

Large Bowel Obstruction Secondary to Colonic Gallstone Ileus: A Case Report of an Unusual Presentation of Cholecysto-colonic Fistula

Nicole Barnes*, Steve Lau and George Kalogeropoulos

Department of General Surgery, University Hospital Geelong, Australia

***Corresponding Author:** Nicole Barnes, Department of General Surgery, University Hospital Geelong, Australia.

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Abstract

Cholecysto-enteric fistula is a rare complication of gallstone disease. This is a case discussion of cholecysto-colonic fistula to the transverse colon that resulted in a large bowel obstruction secondary to a large gallstone in the descending colon. Attempted retrieval via endoscopy was unsuccessful and the patient required a laparotomy with colotomy for stone extraction. Here we present a case discussion and subsequent management options of a cholecysto-colonic fistula which can be divided into management of the complications of the fistula - which generally occurs in an emergent setting, and management of the fistula itself. The latter, appears to have no clear consensus in the literature and therefore requires a case-by-case discussion in a multidisciplinary setting.

Keywords: Cholecysto-colonic Fistula, Case Report; Gallstone Ileus; Large Bowel Obstruction

Introduction

Courvoisier was the first to describe cholecysto-enteric fistula in 1890. It is thought to be a late, although rare, complication of chronic gallstone disease, particularly in the setting of cholecystitis. In one series of 5673 cholecystectomies, the rate of cholecysto-enteric fistula was 1.8 percent [2]. The majority of cholecysto-enteric fistulae are cholecysto-duodenal fistulae followed by cholecysto-colonic fistulae, commonly directed to hepatic flexure [6]. There are no specific symptoms to suggest the presence of cholecysto-colonic fistula, and hence it is a diagnosis often made intra-operatively at the time of elective cholecystectomy.

Here we present a case of a cholecysto-colonic fistula to the transverse colon resulting in large bowel obstruction from a large gallstone in the descending colon. Attempted retrieval via endoscopy was unsuccessful and the patient required a laparotomy with colotomy for stone extraction. The post-operative course was uneventful. Here we discuss the presentation and subsequent options for management of the cholecysto-colonic fistula.

Case Presentation

A 73-year-old lady presented to the emergency department of a large regional hospital with a one-day history of intermittent abdominal pain associated with abdominal distension. The patient opened her bowels the day before and had a normal colonoscopy performed a month prior for surveillance of previous polyps. Examination revealed a soft but moderately distended abdomen with non-specific abdominal pain on deep palpation. Computer tomography (CT) of the abdomen and pelvis revealed a 3.1 x 4.1 x 6.6 cm gallstone impacted in the proximal descending colon with fluid distension in the bowel proximally and collapsed bowel distally (refer to Image 1). A fistulous tract was seen from the gallbladder to the transverse colon with associated pneumobilia suspicious for a cholecysto-colonic fistula (refer to Image 2). An attempt was made to manage the patient conservatively with cathartics and serial abdominal x-rays. Despite the patient opening her bowels and the gallstone progressing distally in the descending colon on serial abdominal x-ray, the gallstone failed to progress past the sigmoid

colon after five days. A decision was made to attempt an endoscopic removal of stone via endoscopy route, after failing endoscopic attempt, laparotomy and colotomy performed to extract the gallstone.



Image 1: CT showing impacted gallstone in descending colon.



Image 2: Fistulous tract from gallbladder to transverse colon.

Multiple attempts to extract the stone with endoscopic snares by an experienced endoscopist, Roth Net® (Steris Healthcare, Mentor, Ohio, USA) and Triceps™ three-pronged grasping forceps failed (Boston Scientific, Marlborough, Massachusetts, USA). Hence, a low midline laparotomy was performed. The stone was milked proximally to a less inflamed section of colon and a longitudinal colotomy was made for stone extraction and an approximately 8cm gallstone was retrieved (refer to Image 3). The colotomy was closed transversely with a series of interrupted 3-0 PDS to avoid stricturing of the colon. The patient recovered uneventfully and discharged home on post-operative day four.

