The use of the somatostatin analogue octreotide for the conservative management of symptomatic cholecystocolonic fistula: a case report

CY Kong^{1,2}, P Glen^{1,2}

¹Department of General Surgery, Queen Elizabeth University Hospital, Glasgow, UK

²School of Medicine, Dentistry and Nursing, University of Glasgow, Glasgow, UK

ABSTRACT

An 84-year-old woman presented with acute worsening of diarrhoea for a few weeks, with a background of chronic diarrhoea over the past 12 months accompanied by weight loss. Computed tomography during this admission revealed air in the biliary tree and resolution of gallstones in keeping with a cholecystocolonic fistula. Owing to her comorbidities, surgical management was deemed not to be the best option. She was trialled on octreotide, a somatostatin analogue, which effectively resolved her symptoms. This case presents an effective and novel method of managing cholecystocolonic fistulas conservatively in a patient where medical therapy is the ceiling of care.

KEYWORDS

Cholecystocolonic fistula – Chronic diarrhoea – Octreotide – Somatostatin analogues

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CORRESPONDENCE TO

Chia Yew Kong, E: chiayew.kong@nhs.net

Introduction

This case presents a potential option of managing cholecystocolonic fistulas conservatively using an established pharmacological agent, octreotide, in a patient unfit for surgery, which is novel and effective.

Case history

An 84-year-old woman presented with acute worsening of diarrhoea for a few weeks. She had been suffering from chronic diarrhoea for 12 months but had noticed a debilitating worsening in her symptoms a few weeks preceding this admission, experiencing five to six episodes of loose, watery bowel motions every night. This was severely affecting her quality of life and by limiting her activity and sleep. This was accompanied by weight loss, which first started in the preceding two years. She has a past medical history of atrial fibrillation, previous transient ischaemic attacks, hypertension, ischaemic heart disease, hypothyroidism and osteoarthritis. She had no past surgical history.

Preceding this admission, she had undergone investigations to investigate the weight loss and diarrhoea. Two years before this index admission, she underwent computed tomography (CT) of the abdomen and pelvis to investigate her weight loss revealed only cholelithiasis (Fig 1). A few months before this admission, a colonoscopy was performed to investigate her diarrhoea. This revealed

diverticular disease. Histopathological examination of random biopsies of the colon showed patchy inflammation with no specific features. Faecal calprotectin was then mildly raised at 185 mg/g and she had a negative coeliac screen. Stool cultures were negative. Taken together, the findings were thought to be related to her diverticular disease but this was insufficient to explain her symptoms. Her level of faecal calprotectin (less than 200 mg/g) meant that it was unlikely there was significant underlying bowel inflammation. An upper gastrointestinal endoscopy was planned in view of the findings, but was not performed before her index admission.

In this index admission, routine blood investigations revealed a mild acute kidney injury but nothing else. Repeat stool cultures were negative. Pelvic ultrasound was negative. A decision was made to repeat her CT abdomen and pelvis. This scan revealed air in the biliary tree (Fig 2) accompanied by close apposition of the hepatic flexure to the base of the liver and resolution of gallstones (Fig 3), findings in keeping with a cholecystocolonic fistula.

Differential diagnosis

Chronic diarrhoea has a wide differential diagnosis. Infectious, inflammatory and neoplastic causes are common causes of diarrhoea. Malabsorption syndromes also present with chronic diarrhoea and weight loss. In an elderly woman presenting with chronic diarrhoea and weight loss, the main diagnoses to be excluded are neoplasms,

Figure 1 First computed tomography of the abdomen and pelvis two years before admission, showing cholelithiasis.

Figure 3 Computed tomography of the abdomen and pelvis during the index admission, showing close apposition of the hepatic flexure to the base of the liver and resolution of cholelithiasis.

including colorectal cancer and carcinoid tumour. The history of a recent onset of diarrhoea in a woman in her 80s is not a typical presentation of malabsorption syndromes and inflammatory bowel disease. Cholecystocolonic fistula is a very rare complication of untreated cholelithiasis but chronic diarrhoea is the most common presenting symptom in cholecystocolonic fistula.

Treatment

Owing to her comorbidities, surgical management was deemed not the best option for this patient. She was trialled on oral cholestyramine and subcutaneous octreotide, a somatostatin analogue. A rescue endoscopic retrograde cholangiopancreatography (ERCP) and biliary stenting was considered if the above trial of pharmacological treatment

had been unsuccessful. The patient was not keen on any surgical or endoscopic procedure. She was discharged with a depot of octreotide and oral cholestyramine.

