

Sigmoid laser lithotripsy for gallstone ileus

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Abstract. Gallstone ileus is a relatively rare but life threatening entity. We report the case of laser lithotripsy in the sigmoid colon in an 86-year-old female patient with cholecysto-colonic fistula. A tissue recognition system ensured the safety of the procedure. Three treatment sessions were required to obtain complete gallstone evacuation. No complications were observed. One-year follow-up colonoscopy showed nearly healed cholecysto-colonic fistula. We conclude that laser lithotripsy with a tissue recognition system is safe and effective in such cases and could be considered in gallstone impaction at the level of large bowel.

Key words: gallstone ileus, colon, laser lithotripsy

Gallstone ileus is a rare complication of cholelithiasis. Usually it occurs in elderly, female patients and is potentially fatal (3). Surgical intervention is usually required (1,3). Location of gallstone impaction occurs

only in 8 % in the colon. We present the case of an elderly woman with cholecysto-colonic fistula and gallstone ileus at the level of sigmoid colon successfully treated with endoscopic laser lithotripsy.

Case report

An 86-year-old female with a long history of cholelithiasis and arterial hypertension was hospitalized due to increasing abdominal pain lasting several

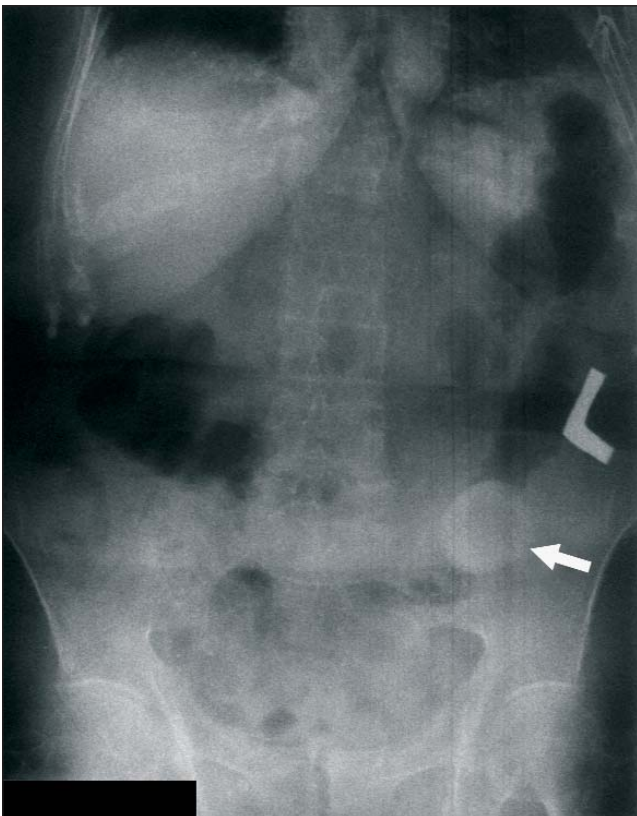


Figure 1
Abdominal plain X-ray with visible gallstone impacted in the colon (arrow).

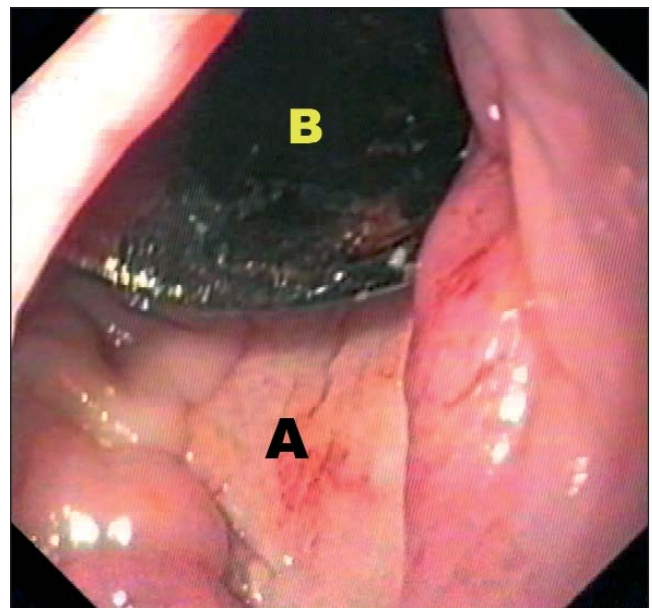


Figure 2
Site of the sigmoid colon impaction. A – ulceration, B – gallstone.



Figure 3
Fragments of shattered gallstone
found in faeces.

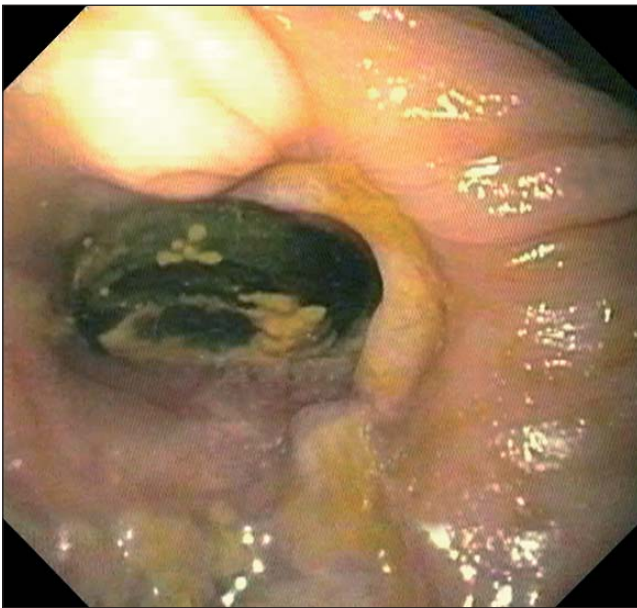


Figure 4
Cholecysto-colonic fistula with impacted gallstone.

