



# Gallstone ileus of the sigmoid colon.

## A case report



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### Gallstone ileus of the sigmoid colon. A case report

Gallstone ileus is a complication of cholelithiasis which is due to gallstone migration through a fistula between the gallbladder and the gastrointestinal tract followed by intraluminal impaction. This uncommon form of mechanical bowel obstruction occurs in <1% of patients with cholelithiasis.

Gallstone ileus due to cholecystocolonic fistula is rare, and therefore appropriate surgical treatment is still a matter of debate.

We describe a unusual case of gallstone ileus in a 74-year-old man with a history of cholelithiasis, admitted to our hospital with suspected largebowel obstruction.

The diagnosis was made with abdominal computed tomography scan that showed a very large gallstone impacted in the sigmoid causing mechanical bowel obstruction. After endoscopic removal was attempted but proved unsuccessful, enterotomy was performed to remove the gallstone.

At surgery a Meckel's diverticulum was discovered incidentally and removed and trasversostomy was performed. The patient was discharged on postoperative day 10.

KEY WORDS: Gallstone ileus, Endoscopy, Large bowel obstruction, Cholecystocolonic fistula, Meckel's diverticulum

### Introduction

Spontaneous biliioenteric fistula is a complication typically associated with cholelithiasis (90% of the cases) <sup>1</sup>. The formation of a bilioenteric fistula is usually due to obstruction of the cystic duct by a gallstone. Recurrent episodes of untreated cholecystitis cause inflammation that can lead to cholecystoenteric fistula <sup>2</sup>. The most

common sites of mechanical intestinal obstruction due to gallstone impaction are the terminal ileum, ileocaecal valve, jejunum, duodenum or stomach, and, the colon in which impaction occurs in 4% of patients whit biliary enteric fistula <sup>3</sup>. Hildebrandt et al. in a study on 102 patients found a bilio-enteric fistula at autopsy in 84% of cases <sup>4</sup>.

The symptoms and signs of gallstone ileus are mostly nonspecific: such as, diarrhoea, steatorrhea, abdominal pain, nausea, weight loss and dyspepsia <sup>5</sup>

Large bowel obstruction is rare and usually there is a pre-existing narrowing of the colon <sup>6-8</sup>.

Recognition of this medical condition can help avoid any confusion with other causes of acute abdomen. Few case series have been reported, and clinical experience of these conditions is insufficient.

The present report describes the diagnosis and treatment of a case of gallstone ileus of the sigmoid colon.

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## Case Report

A 74-year-old man with a medical history significant for hypertension and calculous cholecystitis presented at the emergency room complaining of diffuse, colicky abdominal pain and vomiting of 5 days' duration. Physical examination was significant for abdominal distension with diffuse tenderness upon palpation. Metallic bowel sounds were heard on auscultation. On digital rectal examination, the ampulla was empty. The patient was unable to pass stool or gas.

Blood test results showed leucocytosis (16000/ $\mu$ l) with normal renal and liver function and normal serum amylase. Erect abdominal X-ray showed multiple air-fluid levels (Fig. 1).

A computed tomography (CT) scan of the abdomen was performed and showed overdistended intestinal loops with air-fluid levels; no dilation of the intra- and extra-hepatic biliary ducts; lack of pneumobilia; and the presence of a single calculus about 20 mm in diameter in the gallbladder and in the colon (Figs. 2, 3).

Colonoscopy showed sigmoid diverticulosis complicated by an inflammation of the mucosa and by partial stenosis of the lumen, and identified a voluminous, ovoid foreign object, black-green colored, of medium-hard consistency, with a smooth surface, about 60 mm in diameter, totally obstructing the intestinal lumen (Fig. 5).

Repeated maneuvers with the Dormia basket to remove the foreign body was unsuccessful, therefore, an emer-



Fig. 1: Abdominal radiograph showing multiple air-fluid levels. No pneumobilia was visualized.



Fig. 2: Presence of a unique calculus with about 20 mm diameter in the gallbladder.



Fig. 3: Abdominal computed tomography scan showing gallstone at the sigmoid level and sigmoid diverticula.

gency laparotomy was performed. Colonoscopy carried out up to the cecum did not show other lesions.

The systematic exploration of the intestinal loops revealed a Meckel diverticulum almost 15 cm from the ileocecal valve (Fig. 4), which was removed.

A colotomy was performed on the descending colon and a very large calculus, 6 cm in diameter, was removed (Fig. 5).

