

## Introduction

Bouveret's syndrome is an extremely rare complication of gallstone disease that results in a gastric outlet obstruction caused by an impacted gallstone at the pylorus or proximal duodenum. It typically occurs after the formation of a fistula between the gallbladder and the stomach or duodenum in the setting of chronic gallbladder inflammation. If not detected early, it can result in a gallstone ileus and has a high rate of morbidity and mortality.

Here we present the case of a 81 year old male who presented to our institution with inability to tolerate oral intake for 1 week with CT findings suggestive of a gastric outlet obstruction of unknown etiology.

## Case Presentation

The patient is an 81 year old male with a past medical history of BPH, Vertigo, and Glaucoma who presented to our institution with the chief complaint of generalized abdominal pain and inability to tolerate PO intake for 1 weeks duration.

CT scan of the abdomen and pelvis on admission demonstrated abnormal thickening along with inflammatory changes at the pyloroduodenal junction with a high attenuation intraluminal density within this region, along with severe distention of the stomach. There was also extensive pneumobilia present. [figure 1]

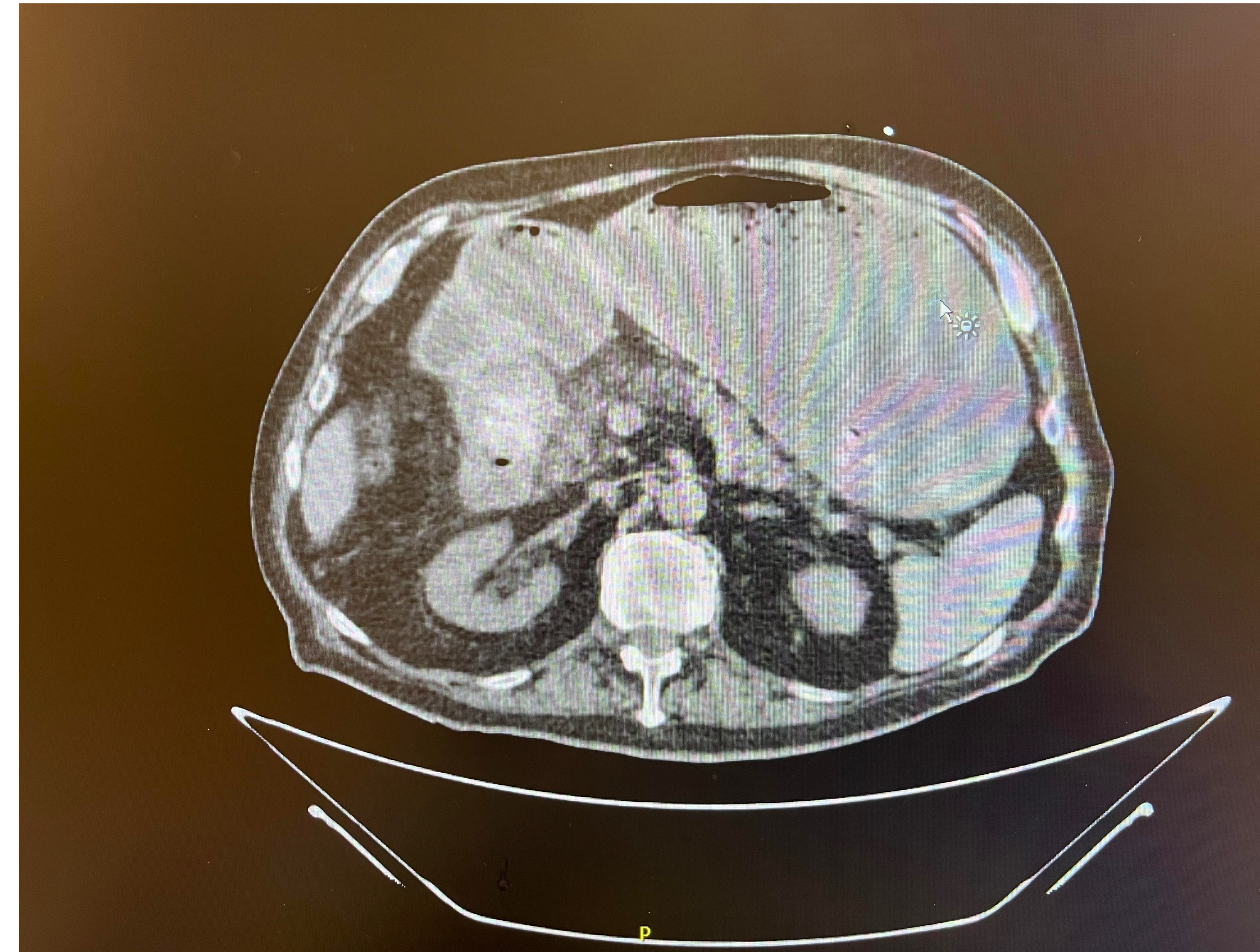
An EGD was subsequently performed, and demonstrated a distended stomach, residual food within the gastric lumen, and impacted density at the pylorus that appeared to be a gallstone [figure 2]. Endoscopic retrieval could not be performed, as the majority of the gallstone appeared to be located behind the pyloric sphincter and impacted within the first portion of the duodenum. [figure 3].

