Missed double gallstone: Bouveret's syndrome

Maaz A. Ghouri*, Andrew Gilliam^

*Specialist Registrar in Clinical Radiology, Freeman Hospital, Newcastle Upon Tyne
^Consultant in Upper GI and General Surgery, Darlington Memorial Hospital

maaz.ghouri@gmail.com

Abstract:
Gallstone ileus remains a rare but important cause of small bowel obstruction in the elderly. The duodenum is an uncommon site for obstruction. We report a case of double gallstone duodenal obstruction, where the second gallstone remained unidentified in the distal duodenum, only to be identified later by completion endoscopy. This case shows important issues in the management of this interesting condition, also known as Bouveret’s Syndrome.

Introduction:
Gall stones are found in 10-15% of the adult population. Gallstone ileus is a mechanical obstruction caused by the impaction of gallstone which has migrated from the gall bladder into the lumen of the small intestine. It accounts for less than 1% of cases of intestinal obstruction with less than 15 cases described with the impaction of gallstone in distal duodenum1. This, gallstone duodenal pyloric obstruction is sometimes also described in literature as ‘Bouveret’s syndrome’2.

Case report:
A 77 year old man presented to the Emergency Department with a history of “coffee ground” vomit. He had a background history of gallstones and ulcerative colitis. Abdominal and chest plain radiographs were unremarkable. CT scan of the abdomen showed obstruction at the level of second part of duodenum (Fig 1a and Fig 1b). Upper gastrointestinal endoscopy (OGD) showed a 2 cm gallstone obstructing the duodenum (Fig 2). The gallstone was subsequently retrieved by pyloroplasty.

A check completion on-table OGD revealed a further 1.5cm stone in third part of the duodenum (Fig 3). Attempts were made to retrieve the stone endoscopically using a Roth net.

Fig 1a, Fig 1b: CT scan in transverse section (1a) and coronal section (1b) demonstrating the first gallstone in D1/D2 junction in transverse section and coronal section respectively.
The gallstone was pulled into the stomach through the pyloroplasty; however the stone was too large to retrieve up the oesophagus. A 2 cm gastrostomy was performed in the gastric body and the stone was extracted through this in the Roth net.

The patient remained in hospital for three days post-operatively and made a full and uneventful recovery. He was asymptomatic when followed up six months later and was recommended for a laparoscopic cholecystectomy.

**Discussion:**

One of the main background causes of this condition is the development of a biliary-enteric fistula. As the acceptable normal diameter of small intestine ranges from 25mm to 30 mm, it has been observed that the minimum diameter of gall stone to cause obstruction is around 20mm to 25 mm.

The most common site of obstruction is terminal ileum (61%) followed by jejunum (17%) and duodenum (4%). Multiple gall stones are seen in 3-16% of cases. Although it is uncommon to see a gallstone causing an obstruction in duodenum, it is extremely rare to see double gallstone ileus in the duodenum as in this case.

In about one-third of patients presenting with gallstone ileus there is no prior history of symptomatic gall stones. The incidence of gallstone ileus is more common in the 6th-7th decade of life and affects women more commonly than men.

As most of the patients present with non-specific symptoms, diagnosis is very challenging to establish preoperatively. This may result in dependency on the radiographic findings to make the diagnosis. The common imaging modalities in establishing the diagnosis include plain radiographs, ultrasound and CT.
Only about 10% of gallstones are sufficiently calcified to be visible on a plain X-ray. Abdominal US offers a fast, simple and useful investigation but is operator-dependent. Abdominal CT, with its advantage of better contrast offers a more appropriate imaging modality in an emergency. In addition to diagnosis, CT offers crucial evidence for decision making in the management strategy\(^8\).

Surgical intervention to relieve obstruction offers the definitive treatment for this condition. This can be achieved by either an endoscopic or open surgical approach\(^2\),\(^9\). Traditionally, open laparotomy with enterotomy and stone removal was considered as the treatment of choice. Currently laparoscopic management offers a new alternative technique to treat gallstone ileus\(^1\),\(^1\)\(^1\). The mortality of this condition is between 12% to 18%, partly due to the elderly population with high co-morbidities and a high ASA (American Society of Anesthesiologists) score\(^1\)\(^2\),\(^1\)\(^3\). Surgical treatment in the form of repair of the cholecystoduodenal fistula and cholecystectomy in a single setting is an option. However in most cases, laparoscopic cholecystectomy can be performed as a second stage operation, except in cases of gallstone ileus with empyema or gangrene of gall bladder\(^3\),\(^1\)\(^4\).

**Conclusion:**

Gall stones can be a clinical challenge in diagnosis especially in the elderly. Multiple gall stones can be involved as the cause of intestinal obstruction which can sometimes be obscured in the CT images. Simple enterolithotomy is both safe and successful in treating patients with gallstone ileus. It may be preferable to repeat an on-table completion endoscopy following stone extract to exclude further stones in the third part of the duodenum.

**Address for correspondence:**

Dr. Maaz A. Ghouri  
28 Roundstone Close  
Newcastle upon Tyne  
NE7 7GH  
Tel: +44-7909-170398
References:


