal fistula.

**DISCUSSION**

Bouveret's syndrome is a rare complication of cholelithiasis, originally described by Léon Bouveret in 1896 and was first successfully managed endoscopically in 1985. It is often difficult to diagnose because of the non-specific symptoms. The mortality rate ranges from 30-50%, but due to improvement in treatment modalities in recent years, mortality rates has decreased upto 12%. Endoscopic management may require upto eight sessions. Bouveret's syndrome has been commonly found in females (65%) with a median age of 69 years. Endoscopic removal of stone is the first line of treatment; however, because of large trapped stones, it may be un-successful in some cases. Endoscopic extraction of stones upto 3 cm in size has been reported.

The patient is a typical case of Bouveret's syndrome, in which large stone was impacted in D3, causing complete intestinal obstruction, and posed a significant challenge to manage this endoscopically. Endoscopic management should be performed as a first line treatment in such patients, followed by surgical management, if endoscopic approach fails. Because of the patient's advancing age and co-morbidities, limiting a more aggressive approach, so cholecystectomy and cholecystoduodenal fistula repair is not routinely recommended.

To our knowledge, there are only a few case reports of Bouveret's syndrome from Pakistan, most of them were managed surgically. There is only one case reported from Pakistan that was managed endoscopically. We believe this case of Bouveret's syndrome to be the second full-length report managed successfully by endoscopic treatment in Pakistan.

Because of the aging population, Bouveret's syndrome will likely become more common. The diagnosis should be considered in patients with symptoms of gastric outlet obstruction with or without a history of gallstones or aerobilia. The surgical treatment for these patients is controversial. Thus, it is important to be aware of non-surgical management of Bouveret's syndrome by gastroenterologist, in order to treat the difficult cases effectively without surgery.

**REFERENCES**