Unexpected outcome (positive or negative) including adverse drug reactions

Large bowel and small bowel obstruction due to gallstones in the same patient

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Summary

This is the case report of an 85-year-old woman who on two consecutive occasions presented with acute abdominal pain. The first presentation was large bowel obstruction. CT abdomen revealed this was due to a cholecystocolic fistula, allowing a large gallstone to pass and obstruct in the sigmoid colon. The second presentation was after laparotomy; the second CT abdomen revealed another gallstone causing small bowel obstruction. This case is interesting because cholelithiasis rarely leads to sigmoid colon obstruction (gallstone colesus)¹ and gallstone ileus. Unfortunately, this patient had both. A gallstone causing obstruction in either the small or large bowel is rare, but occurrence of both in the same patient has not been reported to date. This case also shows how the elderly unwell surgical patient was mismanaged and she could have been spared surgery and irradiation if she was managed appropriately from the start.

CASE PRESENTATION

An 85-year-old female patient presented with a 2-week history of abdominal pain, distended abdomen query peritonitis. Her medical history included chronic obstructive pulmonary disease, hypertension, depression, anaemia, chronic kidney disease stage 3, diverticular disease, hiatus hernia, cataracts and no previous abdominal surgery. Her regular medication included ramipril, alendronic acid, ferrous fumerate and citalopram, and she was an agile lady, independent of ischaemic heart disease or malignancy.

First episode

A CT abdomen was performed and a diagnosis of acute calculi cholecystitis was made (figure 1). This was managed with antibiotic treatment, US-guided drainage/fluoroscopic-guided drainage and a cholecystomy tube and drainage catheter injection. During management, it was noted on CT abdomen that she had multiple large gallstones (one at the neck of the gallbladder), a dilated thickened gallbladder and diverticular disease of her sigmoid. Antibiotics were commenced with no resolution. So, the gallbladder was drained using a fluoroscopic-guided drainage with a pigtail; the catheter was sited via a transhepatic gallbladder puncture. A cholangiogram was performed as she was still symptomatic despite the drain functioning. The conclusion from this was that the pigtail catheter was in situ, large calculi were noted, one in the gallbladder neck, and no contrast was seen communicating with the cystic duct. She improved slowly and was eventually discharged and the drain removed.

Second episode

Seven months later, the same patient presented with similar symptoms: abdominal pain, abdominal distension and watery stools for 2 weeks. On examination, her vital signs were normal. The other indications noted were distended abdomen, generalised tenderness, tympanic abdomen

and tinkling bowel sounds. Per rectum (PR) examination revealed a loaded rectum and blood tests including an amylase test were normal.

Preliminary abdominal x-rays (AXRs) revealed dilated sigmoid colon. A CT abdomen was requested querying large bowel obstruction possibly due to a malignancy. The CT revealed a contracted gallbladder and a single calculus inside. A cholecystocolic fistula was seen connecting the gallbladder to the transverse colon (figure 2). The cholecystocolic fistula fed into the hepatic flexure of colon. The CT revealed a large bowel obstruction secondary to a 3.5 cm calculus impacted in the proximal sigmoid colon and underlying diverticular disease (figure 3).

Figure 1 Multiple gallstones in the gallbladder; one stone in the neck, the gallbladder is dilated. Evidence of diverticular disease in the sigmoid colon.

The patient was taken to the theatre for a flexible sigmoidoscopy to try to extract the gallstone, which was unsuccessful due to the extensive diverticular disease in the sigmoid. A laparotomy and colostomy were performed; the gallstone retrieved was 3×3 cm. Unfortunately, the patient had complications, including acute renal failure, formation of laparostoma, abdominal adhesions and poor wound healing, arising from surgery. This resulted in a long stay in the hospital and multiple procedures.

Third episode

A month nearly to the day after the large bowel obstruction, she developed new abdominal pain; she was vomiting, dehydrated and generally declined. On examination, her abdomen was distended, generally tender, her blood work showed dehydration and raised white cell count. On PR, her rectum was loaded. A plain abdominal film revealed dilated small bowel loops.

The impression was mechanical small bowel obstruction but due to the high white count, there was also a possibility of an abdominal collection. A CT abdomen was discussed and performed. This was the patients' third CT in the same year. The impression from the CT was gallstone ileus; the gallbladder was collapsed, thick walled, distal small bowel was collapsed and there was a gallstone impacted in the distal small bowel (figures 4 and 5).