Tenacious adhesions between the right part of the transverse colon and the liver bed did not allow identification of the gallbladder.

A protective loop colostomy was made using the transverse colon.

The patient's recovery was uneventful, he was discharged on postoperative day 10.

## Discussion

Between 1950 and 2006 only 231 cases of cholecystocolonic fistula have been reported in the literature<sup>9</sup>. Spontaneous cholecystocolonic fistulas constitute 10-20%



Fig. 4: Meckel diverticulum almost 15 cm from the ileocecal valve.



Fig. 5: Picture of the gallstone (6x5cm) after surgical removal.

of all bilio-enteric fistulas. They are usually a consequence of cholecystitis but develop in only 0,13% of cases<sup>10</sup>. It has been demonstrated that cholecystitis leads to the formation of adhesions between the gallbladder and adjacent organs, most frequently the duodenum<sup>2</sup>. Repeated episodes of cholecystitis provoke ulceration and ischemia of the gallbladder wall and of the adjacent organs, with subsequent erosion leading to perforation<sup>1</sup>.

The literature shows that there is a high risk of impaction if the migrating calculus exceeds 2,5, cm in diameter and there is coexisting disease<sup>6,7</sup> for example in proctosigmoiditis caused by diverticulosis<sup>8</sup>.

The fistula may alter the regular enterohepatic circulation of bile acids with consequent malabsorption syndrome. Furthermore, bile acids stimulate the mucosa of the colon to secrete water and electrolytes in excess, resulting in diarrhea and ultimately the loss of bile acids impedes the digestion of fats and leads to steatorrhea<sup>6</sup>. The clinical presentation is variable, there is usually low clinical suspicion of cholecystocolonic fistula and diagnosis is most commonly made intraoperatively. It is very

important for the surgeon be aware of this because changes in surgical strategy may be required.

The most useful tools for diagnosis are: upright abdominal X-ray, abdominal ultrasound, abdominal CT scan and magnetic resonance imaging<sup>11</sup>.

In our case, abdominal CT scan raised the suspicion of cholecystocolonic fistula since it revealed a calculus in the gallbladder and the left colon, without signs of pneumobilia.

It has been recommended that there should be a higher index of suspicion of cholecystocolonic fistula in older patients, with unexplainable pneumobilia or persistent diarrhea associated with cholelithiasis<sup>12-14</sup>.

Despite the advances made in diagnosing these fistulas there is no consensus on the best surgical treatment option.

Currently the surgeon may choose between simple enterolithotomy, a one-stage procedure that includes enterolithotomy, cholecystectomy and fistula closure; a two-stage procedure, enterolithotomy with cholecystectomy performed in a second procedure; and bowel resection when necessary<sup>11</sup>.

As the main problem in our case was intestinal occlusion, we first attempted to remove the calculus endoscopically. When this was unsuccessful we decided to perform an open procedure. Under endoscopic guidance, the calculus, was detected in the splenic flexure and extracted through a colotomy. The size of the calculus and its hard consistency did not permit removal by other means. The fistula was not removed due to the dense adhesions between the right side of the transverse colon and the liver bed. The fistula was presumably closed because it was not seen on endoscopy and there was no pneumobilia on the abdominal CT scan.

Systematic exploration of the abdomen revealed a massive Meckel's diverticulum that was resected using a 75mm GIA stapler. The distended intestinal loops were deflated by aspiration of the contents. A protective transverse colostomy was created to allow faster healing.

The surgeon's dilemma is whether to perform a cholecystectomy with laparoscopic fistula resection or open surgery. With laparoscopic surgery operating time is longer and there may be more postoperative complications<sup>15</sup>.

In the case of our patient, because of the occlusion of the colon due to a large calculus and by the dense adhesions between the gallbladder and the transverse colon, laparotomy was necessary to successfully complete the operation and to avoid intra- or postoperative complications.

In conclusion, due to the peculiar aspects of cholecystocolonic fistula we suggest that in patients with chronic cholecystitis, cholelithiasis and/or choledocholithiasis, and diverticulitis, the possibility of cholecystocolonic fistula should be considered even in the absence of symptoms such as diarrhea and without the presence of pneumobilia.

## Riassunto

L'ileo biliare è una rara complicanza della coledocistite che si sviluppa attraverso la formazione di una fistola tra la colecisti e l'intestino. Nella maggior parte dei casi la fistola coinvolge, in ordine di frequenza, la valvola ileocecale o l'ultima ansa ileale, il digiuno, il duodeno, lo stomaco e il colon.

