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Case Report

Fluoroscopic findings in Bouveret syndrome

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ABSTRACT

Bouveret syndrome occurs when a gallstone passes into the duodenum from a fistulous communication between the gallbladder and the duodenum. This is an uncommon cause of abdominal pain which is often diagnosed following surgery. Most imaging findings of Bouveret syndrome are limited to computed tomography. Shown here are fluoroscopic images of the upper gastrointestinal system in this uncommon disorder.

Introduction

The first 2 cases of Bouveret syndrome were characterized by Leon Bouveret in 1896 [1,2]. Bouveret syndrome results from impaction of a gallstone in the duodenum due to a cholecystoduodenal fistula. Once in the duodenum, the gallstone may either migrate in an anterograde fashion or result in gallstone ileus, or it may move retrograde and obstruct the pylorus [3]. Patients with Bouveret sydrome may present with bilious emesis as a result of the fistulous communication between the biliary system and the duodenum [4].

Most published radiologic imaging of Bouveret syndrome is limited to computed tomography (CT) which depicts the offending gallstone within the lumen of the bowel. The benefit of fluoroscopy following barium ingestion in the evaluation of potential Bouveret syndrome is that the gallbladder may be opacified through retrograde filling from the duodenum. Depicted here is a case in which the diagnosis of Bouveret syndrome was made using upper gastrointestinal fluoroscopy.

Case report

An 82-year-old female presented with a 2-3 day history of dehydration due to emesis. Her vomitus was initially clear but progressed to dark and foul-smelling over the course of the symptoms. She denied fever, stool changes, or ill contacts. She did not report pain. Her past medical history included atrial fibrillation and hypothyroidism, but she reported no history of gastrointestinal illness.

On presentation, she was afebrile, in no acute distress, and hemodynamically stable. Her abdomen was soft, nontender, and nondistended. Bowel sounds were slightly hyperactive. No hepatosplenomegaly was apparent.

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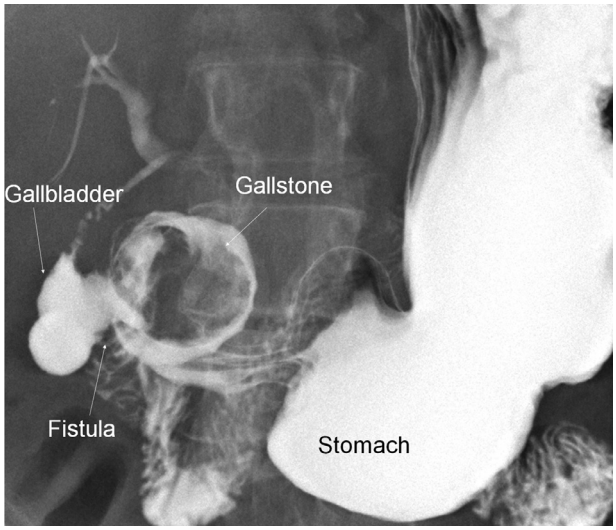

Fig. 1 – Exposure obtained during upper gastrointestinal fluoroscopy following barium ingestion reveals a filling defect within the duodenum with opacification of the gallbladder through the fistula. The stomach is also filled with contrast.

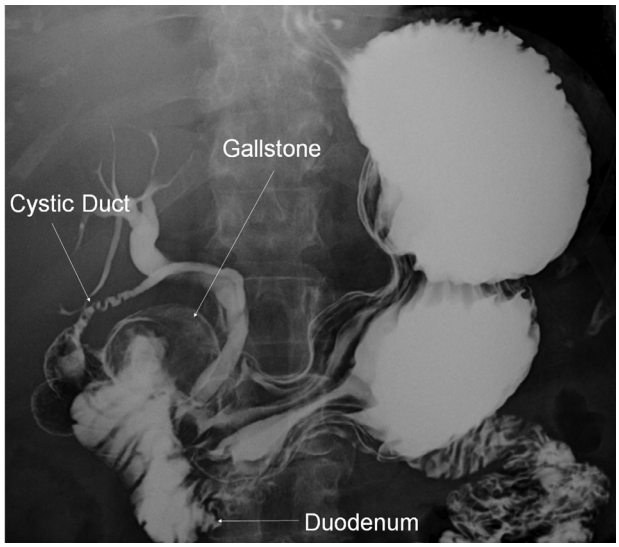

Fig. 2 – A radiograph of the abdomen acquired following the fluoroscopic study reveals that the gallstone remains impacted within the duodenum. The cystic duct and duodenum remain opacified.

A fluoroscopic upper gasterointestinal exam was requested and performed using oral barium. The scout view showed no calcification in the right upper quadrant. There was no esophageal obstruction or stricture. Delayed gastric emptying was observed, and there was a large filling defect within the proximal duodenum (Fig. 1). A fistulous tract was present between the gallbladder and the duodenum. The cystic duct was then opacified (Fig. 1), and there was retrograde filling of the hepatic biliary tree. Contrast then progressed into the common duct and eventually opacified the duodenum distally (Fig. 2).

Upon endoscopy, the filling defect within the duodenum was confirmed as a dark-colored stone with the stone proximal to the level of the ampulla of Vater. The stone could not be removed during the endoscopy. The stone was thus removed surgically. The surgeon opted to allow the cholecystoduodenal fistula to close spontaneously following surgery. The patient's symptoms resolved, and she was discharged without additional complaint or complication.

Discussion

Shown here is a fluoroscopically-confirmed case of cholecystoduodenal fistula with a large gallstone resulting in Bouveret syndrome. Bouveret syndrome has a female predominance with an average age at presentation of 74 years [5]. Endoscopy may be useful in retrieval of the stone if possible. Magnetic resonance cholangiopancreatography may also be helpful in making the diagnosis [6]. Adjunctive lithotripsy has also been described in the treatment of Bouveret syndrome [7]. As was the case in this patient, large stones may require surgery for removal. Mortality has been reported in instances in which the additional comorbidities yield the patient a nonsurgical candidate [8].

Bouveret syndrome was reported to have been diagnosed via upper GI in 1998 before CT usage became widespread [9], however, most published cases of this disorder now consist of CT findings. A case with both CT and upper gasterointestinal findings was presented by Mavroeidis et al. in 2013 [10]. CT was not requested in this patient because she showed no clinical signs of an acute abdomen, and her abdominal radiograph was unremarkable. The nondynamic nature of CT may not capture filling of the gallbladder with oral contrast and thus provide limited anatomic detail in the confirmation of Bouveret syndrome. This case provides an excellent fluoroscopic depiction of this disease process as an aid for future radiologists to make this diagnosis prospectively in the future.

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