The patient was prepped for theatre; she underwent a second laparotomy and repair of enterotomy, repair of the cholecystenteric fistula and removal of the gallstone in the ileum. There was a large gallstone causing ileus in the medial ileum, which was extracted. The patient survived the surgery and improved rapidly. She kept the gallstone as a reminder of her procedures (figure 6).

DISCUSSION

Large bowel obstruction secondary to a gallstone formation is rare.¹ Gallstone ileus is an unusual cause of small bowel obstruction, accounting for 1–3% of all mechanical

bowel obstructions.² Both are prevalent in the elderly (>65 years) and are six times more common in women than men.² A high rate of mortality, 12–18%,² is present in both men and women, so it is unusual that this 85-year-old lady survived two counts of gallstone obstruction plus multiple complications. Normally, gallstones are small enough to pass through the ileocaecal valve to the rectum³ and in 4% of cases reported the stone was impacted in the colon, as most small gallstones get through the ileocecal valve and pass through the rectum.⁴

Large bowel obstruction is a rare complication of cholelithiasis, the stone has a high probability of impacting at the level of the sigmoid colon based on previous cases and due to pathologic narrowing here.^{1 4 5} Pathologic narrowing includes a history of diverticulitis as in this patient. The offending gallstone was 3.5×3 cm; the gallstone should be at least more than 2 cm to cause obstruction anywhere in the bowel.^{1 4} Most patients with colonic gallstone ileus present with obstructive symptoms; 25% of patients have a medical history of biliary colic in the previous 12 months, in this case it was 7 months before the obstruction.⁴

The gallstone in the sigmoid can be managed with flexible sigmoidoscopy, firstline.¹ Unfortunately, for this patient colonoscopic stricture dilatation and flexible sigmoidoscopy to remove the impacted gallstone failed, management. Instead, she underwent a laparotomy and colostomy; the cholecystocolic fistula, the cause of the stray gallstone, is not usually repaired as it is symptomless.

This patient was mismanaged from her first episode of cholecystitis and two surgeries were performed due to multilevel bowel obstruction caused by gallstones, 'gallstone ileus'. Fewer than 20% of gallstones are visible on abdominal radiographs.^{6 7} On this patient's second episode of an acute abdomen where she had pain and abdominal distension, an abdominal radiography was done. Her radiograph did show mechanical bowel obstruction, dilated loops of small bowel, no gallstones and she went on to have her third CT in 8 months. Rigler's triad is the classic radiological feature in gallstone ileus; CT revealed the

Figure 2 CT abdomen showing cholecystocolic fistula; large bowel obstruction.

Figure 3 CT abdomen showing gallstone in the sigmoid colon.

presence of small bowel obstruction, pneumobilia and ectopic gallstone.^{6,7}

Gallstone ileus and coleus are difficult to diagnose, and the use of CT has improved diagnostic accuracy and the speed of surgical decisions to maximise a good prognosis for the patient. Investigation of the acute abdomen has evolved from abdominal radiograph to CT. In this case, a CT was warranted, as the AXR was not informative enough. CT was able to detail the gallstone site of obstruction on both occasions. This provided surgeons with excellent anatomical details to manage the obstructions via various surgical options. The symptoms are often

Figure 4 Abdominal CT showing Rigler's triad; pneumobilia, ectopic gallstone; mechanical bowel obstruction; gallstone entered via cholecystenteric fistula.

Figure 5 CT abdomen showing distal small bowel collapsed, gallstone impacted; gallstone ileus.

non-specific and can lead to delays; in previous years, plain abdominal film was the gold standard trying to identify Rigler's triad, despite it being present in less than a third of cases.⁸ Ultrasound and CT are vital for early diagnosis.⁸

A further advantage of CT is to locate with accuracy the site of impaction and visualise the cholecystenteric fistula through which the gallstone passed. The fistulae often result from inflammation and adhesion between the biliary tree and enteric system following cholecystitis.⁹ In this case, it may have been due to adhesions from the previous laparotomy a month earlier. Perhaps the stones seen in the previous two CT abdomen should have been removed or the patient should have had a cholecystectomy at the time of her first laparotomy to prevent this further small bowel obstruction and another operation. Normally, the addition of a cholecystectomy and fistula closure is reasonable in low-risk patients;⁹ she did have her fistula repaired, but still has her gallbladder and one remaining gallstone in situ.