L'ostruzione intestinale da ileo-biliare presenta fattori di rischio quali coledocistiti croniche non trattate chirurgicamente, età maggiore a 65 anni, presenza di fistola, malattie infiammatorie croniche dell'intestino, diverticolosi e calcolo superiore a 2,5 cm di diametro.

La fistola colecisto-colica se non riconosciuta può diventare pericolosa per la vita del paziente, soprattutto se anziano.

La diagnosi di fistola colecisto-colica è difficile poiché la sintomatologia è molto sfumata, infatti, anche la triade di Rigler (pneumobilia, anse dilatate e calcoli biliari ectopici) si verifica in meno del 50% dei casi.

Lo studio descrive un emblematico caso di ostruzione colica da ileobiliare trattata chirurgicamente. In questo caso, il primo approccio al paziente è stato endoscopico, ma successivamente è stato necessario l'intervento chirurgico. Il paziente è sopravvissuto ed è stato dimesso in decima giornata post-operatoria.

Basandoci sulle recenti evidenze riguardo la diagnosi ed il trattamento chirurgico di questa patologia, attraverso questo particolare caso ci siamo posti l'obiettivo di mostrare il nostro approccio clinico-strumentale, per assistere con la nostra esperienza altri colleghi sulla gestione di casi simili.

## References

1. Ayantunde AA, Agrawal A: *Gallstone ileus: Diagnosis and management*. World J Surg, 2007; 31(6):1292-297.
2. Glenn F, Reed C, Grafe WR: *Biliary enteric fistula*. Surgery Gynecology and Obstetrics, 1981; 153(4):527-53.
3. Reisner RM, Cohen JR: *Gallstone ileus: A review of 1001 reported cases*. Am Surg, 1994; 60:441-46.
4. Kirchmayr W, Mühlmann G, Zitt M, Bodner J, Weiss H, Klaus A: *Gallstone ileus: Rare and still controversial*. ANZ J Surg, 2005; 75(4):234-38.
5. Elsas LJ, Gilat T: *Cholecystocolonic with malabsorption*. Ann Intern Med, 1965; 63:481-86.
6. Garcia-Lopez SS, Sebastian JJ, Uribarrena R, Solanilla P, Artigas JM: *Successful endoscopic relief of large bowel obstruction in a case of sigmoid colon gallstone ileus*. J Clin Gastroenterol, 1997; 24: 291-26.
7. Oikarinen H, Paivansalo M, Tikkakoski T, Saarela A: *Radiological findings in biliary fistula and gallstone ileus*. Acta Radiol, 1996; 37:917-22.
8. Swinnen L, Sainte T: *Colonic gallstone ileus*. J Belge Radiol, 1995; 77:272-74.
9. Costi R, Randone B, Violi V, et al.: *Cholecystocolonic fistula: Facts and myths. A review of the 231 published cases*. Journal of Hepato-Biliary-Pancreatic Surgery, 2009; 16(1):8-18.
10. Hession PR, Rawlinson J, Hall JR, Keating JP, Guyer PB: *The clinical and radiological features of cholecystocolic fistulae*. Br J Radiol, 1996; 69:804-09.
11. Nuño-Guzmán CM, Marín-Contreras ME, Figueroa-Sánchez M, Corona JL: *Gallstone ileus, clinical presentation, diagnostic and treatment approach*. World J Gastrointest Surg, 2016; 8(1):65-76.
12. Spaziani E, Picchio M, Di Filippo A, De Angelis F, Marino G, Stagnitti F: *Gallstone ileus. Report of two cases*. Ann Ital Chir, 2010; 81(1):53-5.
13. Zulian V, Vasquez G, Feo CV: *Unusual presentation and treatment of biliary ileus with long term follow up: Case report and review of the literature*. Ann Ital Chir, 2013; 84(1):99-10.
14. Antonacci N, Taffurelli G, Casadei R, Ricci C, Monari F, Minni F: *Asymptomatic Cholecystocolonic Fistula: A Diagnostic and Therapeutic Dilemma*. Case Reports in Surgery, 2013; 2013: article ID 754354. Ann Ital Chir, 2013; 84(1):99-10.
15. Currò G, Iapichino G, Barberio F, Lorenzini C, Melita G, Cucinotta E: *Gallstone ileus: report of a case successfully treated by a laparoscopically-assisted enterolithotomy*. Ann Ital Chir, 2005; 76(2):203-05; discussion 205.