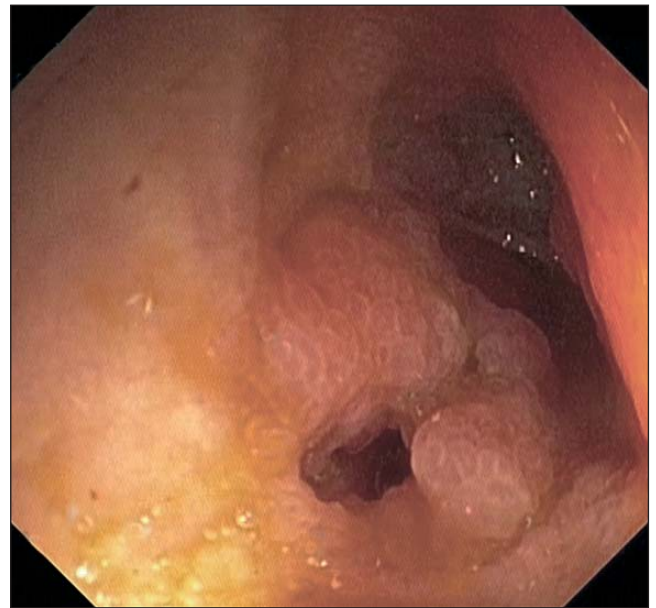


Figure 5
Site of cholecysto-colonic fistula at 1-year follow-up
colonoscopy.

days. Abdominal ultrasound revealed aerocholia and dilated common bile duct. The gallbladder could not be identified. Laboratory evaluation revealed slightly increased white blood cell count, low haemoglobin. Alanine aminotransferase, aspartate aminotransferase, bilirubine, alkaline phosphatase, gamma-glutamyl transpeptidase and creatinine were normal. Endoscopic sphincterotomy and extraction of small common bile duct stones was performed. Gallbladder could not be opacified during ERCP. Symptoms evolved into intermittent intestinal subocclusion. Plain abdominal x-ray revealed three large gallstones in descending/sigmoid colon (Fig. 1). Colonoscopy revealed a large gallstone impacted in the sigmoid colon in the area of diverticulas. Large ulcers caused most probably by impacted stones could also be seen (Fig. 2). It was not possible to pass the scope along the stone.

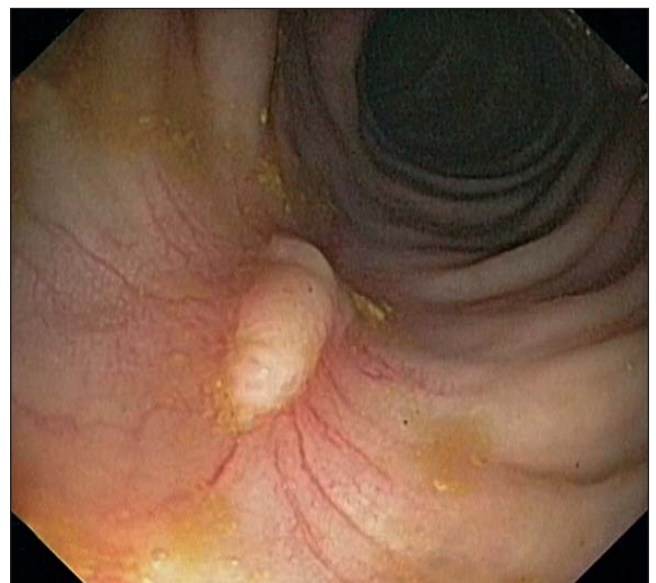


Figure 6
Sigmoid colon with granulation tissue at site of previous
gallstone impaction at 1-year follow-up.

Attempts to remove the gallstone with Dormia basket or snares were not successful and in fact were abandoned due to fear of perforation in the area of diverticulas and ulcers. Laser lithotripsy using Lithongost equipment with built-in stone recognition system (Basel Lasertechnik, Germany) was chosen to be used in this case. The maximum power (150 mJ) and laser frequency (10 Hz) were used with constant flow of saline solution along the laser catheter. The gallstone was shattered into a few small and one larger pieces that were allowed to be passed spontaneously over next days and retrieved from stools (Fig. 3). Another two sessions were required to crush two other, more proximal stones.

After successful evacuation of stones total colonoscopy was possible and revealed a large cholecysto-colonic fistula in the region of the hepatic flexure with another gallstone blocked in the channel of the fistula (Fig. 4). During hospital stay the patient was fed intravenously until the resolution of ileus. The patient was not considered a candidate for further surgical treatment and was discharged without symptoms. A follow-up CT scan performed 5 months later revealed no gallbladder stones. One-year follow-up colonoscopy showed nearly healed cholecysto-colonic fistula (Fig. 5) and healed ulcerations in the sigmoid colon with granulation tissue still present (Fig. 6).

Discussion

We described an unusual case with endoscopically documented cholecysto-colonic fistula and sigmoid colon gallstone impaction treated successfully by means of laser lithotripter with a stone recognition

system. To our knowledge, this is the first described case of gallstone laser lithotripsy in the large bowel. In patients with high operative risk extracorporeal shockwave lithotripsy was successfully used for gallstones impacted in the colon (4). Another option, intraluminal electrohydraulic lithotripsy was described but only in the upper gastrointestinal tract (2). However, electrohydraulic lithotripsy can result in intestinal wall injury when mistargeted (1). The safety of the bowel wall was crucial in the presented case because of large ulcerations and diverticulas present in the area of endoscopic therapy, which caused a need for minimal insufflation and poor visibility. Therefore, laser lithotripsy with a stone recognition system should be regarded as an effective and much safer alternative than other techniques described above in cases like the one reported here.

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