The patient was referred to the surgical service and he subsequently underwent laparotomy which demonstrated findings of acute cholecystitis, a cholecysto-duodenal fistula, and a large impacted gallstone within the proximal duodenum that was 7 x 5 x 4 cm in size.

## Case Presentation Continued

The surgical service performed a cholecystectomy, duodenotomy with removal of the impacted gallstone, repair of the cholecysto-duodenal fistula, and placement of a tube duodeno-jejunostomy.

The patient's hospital course was complicated by fluid collection that required CT-guided percutaneous drainage by the IR service.



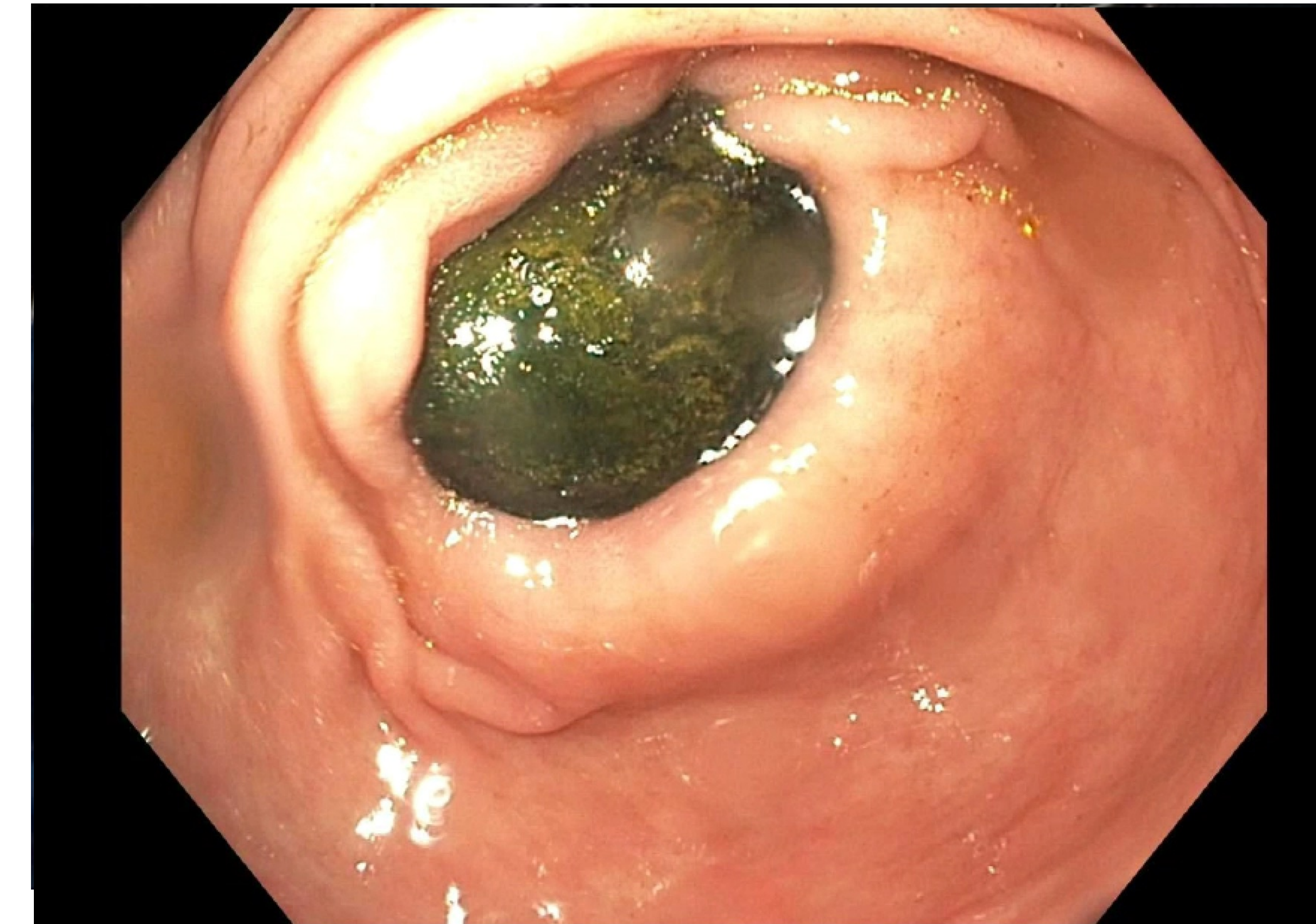
**Figure 1. Transaxial contrast-enhanced computed tomography.**

