



CASE REPORT

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A rare gastrointestinal bleeding due to a cholecystoduodenal fistula: a case report

Maddalena Zippi^{1*}, Antonella Toma², Wandong Hong³, Sirio Fiorino⁴ and Alfonso Grottesi⁵

Abstract

Background Gastrointestinal bleeding from cholecystoduodenal fistula is rare. It is usually managed surgically, although a conservative approach is reported in isolated cases.

Case presentation A 71-year-old male patient was admitted to the emergency department (ED) presenting melena associated with severe anemia, requiring a blood transfusion. An urgent upper endoscopy showed the intestinal orifice of a cholecystoduodenal fistula. This finding was confirmed by radiological examination and laparoscopy. Cholecystectomy and simultaneous excision of the fistula were successfully performed. As a result, a diagnosis of Mirizzi syndrome type Va was also made.

Conclusion A cholecystoduodenal fistula orifice leading to gastrointestinal bleeding is difficult to diagnose without an endoscopic examination of the upper digestive tract. Following this first diagnostic step, a comprehensive patient examination should be conducted, specifically if a history of gallbladder lithiasis has been reported.

Keywords Cholecystoduodenal fistula, Gastrointestinal bleeding, Mirizzi syndrome, Surgery

Background

A rare complication is upper gastrointestinal tract bleeding due to a cholecystoduodenal fistula [1]. It may be developed from a long-lasting chronic cholecystolithiasis, eventually leading to a Mirizzi syndrome, which results from forming adhesions between the gallbladder and its adjacent structures [2, 3]. Due to the scarce and unspecific symptoms, most cases are discovered only during surgery. As reported in literature, only 7.9% of patients receive a correct preoperative diagnosis [2].

Cholecystoduodenal fistula represents a subtype of bili-ointestinal fistulas. Its initial etiopathogenetic mechanism is triggered by an inflammatory process due to the impact of a stone in the Hartmann's pouch of the gallbladder, leading, over time, to erosion, necrosis, formation of fistula, and adhesions [4]. Hereby, this case report presents a rare case of gastrointestinal bleeding due to a cholecystoduodenal fistula whose intestinal orifice was discovered during an urgent upper endoscopy and confirmed by radiological evaluation and an operation.

Case presentation

A 71-year-old male, on antiplatelet medication (clopidogrel 75 mg/day), presented to the emergency department (ED) for melena. On admission, his vital sign assessment recorded blood pressure of 105/70 mmHg, pulse rate of 87/min, and respiratory rate of 16/min. Physical examination of the abdomen highlighted only a weak positive Murphy sign with no peritoneal reaction to palpation. Laboratory tests revealed anemia (hemoglobin level was 7.2 g/dL) with normal platelet values ($350 \times 10^9/L$), so the patient underwent a blood transfusion and urgent gastroscopy. This last

*Correspondence:

Maddalena Zippi
maddyzip@yahoo.it

¹ Unit of Gastroenterology and Digestive Endoscopy, Sandro Pertini Hospital, Via Dei Monti Tiburtini 385, 00157 Rome, Italy

² Unit of Urgent Digestive Endoscopy, Sandro Pertini Hospital, Rome, Italy

³ Department of Gastroenterology and Hepatology, The First Affiliated Hospital of Wenzhou Medical University, Zhejiang Province, Wenzhou 325000, China

⁴ Internal Medicine Unit, Budrio Hospital Azienda USL, 40138 Bologna, Italy

⁵ Unit of General Surgery, Sandro Pertini Hospital, Rome, Italy



revealed fresh and coagulated blood along the bulb and the second portion of the duodenum. After repeated washings, a polypoid-like lesion was observed of about 3 cm localized on the anterosuperior wall of the bulb. No apparent features of a heteroplasic lesion on narrow-band imaging (NBI) were noted (Fig. 1a). After having detached the apex of the formation with a biopsy forceps, a probable fistula orifice was found (Fig. 1b). The histological report of this lesion showed only an eroded mucosa without dysplasia or adenoma components. A focused assessment with sonography (FAST) demonstrated a stone of size 3 cm wedged in the infundibulum of the gallbladder. An abdominal computed tomography (CT) with intravenous (IV) contrast agent confirmed the ultrasound finding and revealed a close adherence between the gallbladder and the duodenum (Fig. 2a, yellow arrow). A subsequent abdominal magnetic resonance imaging (MRI) with intravenous (IV) contrast endorsed the results of the CT and pointed out the fistulous tract, which connected the gallbladder with the duodenum (Fig. 2b, yellow arrow). Furthermore, both these two radiological techniques, i.e., CT and MRI, excluded the concomitant presence of a biliary ileus. After obtaining the

informed consent, the patient was referred for surgery. A laparoscopic cholecystectomy was performed with dissection of the adhesions, simultaneous excision of the fistula, and repair of the duodenal wall. Recovery was successful without any post-operative complications, and the patient was discharged six days later.

Discussion

Mirizzi syndrome is a rare condition found in only 0.1% of patients with gallbladder lithiasis and may be related to obstruction from a single large stone in Hartman's pouch, as in the case of our patient [5]. Currently, this condition is classified into five types, of which type V is articulated into two subtypes (Va and Vb) based on the occurrence of gallstone ileus [6]. The latter degree of classification (type V) can also manifest as multiple fistulas, as reported in a 77-year-old man, in whom during an endoscopic retrograde cholangiopancreatography three fistulas were found, two cholecystogastric and one cholecystoduodenal [7]. Generally, it is recognized that both the formation of fistulous tracts and the appearance of a possible concomitant biliary ileus represent late complications of long-lasting gallbladder lithiasis. Beltran et al.

