

## CASE REPORT

# Gastric Outlet Obstruction Due to Cholecysto-Gastric Fistula: Bouveret's Syndrome

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**Abstract**

Bouveret's syndrome is defined as gastrointestinal obstruction due to an impacted gallstone secondary to biliary-enteric fistula. This is often observed with nonspecific symptoms such as epigastric pain, nausea, and vomiting. The diagnosis is made by visualization of pneumobilia, gastric outlet obstruction and ectopic gallstone. In this report, we discussed an elderly patient who was admitted to the emergency department with abdominal pain and vomiting without any signs of bowel obstruction in plain x-ray and ultrasound imaging. We aimed to remind the importance of clinical suspicion and the diagnostic value of computed abdominal tomography for emergency physicians.

**Keywords**

Abdominal pain, Bouveret's syndrome, Computed tomography, Elderly, Emergency department

## 1. Introduction

Bilio-enteric fistulas are rare complications of gallstones, frequently following an episode of acute cholecystitis. The incidence of biliary fistulas during acute cholecystitis varies between 3 - 5% [1]. There are two types of fistulas; (1) between the gallbladder and the gastrointestinal tract and (2) between the common bile duct and the gastrointestinal tract [2, 3]. The most common type, the cholecysto-duodenal tract fistula, was evident in 61% of cases. Cholecysto-colic, cholecysto-gastric, choledochoduodenal and other fistulas are rarer (11%, 4%, 13%, and 11%, respectively) [4]. Only 7 - 10% of biliary fistulas cause gallstone ileus due to the migration of the gallstone through the fistula and the gallstone can be obstructed anywhere in the gastrointestinal tract [2]. The most common localization is the terminal ileum and ileocecal valve (70%) [2, 3]. The mechanical intestinal obstructions due to gallstones are 1 - 3% of all intestinal obstructions [5].

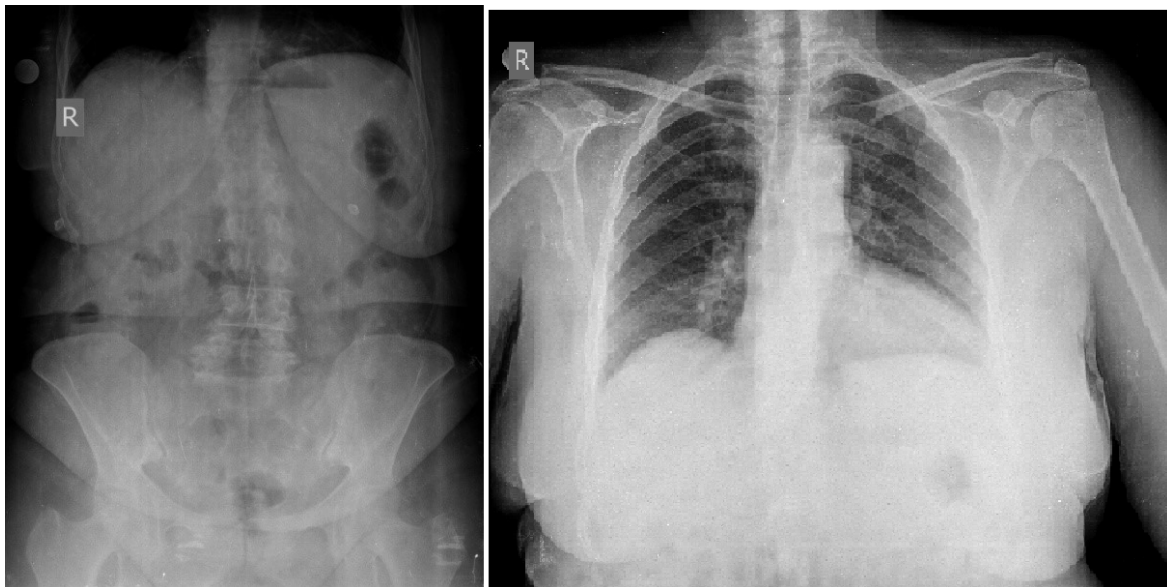
## 2. Case Report

A 71-year-old female was admitted to the emergency department with abdominal pain and vomiting, up to 1 week. She had hypertension and hyperlipidemia. Vital signs were normal except 153/95 mmHg blood pressure and tenderness on the right upper quadrant. There is no rebound

