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An unusual haemorrhagic complication of an anastomotic leak and a novel method of controlling the haemorrhage

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ABSTRACT

INTRODUCTION Restorative proctocolectomy (RP) is undertaken for patients with familial adenomatous polyposis (FAP) and ulcerative colitis, but is associated with a risk of anastomotic leak.

CASE HISTORY A 20-year-old male with a family history of FAP had a RP with a double-stapled J-pouch and covering loop ileostomy. At ileostomy reversal 21 months later, he presented with significant anal bleeding. He proceeded to theatre for endoscopy. Pouchoscopy showed a pouch full of blood and a foreign object trapped in a diverticulum. The foreign object (an undigested tablet) was removed with grasping forceps and the bleeding spot identified. Hemospray® (Cook Medical, Winston-Salem, NC, USA) was deployed in the bleeding cavity to enable immediate control of haemorrhage. Recovery was uneventful and he was discharged home 72 hours later.

CONCLUSIONS This case: (i) demonstrates a successful and novel method of controlling haemorrhage not amenable to use of conventional haemostatic mechanisms; (ii) highlights the potential problems of using prolonged-release medications in patients with gastrointestinal strictures/diverticulae.

KEYWORDS

Restorative proctocolectomy – Pouchoscopy – Hemospray® – Diverticulae

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Restorative proctocolectomy is carried out for patients with familial adenomatous polyposis (FAP) and ulcerative colitis. RP is associated with a risk of anastomotic leak of 5–15%. Anastomotic leaks and the associated pouch-related sepsis can lead to dysfunction/failure of the pouch, as well as increasing the chances of further surgical intervention and complications.[1]

We describe an unusual late haemorrhagic complication of an anastomotic leak in a patient who had a RP and J-pouch for FAP. We also describe a novel method for controlling this type of haemorrhage.

Case History

A 20-year-old male with a family history of FAP had a RP with a double-stapled J-pouch and covering loop ileostomy in January 2014. This method was chosen instead of mucosal proctectomy because of comparative rectal sparing from polyps.

He became unwell after the initial procedure, and mounted a significant septic response. Computed tomography (CT) showed a collection in the pelvis from an anastomotic leak. Sepsis was treated conservatively with percutaneous drainage and no direct treatment of the leak.

He underwent flexible sigmoidoscopy 11 months later, and the pouch was healthy with no evidence of anastomotic stenosis. Follow-up investigations were delayed due to personal reasons. Sixteen months after surgery, a pouchogram showed that the leak had healed and there was no evidence of obstruction. Ileostomy reversal was done 21 months after the original procedure: it was uneventful and he was discharged home.

Eight days after ileostomy reversal he presented with trans-anal bleeding. After hospital admission he had two episodes of large volume anal bleeding (blood loss ≤3l). After the first episode, the haemoglobin fell from 153g/l to 109g/l. Initially, he was treated with 2 units of blood and tranexamic acid. A CT angiogram was considered, but he became haemodynamically unstable after a further large anal bleed. The haemoglobin fell to 90g/l despite administration of 2 units of blood, so he was taken to theatre for endoscopy.

Initial oesophagogastroduodenoscopy showed no active/recent signs of haemorrhage; the only finding was a duodenal polyp (type I according to the Spiegelman classification). He underwent pouchoscopy, which showed a pouch full of blood. A foreign object appeared to be trapped in a diverticulum at the level of the circular anal anastomosis. This

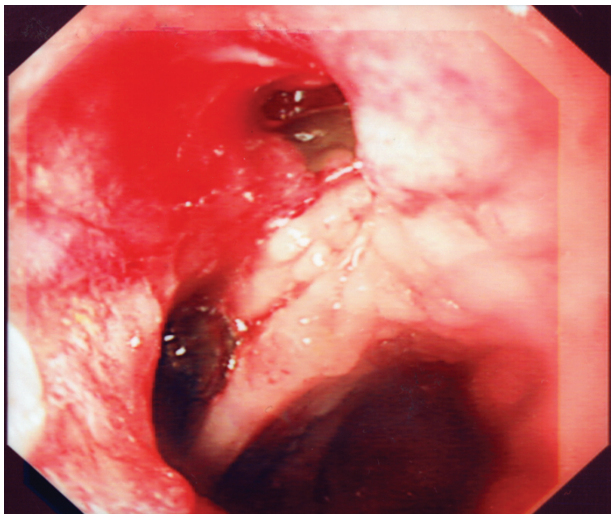

Figure 1 Pouchogram showing a haemorrhagic sinus tract from which the foreign body was removed