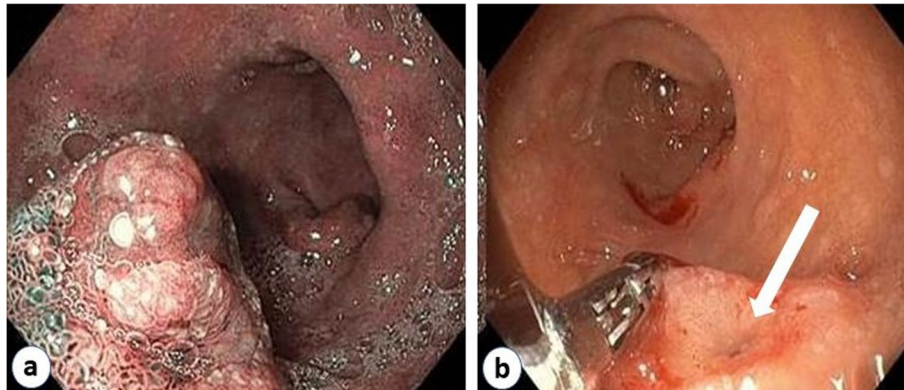


Fig. 1 Endoscopic view. **a** Polypoid-like lesion observed with the use of NBI. **b** Fistulous opening (white arrow)

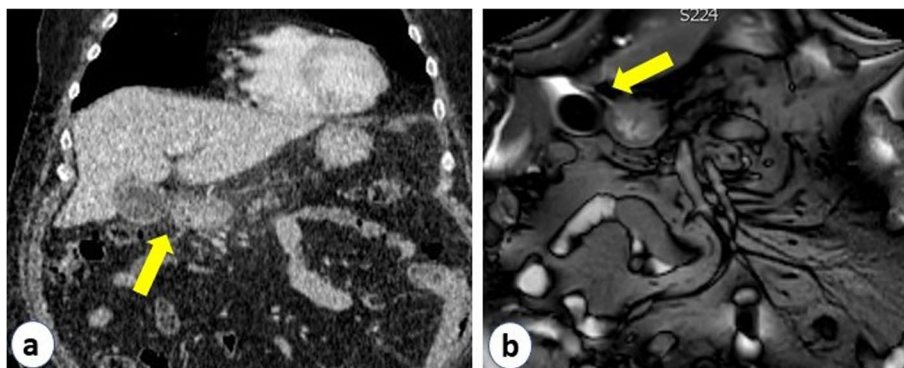


Fig. 2 Coronal view. **a** CT shows a close fit between the duodenum and the gallbladder (yellow arrow). **b** MRI shows the fistulous tract (yellow arrow)

[7] described 338 patients suffering from a Mirizzi condition and noted a cholecystoenteric fistula associated with gallstone ileus in only 12 cases. In patients with gallbladder stones, bilioenteric fistula incidence is 0.15–8% and presents in 0.15–5% of all biliary tract surgeries [1]. In type V of this syndrome, the most frequent fistulous tracts concerning location are cholecystoduodenal (77–90%), cholecystocolonic (8–26.5%), choledochoduodenal (5%), and cholecystogastric (2%) [6, 8]. A recent analysis of patients who experienced bleeding from a cholecystoduodenal fistula was performed [9]. A total of 15 patients (9 males and 6 females, with a mean age of 68.1 years) with this complication were analyzed [9]. Of these, 12 (80%) presented a gallbladder lithiasis, and only in 10 of them (83.3%) a gastroscopy was performed, highlighting the orifice of a fistula only in 3 cases (30%, 3/10). In this subgroup of 12 patients, surgery was successfully performed in 11 cases (91.6%), while only a 97-year-old patient died who was treated conservatively and was also the oldest [9]. Mirizzi syndrome and its complications are preferably treated surgically and, nowadays, in a less invasive way by the laparoscopic approach, as in our case [5, 10]. To underline the effectiveness of this procedure, in a retrospective study just released, 16 patients presenting with the Va subtype underwent successful laparoscopic surgical treatment [11].

Conclusion

This case demonstrates the necessity of endoscopy in the event of an upper gastrointestinal hemorrhage, since when a cholecystoduodenal fistula is discovered throughout the exam, as in our situation, it allows proceeding with further diagnostic investigations, leading to an eventual diagnosis of Mirizzi syndrome, which can be successfully treated with surgery. Emergency physicians should consider this rare complication while leading to a differential diagnosis of intestinal bleeding, especially in patients with a known history of gallbladder lithiasis, to set up a timely and appropriate treatment.

Abbreviations

CT	Computed tomography
ED	Emergency department
FAST	Focused Assessment with Sonography for Trauma
IV	Intravenous
MRI	Magnetic resonance imaging
NBI	Narrow band imaging

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MZ and AG—clinical care and diagnosis of the case. AT—collection of clinical information. WH and SF—contribution to the manuscript and manuscript correction. All authors have read and approved the final manuscript. All authors read and approved the final manuscript.

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Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

The patient has given his written informed consent for publication, including publication of images, in which no identity is disclosed.

Competing interests

The authors declare that they have no competing interests.

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