Standard CT of the Abdomen and Pelvis was performed without IV contrast by the emergency room physician.

CT demonstrating abnormal thickening and inflammatory changes at the pyloroduodenal junction with a high attenuation intraluminal density at the pylorus/proximal duodenum measuring 2.9 x 2.6 cm of indeterminate etiology.

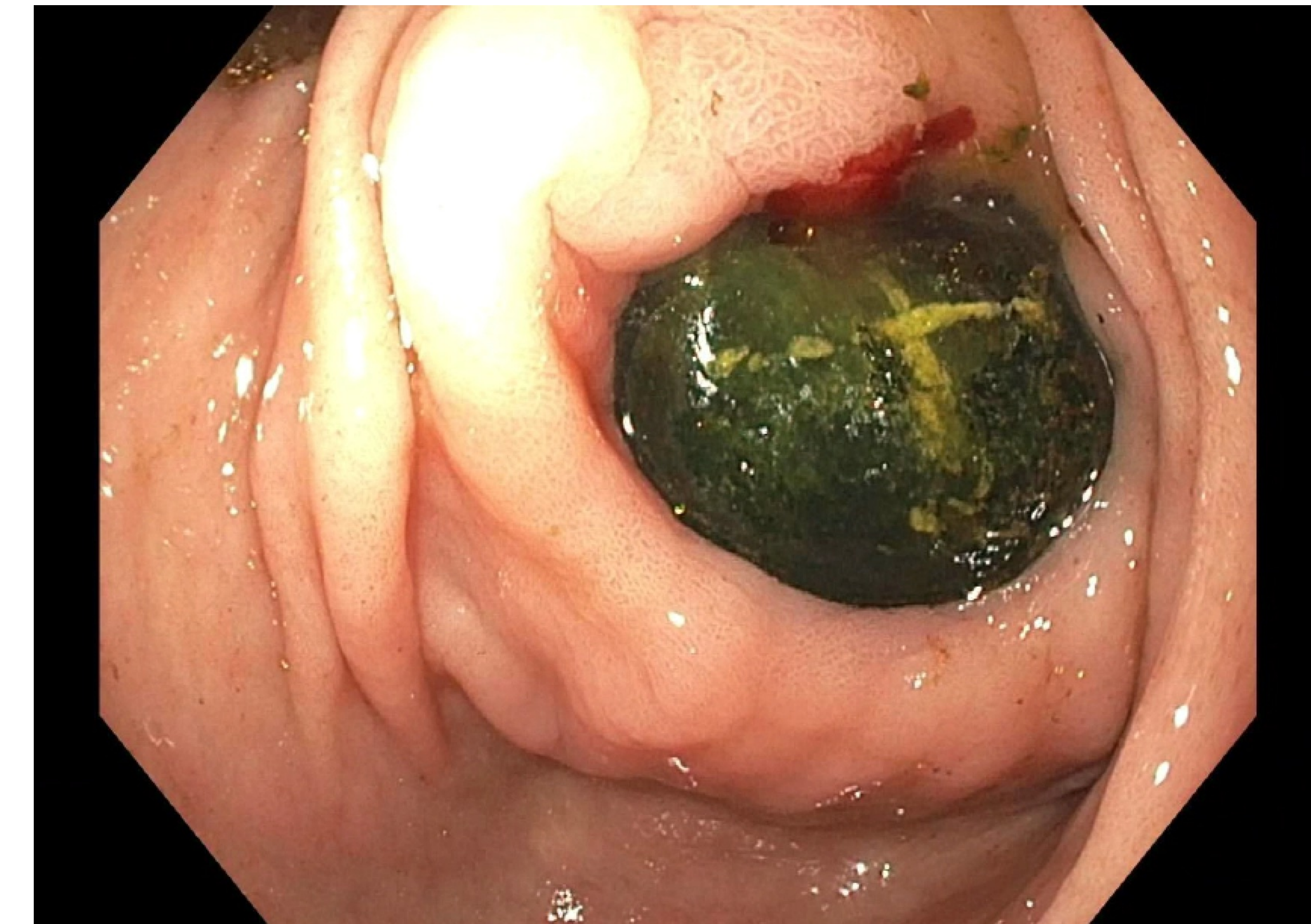
There was significant distention of the stomach suggesting a gastric outlet obstruction.