foreign object was removed with grasping forceps and the bleeding spot identified as arising from an ulcerated area behind where the object was embedded (Fig 1). The bleeding area was within a sinus and so was not amenable to application of an endoclip. Hemospray® (Cook Medical, Winston-Salem, NC, USA) was deployed in the bleeding cavity to enable immediate control of haemorrhage.

The object was identified as an undigested tablet (Fig 2). It appeared this tablet had become trapped in the sinus at the level of the anastomosis due to a previous anastomotic leak at this site. These actions resulted in localised ulceration with subsequent erosion of a blood vessel, thereby leading to life-threatening rectal haemorrhage. Recovery was uneventful and he was discharged home 72 hours later.

Discussion

Anastomotic leak occurs in ≤15% of RPs, with a lower prevalence in patients with FAP compared with those suffering from inflammatory bowel disease. Use of a defunctioning ileosotomy has been postulated to reduce the risk of an anastomotic leak by ≤50%, and so reduce the prevalence of pouch-related sepsis. Important sequelae are sepsis/abscess in the pelvis, presacral abscess, and development of a chronic sinus tract. The ultimate management goal is prevention of development of sequelae if a leak is identified.[2,3]

Novel methods of early closure of anastomotic leaks using endo-SPONGE™ (B-Braun Medical, Melsungen, Germany) have been reported. Endo-SPONGE is used to stop sepsis and allow formation of healthy granulation tissue, which enables early surgical suturing of the defect.[2,3] Improved function in the pouch and earlier ileostomy reversal are among the benefits. Gardenbroek and coworkers identified a significant improvement in the healing time of

Figure 2 The Concerta XL tablet removed from the patient beside an original form of the tablet.

anastomoses by 22 days with endo-SPONGE compared with other treatments.[2] Closure of the defect using endo-SPONGE was not done in our patient because the sinus was <1cm at pouchoscopy. Use of endo-SPONGE for anastomotic leaks aims to optimise outcomes and could reduce the risk of diverticulae formation and the sequelae of potentially life-threatening haemorrhagic complications observed in our patient.

The foreign object that was removed was Concerta XL (a prolonged-release tablet for treatment of attention deficit hyperactivity disorder). It is designed specifically to be non-absorbable. The tablet is excreted intact after the drug is absorbed throughout the gastrointestinal tract.

Hemospray

Hemospray is a metabolically inert haemostatic powder comprising a mixture of minerals. It is licensed for use in non-variceal bleeding in the upper gastrointestinal tract. It is deployed via an endoscopic catheter 1–2cm from the bleeding area using pressurised carbon dioxide as part of the delivery system. Several case reports have highlighted its use outside this licence capacity, including successful treatment of variceal/diverticular bleeding.[4] This is the first report of hemospray being used to stop bleeding associated with a complication of an anastomotic leak.

Hemospray: (i) forms a barrier layer upon contact with blood in the gastrointestinal tract; (ii) enhances the concentration of coagulation factors surrounding the bleeding vessel, thereby aiding clot formation. The mechanical barrier formed sloughs off from the mucosa within 72 hours.[4]

Hemospray enabled immediate cessation of bleeding in our patient. Re-bleeding did not occur during the recovery period, and the patient was discharged home after 72 hours. Despite being used off-licence, this case: (i) demonstrates a successful and novel method of controlling haemorrhage not amenable to use of conventional haemostatic mechanisms; (ii) highlights the potential problems of using prolonged-release medications in patients with gastrointestinal strictures/diverticulae. We have advised our patient to take the immediate-release preparation of this tablet to minimise the risk of future problems.

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