Outcome and follow-up

She was initially trialled on loperamide with no effect. Initiation of octreotide and cholestyramine, however, effectively resolved her symptoms and she now opens her bowels twice daily. Octreotide was started as a once-monthly intramuscular depot injection. The patient decided to stop taking cholestyramine a few weeks after discharge with no relapse of her symptoms. At one-month follow-up, her symptoms remained well controlled and her quality of life had improved significantly on the current management regimen with octreotide monotherapy. While she had been offered an ERCP and sphincterotomy, she declined this owing to the satisfactory control she had with current medical therapy. She remained conservatively managed satisfactorily at a total of eight months of follow-up.

Eight months after the index admission the patient underwent an ERCP and stent insertion with no complications after developing cholangitis on the background of choledocholithiasis. She continues on octreotide depot injections.

Discussion

Cholecystocolonic fistula is a rare complication of long-standing cholelithiasis. A total of 8–26.5% of cholecystoenteric fistulas involve a communication between the gallbladder and colon, making it the second most common cholecystoenteric fistula after cholecystoduodenal fistula.¹ Cholecystocolonic fistula is an incidental intraoperative finding in 0.06–0.14% of all cases.¹

Diarrhoea is the most common presenting symptom, followed by bowel obstruction secondary to gallstone ileus.¹

Figure 2 Computed tomography of the abdomen and pelvis during the index admission, showing free air in the biliary tree.

This is thought to be the result of the laxative effect of bile salts on colonic mucosa.¹

There are numerous case reports of cholecystocolonic fistula. Most of these reports involve patients who are managed operatively. The standard treatment option for cholecystocolonic fistula is fistula resection and cholecystectomy and colonic resection in selected cases.¹ The evidence base remains scarce with regards to the outcomes of these procedures. There is also a case report of cholecystocolonic fistula that was successfully managed using a 'watch and wait approach' but this was in a patient who was asymptomatic.²

In our patient, surgical management was not a first-line option because of her age, frailty and comorbidities. She also did not desire an endoscopic procedure. Thus, a somatostatin analogue, octreotide, and cholestyramine were trialled. There exists evidence for the use of octreotide as a somatostatin analogue in the treatment of refractory diarrhoea, although this is from largely low-quality, observational studies.^{3,4} Octreotide and somatostatin target a variety of sites in the gastrointestinal tract, inhibiting motility, pancreatic and gastric secretion and promoting net water and salt reabsorption. Specific to cholecystocolonic fistula, somatostatin inhibits cholecystokinin which in turn inhibits hepatic bile production.⁴ Evidence specific to diarrhoea caused by gastrointestinal fistula is largely limited to pancreatic fistula.⁴ The combined action of octreotide and cholestyramine as a bile sequestrant theoretically reduces the volume of bile flowing into the colon and therefore reduces the laxative effect of the bile salts on the colon.

ERCP and biliary stenting provides a less invasive management option of cholecystocolonic fistula. This promotes the bypass flow of bile into the duodenum and reduces the flow of bile into the colon.⁵ One case series of two cases reports the successful management of cholecystocolonic fistula-associated diarrhoea via ERCP.⁵ Our patient underwent an ERCP eight months after the index admission for cholangitis secondary to choledocholithiasis, a known complication of octreotide therapy.

ERCP was considered as a potential first-line therapy in this patient but she did not desire any interventional proce-

dures at that time and preferred medical therapy. Her frailty, comorbidities and discussion of her treatment goals led to the decision to withhold an ERCP unless she required it. This case also highlights the need to forewarn patients of the potential for a future rescue endoscopic procedure.

More high-quality studies are required to define the benefits and risk profile of octreotide as a conservative management option in cholecystocolonic fistula.

Conclusions

There is a wide differential diagnosis for chronic diarrhoea and weight loss and a variety of investigations can be performed to obtain a diagnosis in these patients. Cholecystocolonic fistula is a rare complication of untreated cholelithiasis, of which diarrhoea is the most common presenting symptom. Air within the biliary system and resolution of previously known gallstones on CT are in keeping a diagnosis of cholecystocolonic fistula. Somatostatin analogues can be considered a potential pharmacological option for cholecystocolonic fistula in patients when a decision is made that medical therapy is the ceiling of care. This case highlights that it is effective but may require a future rescue ERCP. Further studies need to be done to validate these findings and to compare octreotide to other management options in cholecystocolonic fistula, including cost analyses.

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