The gallbladder was not clearly identified and there appeared to be pneumobilia. There was also gas-filled structure along the lower aspect of the liver which was thought represent air within a decompressed gallbladder.



**Figure 2. Esophagogastroduodenoscopy.**

Endoscopic view of the pyloric sphincter. There appeared to be an impacted density, resembling a gallstone, seen within the opening of the sphincter, causing a gastric outlet obstruction. The area of impaction suggests that the majority of the impaction was behind the pyloric sphincter.



**Figure 3. Esophagogastroduodenoscopy.**

Attempted retrieval causing ulceration and bleeding. The patient was subsequently referred to the surgical service.

## Discussion

Bouveret's syndrome is a rare complication of chronic gallbladder disease and represents approximately 1% to 3% of gallstone obstructions found within the GI tract. Fistula formation in other parts of the digestive tract such as the ileocecal valve, proximal jejunum, and ileum are more common than in the duodenum, stomach, and colon (<5%). Contributory factors to fistula formation include but are not limited to pressure necrosis of an adjacent organ with the gallbladder, female sex, old age, and in patients with a history of cholecystitis. This syndrome has a high morbidity and mortality if not recognized early [1].

Diagnosis relies on cross sectional imaging and a diagnostic (and attempted therapeutic) upper endoscopy. Clues to the diagnosis include evidence of a gastric outlet obstruction with air in the biliary system, suggesting fistulation between the gallbladder and the upper GI tract. There is high mortality associated with the disease due to it being often misdiagnosed [2].

While first line therapy is typically attempted with an upper endoscopy with stone extraction, it is often accompanied by poor success rates compared to surgical intervention. In addition, an endoscopy procedure risks esophageal tearing and GI bleeding with attempted extraction. Surgical approaches such as enterolithotomy under laparoscopy, or as in this case, a duodenotomy accompanied with a cholecystectomy with repairment of fistula can be performed [3].

## References

1. Caldwell KM, Lee SJ, Leggett PL, Bajwa KS, Mehta SS, Shah SK. Bouveret syndrome: current management strategies. Clin Exp Gastroenterol. 2018 Feb 15;11:69-75.
2. Khuwaja, Samreen MD<sup>1</sup>; Azeem, Ahad MD<sup>1</sup>; Semkhayev, Boris A. BA<sup>1</sup>; Afthinos, John MD<sup>1</sup>; Guttman, Steven MD<sup>1</sup>. Bouveret Syndrome: When a Stone Cannot Pass the Pylorus. ACG Case Reports Journal: August 2019 - Volume 6 - Issue 8/
3. Wang F, Du ZQ, Chen YL, Chen TM, Wang Y, Zhou XR. Bouveret syndrome: A case report. World J Clin Cases. 2019 Dec 6;7(23):4144-4149.

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