Image 3: The 8 cm gallstone retrieved from the patient.

Discussion

Large bowel obstruction from a gallstone is a rare condition and management options depend on the clinical state and comorbidities of the patient. The mean age at diagnosis of cholecysto-colonic fistula, in Western populations, has been reported as 71 years. Females appear to be affected more commonly than males [3]. The main symptom is diarrhoea, classically described as a triad of diarrhoea, cholangitis and right upper quadrant pain [3]. Diarrhoea is thought to be caused by the laxative effects of unabsorbed bile salts bypassing the terminal ileum [3]. The complications of cholecysto-colonic fistula - namely obstruction, haemorrhage and liver abscess, are generally managed in the emergency or subacute setting. Obstruction is the most common complication of a cholecysto-

colonic fistula [3]. The site of impaction of a stone, larger than 2.5 cm (as described in this case discussion) that has migrated through the cholecysto-colonic fistula is almost exclusively the sigmoid colon, as the narrowest portion of the colon [3].

The primary goal in the acute setting when a patient presents with a large bowel obstruction secondary to colonic gallstone is to resolve the obstruction. Management options can be divided into non-operative management, endoscopic approaches such as stone extraction by flexible sigmoidoscopy or an alternative laparoscopic or open colotomy for extraction of the gallstone [4]. In a review of 38 case reports, 61% attempted conservative management in the first instance with limited success, 74% required surgical intervention after failure of non-operative management [4]. This experience seems to be consistent in the literature, a review of 231 reported cases of cholecysto-colonic fistula, endoscopic retrieval was reported as successful in only two cases, with spontaneous passage of the stone following attempted but unsuccessful endoscopy reported in a further two cases [3]. Failing conservative management, surgical intervention is indicated. This can be achieved either via a colotomy and removal of the stone, or segmental resection depending on the viability of the colon. In addition, patients may require a colostomy if there is perforation with peritonitis, or severe colonic inflammation where there is a high risk of anastomotic leak. In this scenario, the sigmoid colon was deemed suitable for a colotomy and stone extraction followed by primary closure.

Management of cholecysto-colonic fistula can be divided into management of the complications of the fistula and management of the underlying fistula. The latter is where the greatest uncertainty lies. Given the potential morbidity and mortality associated with major abdominal surgery, the risks and potential benefits of fistula management should be carefully considered on a case-by-case basis, particularly given the demographics of these patients who are often elderly with significant co-morbidities. There is no clear consensus in the literature and consideration may be made for a period of observation after treatment of the initial obstruction, particularly if the patient is a high-risk surgical candidate.

Compared to cholecysto-duodenal fistulas, there is possibly a higher risk of developing biliary sepsis with cholecysto-colonic fistula as there is a direct communication to the lumen of the large bowel and its high bacterial load [5]. Therefore, repair of the cholecysto-colonic fistula is an important factor to consider in

the decision-making process. As a less invasive alternative, biliary decompression (generally via endoscopic retrograde pancreatography and sphincterotomy) may facilitate healing of cholecysto-cutaneous fistula [3,5].

Historically, principles of management of the fistula include cholecystectomy, resection of the fistula and possible colonic resection. There is no standard procedure identified in the literature, but several variations have been described with each appearing to be equally effective [3]. There is ongoing uncertainty as to whether a cholecysto-colonic fistula should be repaired, either at the same time of stone removal, or as a delayed procedure. It should be noted that in up to one quarter of CCF cases diagnosed at time of cholecystectomy a second hepatobiliary abnormality can be identified. Although rare, this may include a two-percent incidence of underlying cholangiocarcinoma [3]. In summary, while extraction of the gallstone is important relieve large bowel obstruction, decision to repair a cholecysto-colonic fistula can be complex should be discussed in a multidisciplinary setting.

Competing Interests

The authors have no competing interests to declare.

Written informed consent was obtained from the patient prior to publication.

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