Novel treatment (new drug/intervention; established drug/procedure in new situation)

Endoscopic management of migrated biliary stent causing sigmoid perforation

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Summary

Endoscopically deployed biliary stents are a well established method for dealing with biliary diseases. Perforation of the gut secondary to migrated biliary stent is reported in less than 1% cases. The authors present the first case of a colonic perforation from migrated biliary stent which was managed endoscopically. An 82-year-old female had a biliary stent for a postcholecystectomy bile leak and presented 6 months later with left iliac fossa pain. Barium enema showed a stent perforating the sigmoid colon. In view of the patient's frailty and absence of peritonitis, an endoscopic retrieval of stent was attempted. Flexible sigmoidoscopy showed a stent partially embedded within the sigmoid diverticulum which was successfully removed and the defect was closed endoscopically using three titanium clips. She had an uncomplicated recovery following the procedure and was discharged home on the second day following the procedure.

BACKGROUND

Endoscopically deployed biliary stents are a well-established method for dealing with biliary diseases. Migration of biliary stents with subsequent passage per rectum is relatively frequent, but perforation of the gut is reported in less than 1%.¹ Cases with stent perforation distal to the ligament of Treitz have been reported in literature, but all required surgical intervention. We present the first case of sigmoid perforation from migrated biliary stent which was managed endoscopically.

CASE PRESENTATION

An 82-year-old woman presented to the emergency department with a 2-day history of left iliac fossa pain. She had a laparoscopic cholecystectomy 6 months earlier, complicated by bile leak from the cystic duct stump which was managed with endoscopic insertion of 7 Fr 7 cm Cotton-Leung (Amsterdam) stent. A repeat endoscopic retrograde cholangiopancreatography (ERCP) and stent removal was attempted 3 months later but the stent had already migrated distally.

On examination, she was haemodynamically stable and had a low-grade fever of 37.3°C. Abdominal examination revealed tenderness in left iliac fossa with no signs of peritonitis.

INVESTIGATIONS

Laboratory investigations showed elevated white blood cell count at $17.4 \times 10^9/l$. Abdominal x-ray showed a stent lying in the pelvis (figure 1). She was treated with intravenous antibiotics for suspected diverticulitis. A subsequent barium enema showed severe diverticular disease and a plastic stent lying in the sigmoid colon. The upper end of the stent was lying within the colonic lumen and distal end outside the bowel, alongside the rectum (figure 2).

TREATMENT

In view of the patient's frailty and absence of peritonitis, it was felt reasonable to explore the possibility of endoscopic removal of stent. Flexible sigmoidoscopy revealed a stent located at 45 cm from anal verge, partially embedded in the sigmoid diverticulum (figure 3). The stent was removed endoscopically and the defect was closed with three titanium clips (figure 4).

OUTCOME AND FOLLOW-UP

She made an excellent recovery and was discharged home on the second day following the procedure.

DISCUSSION

Endoscopic insertion of a plastic biliary stent is a well-recognised method for treating bile leak following cholecystectomy.² Stent migration is a well-recognised complication of ERCP which is more common with plastic stents.³ Most of these cases of stent migration pass unnoticed as the stent is passed in the faeces or remain asymptomatic in the gastrointestinal tract.

Intestinal perforation is an exceedingly rare complication after placement of a biliary stent. Risk factors for stent perforation include weak points in the bowel wall such as diverticulae or in places where the intestine is fixed. These include the retroperitoneal segments, loops in abdominal herniae or at intra-abdominal adhesions.

Duodenal perforation secondary to migrated stent has been managed with endoscopic clip closure,⁴ but reported cases of colonic perforation complicating biliary stent migration have only been managed surgically.⁵⁻⁷ This is usually undertaken to avoid further contamination and prevent intraperitoneal abscess. Our patient did not have signs of peritonitis and given her frailty, endoscopic management was attempted as the first option.

Figure 1 Plain abdominal x-ray.

Figure 2 Barium enema.

In a patient with a stent perforating the bowel, but without peritonitis, it would be logical and safe to attempt endoscopic stent removal, treat with antibiotics and carefully monitor progress. Closure of the perforation with clips should help to reduce the risk of further contamination of the extraluminal tissue.

Patients with biliary stents are usually under regular follow-up and if the stent has migrated, it may be removed endoscopically. If the stent is not accessible endoscopically, the patients should have serial abdominal x-rays to check the stent location.⁸ As the numbers of stenting procedures continue to increase, it may be anticipated that the number of complications will continue to increase.⁹ With the correct level of expertise, endoscopic retrieval and closure

Figure 3 Endoscopic picture of stent.

Figure 4 Plain abdominal x-ray with clips.

of the defect is a viable strategy for the management of colonic perforation by biliary stents.

Learning points

- ▶ Patients having biliary stents should be consented for stent migration.
- ▶ Migrated biliary stents can cause serious complications like perforation of the bowel.
- ▶ In the absence of peritonitis, colonic perforation caused by migrated biliary stent can be managed endoscopically.

Competing interests None.

Patient consent Obtained.

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