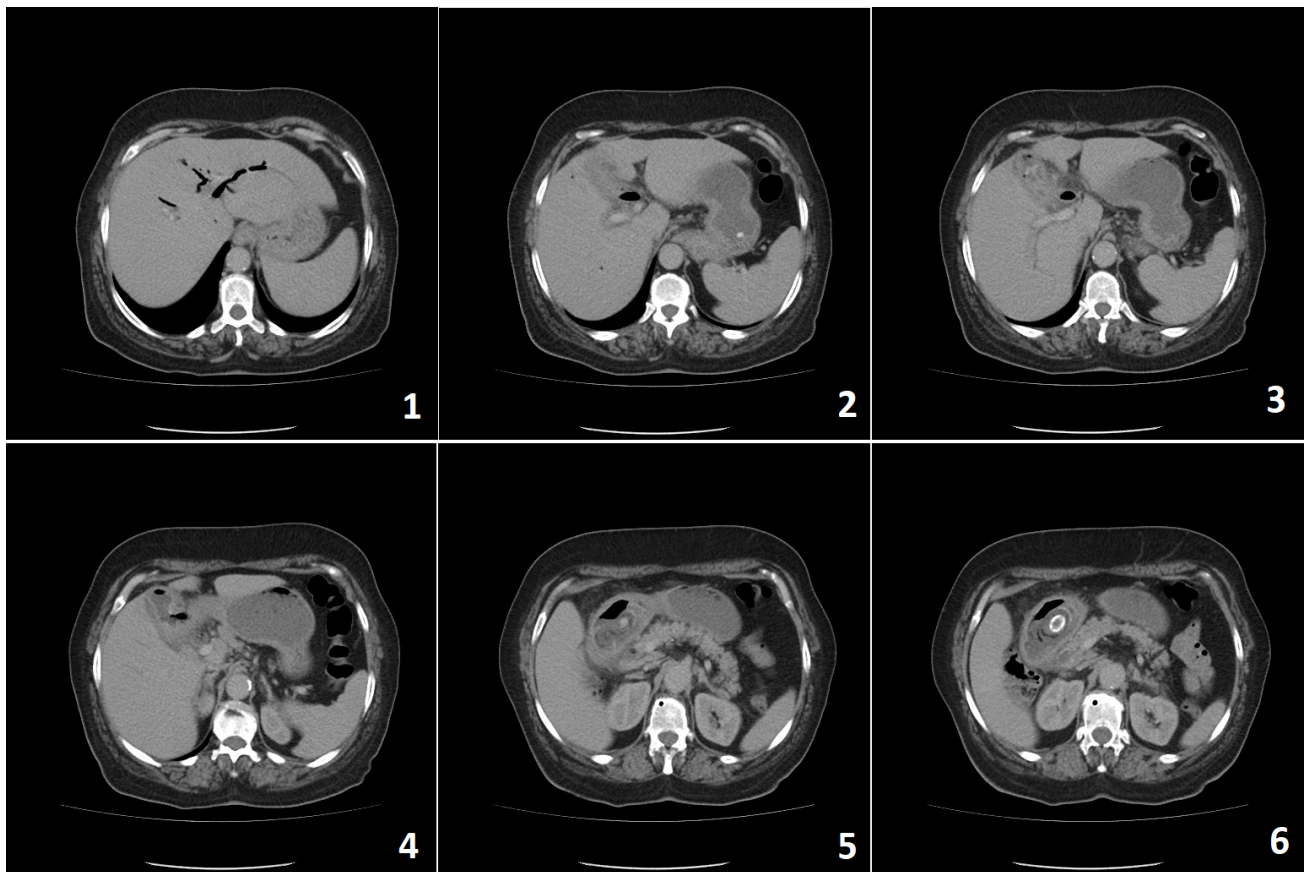
tenderness. Serum liver enzymes, bilirubine, electrolytes, creatinine, and urea levels were in normal range. Complete blood count revealed mild leukocytosis. (13.5 k/ul; normal range: 4 - 10 k/ul). Abdominal and lung radiographies were interpreted as normal (Fig. 1) and ultrasound was suboptimal due to gas interposition. Intravenous contrast-enhanced abdominal computerized tomography (CT) was performed. In the CT, it was revealed that there was pericholecystic fluid around the gallbladder and gallbladder wall was thickened and there was air in the liver, common bile duct and the gallbladder (pneumobilia) as well as a gallstone in the gastric antrum (17 × 13 mm) (Fig. 2). In the endoscopic imaging, it was observed that the gallstone had impacted to the pyloric passage (Fig. 3). The gallstone could not be removed by endoscopic intervention therefore the patient was admitted for operation. Gastrostomy and extraction of the gallstones were performed and she was discharged seventeen days after admission without any complications.