MANAGEMENT DISCUSSION

This 85-year-old patient first presented with a textbook presentation of acute cholecystitis and was managed conservatively due to her age and co-morbidities. Surgery was indicated as she was not responsive and had only temporary symptomatic relief. The real reason for no surgery at this point was not documented. A lesson learnt is that elderly patients sometimes do not need overconservative management. The need for helping the patient with surgery should benefit the patient and not be overlooked due to age, if it is indicated it should be carried out for the benefit of the patient. Overly conservative management was initiated resulting in further hospital admissions and surgery.

Overall, she was managed by three acute surgical teams that mismanaged the treatment and seemed to be blinkered by her age and multiple co-morbidities. The surgical

Figure 6 Photograph of the gallstone that was removed. This gall stone caused sigmoid obstruction.

teams made very questionable decisions resulting in potentially life-threatening surgery and long-term health consequences for the patient. All three surgical teams made controversial surgical and endoscopic decisions. I cannot comment on what factors directly influenced them only surmise from the documentation.

It is very clear retrospectively to say the gallstone ileus would not have occurred at all if at the first episode an interval cholecystectomy was done. It is important to acknowledge that mistakes were made and we should learn from them. The patient was always aware and well informed of what was going on and why she had to have these operations.

The patient in the end had a good outcome and recovered successfully. The patient still has not had a cholecystectomy, she still has her gallbladder and she still keeps the stones as a reminder of what she endured, but, most importantly, survived.

CONCLUSIONS

Gallstone obstruction of the colon, small or large, is an unusual condition, even more unusual is for it to occur in the small and large colon in same patient. The case has highlighted the use of CT when it is difficult to find a clear cause for obstruction and it also shows how accurate CT is. This ultimately helps in making quick surgical decisions and aids in choosing the best approach for the patient. Surgery was the choice of treatment in this case, but endoscopic removal was attempted first, which was the right thing to do given the patient's co-morbidities.

The average age of onset of gallstone ileus/coleus is 72.² This patient is older by 13 years, has had two operations, laparotomy twice, three CT scans, went into acute renal failure requiring haemodialysis, central line fitted, vascaths fitted at risk of venous-thromboembolism, her wound got infected and her depression escalated. Given the incidence of high mortality associated with these conditions, and her co-morbidities with anaesthesia, it is remarkable she was discharged fit and well.

Learning points

- ▶ In the case of bowel obstruction, CT can be used to pinpoint the cause, site of obstruction quickly and to aid in surgery.
- ▶ The mismanagement of a surgical patient – how we can learn from early diagnosis and prevent complications later on.
- ▶ Imaging of the abdomen – the use of CT abdomen versus an abdominal radiograph and the benefits and role CT plays in surgery today can be better understood.

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Competing interests None.

Patient consent Obtained.

REFERENCES

1. **Doddi S**, Basu NN, Kamal T, *et al*. Large bowel obstruction due to gallstone: 'gallstone coleus'. <http://www.grandrounds-e-med.com> (accessed 31 December 2009).
2. **Reisner RM**, Cohen JR. Gallstone ileus: a review of 1001 reported cases. *Am Surg* 1994;**60**:441–6.
3. **García-López S**, Sebastián JJ, Uribarrena R, *et al*. Successful endoscopic relief of large bowel obstruction in a case of a sigmoid colon gallstone ileus. *J Clin Gastroenterol* 1997;**24**:291–2.
4. **Anagnostopoulos GK**, Sakorafas G, Kolettis T, *et al*. A case of gallstone ileus with an unusual impaction site and spontaneous evacuation. *J Postgrad Med* 2004;**50**:55–6.
5. **Maltz C**, Zimmerman JS, Purow DB. Gallstone impaction in the colon as a result of a biliary-colonic fistula. *Gastrointest Endosc* 2001;**53**:776.
6. **Oikarinen H**, Päivänsalo M, Tikkaoski T, *et al*. Radiological findings in biliary fistula and gallstone ileus. *Acta Radiol* 1996;**37**:917–22.
7. **Fellinger E**, Rogers F. Gallstone ileus case report. <http://www.surgicalroundsonline.com> (accessed 31 October 2009).
8. **Ayantunde AA**, Agrawal A. Gallstone ileus: diagnosis and management. *World J Surg* 2007;**31**:1292–7.
9. **Rodríguez-Sanjuán JC**, Casado F, Fernández MJ, *et al*. Cholecystectomy and fistula closure versus enterolithotomy alone in gallstone ileus. *Br J Surg* 1997;**84**:634–7.

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