## 3. Discussion

This syndrome was primarily observed in the sixth or seventh decade of patients and especially females [2-6]. Older age, female gender, gallstones larger than 2.5 cm and changed gastrointestinal morphology due to surgery are the 4 major risk factors for developing this syndrome



**FIGURE 1.** Plain abdominal and AP lung x-ray graphics.

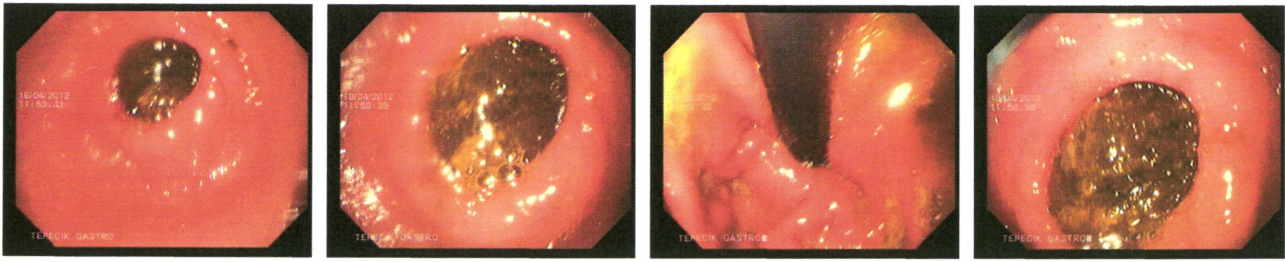


**FIGURE 2.** IV contrast-enhanced abdominal computed tomography.

[6]. The signs and symptoms are often nonspecific and not different from mechanical bowel obstruction due to other etiologies [4]. Yakan S. et al [7] reported 12 cases of gallstone ileus; the most commonly observed symptoms were abdominal pain (100%), vomiting (92%), abdominal distension (67%), constipation (33%), fever (17%) and jaundice [8] (8%). Gastric or duodenal obstruction may

not reveal abdominal distention and air-fluid levels in an abdominal x-ray, however gastric dilatation may be observed.

The ultrasonography and abdominal X-ray may help the diagnosis of Bouveret's syndrome. Ultrasonography is the first choice for assessing gallbladder wall thickness and pneumobilia [2–7]. The Rigler's triad (pneumobilia, small



**FIGURE 3. Endoscopic imaging.**

bowel obstruction and gallstone) was observed with plain films in 15% of patients, 11% with US and 78% with CT. Magnetic Resonance Cholangio-Pancreatography may be a useful tool for detecting impacted gallstone and the fistula [8].

Endoscopic stone removal using mechanical or laser lithotripsy is the first treatment choice. The success rate of extracting the stone with endoscopy was reported as only 10 - 40% [7-9]. Noninvasive treatments such as intracorporeal electrohydraulic lithotripsy and extracorporeal shock wave lithotripsy should be considered [8]. Surgery is indicated in particular conditions such as stone impaction in the fistula, stone compression to the duodenal wall, gastrointestinal hemorrhage and failure by endoscopic removal [1, 2, 4, 6, 9].

It is well known that Bouveret's Syndrome causes significant morbidity and mortality. The diagnosis is often delayed, with a resulting mortality rate of up to 20 [10]. Emergency physicians should be aware of Bouveret's syndrome in patients presenting with pneumobilia, gallbladder wall thickness and small bowel obstruction.

### LEARNING POINTS

Bouveret's syndrome is a rare and important clinical entity and it may also present itself with nonspecific symptoms. Conventional radiography and ultrasonography may show no benefits. This case report shows the benefit of computerized tomography in unexplained abdominal pains with nausea and vomiting and without an ileus such as variant Bouveret's syndrome.

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### CONFLICT OF INTEREST

The authors' declared that there is no conflict of interest.

### ETHICAL APPROVAL

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### INFORMED CONSENT

Informed consent was observed verbally for the present manuscript.

### HUMAN RIGHTS

Our work does not infringe on any rights of others, including privacy rights, and intellectual property rights. There is no human rights violation in our manuscript.

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