



CASE REPORT

Endoscopic therapy of colorectal anastomotic hematoma with hypertonic dextrose

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Abstract

Anastomotic dehiscence and leak are dreaded complications after a colorectal resection and can often present with rectal bleeding and pelvic abscess or sepsis. Although most cases of bleeding after gastrointestinal anastomoses are minor and self-limited, major bleeding, as defined by hemodynamic instability or the need for blood transfusions, poses a significant challenge for management. Here we report a case in which a patient presenting with profuse rectal bleeding and pelvic hematoma secondary to a colorectal anastomotic leak was treated endoscopically with 50% dextrose spray then enema.

Key words: Endoscopy; gastrointestinal bleeding; dextrose

Introduction

Anastomotic leaks after colorectal resection can cause morbidity and mortality [1, 2]. Most leaks become apparent 2–7 days after surgery, and may be either intra- or extra-peritoneal. Clinical presentation may vary, including subclinical leaks, rectal bleeding, localized or generalized peritonitis and pelvic hematoma/abscess. Management includes observation, bowel rest, antibiotics, percutaneous drainage, endoscopic therapies, surgical revision or bowel diversion [3]. Endoscopic therapy is the mainstay in the management of major anastomotic bleeding, employing conventional modalities such as irrigation with isotonic saline, electrocoagulation, epinephrine injection or hemostatic clips [4–8]. However, bleeding from anastomotic sites is usually diffuse mucosal in origin, and can be challenging to control using such conventional modalities. In addition, it is often technically difficult to secure good apposition of the unhealthy tissue at these anastomotic margins with sutures or clips. We report a unique case where hypertonic dextrose spray followed by dextrose enema was used successfully to treat anastomotic bleeding and hematoma.

Case presentation

The patient was a 63-year-old male who was transferred to Cleveland Clinic for an opinion regarding management of a colorectal anastomotic leak with hematochezia and a pelvic hematoma. He had a history of congestive heart failure, atrial fibrillation (on warfarin) and prostate cancer for which he underwent prostatectomy and radiation in 2009. He underwent low anterior resection with diverting loop ileostomy at another facility for recently diagnosed rectal cancer and was discharged home on enoxaparin on Day 6 after surgery. He was readmitted on the same day with profuse hematochezia with anemia requiring blood transfusion. Computed tomography (CT) scan of pelvis initially demonstrated a 9-cm pre-sacral collection, which was later confirmed to be a pelvic hematoma. Anticoagulation was discontinued but hematochezia persisted. Subsequent CT scan showed persistent organized hemorrhage with increasing air lucency concerning abscess/leak, and the patient elected to come to us for a second opinion. On presentation to our emergency room, he had persistent hematochezia with passage of

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staples per rectum, with no other gastrointestinal symptoms, and stable vital signs. The ileostomy site looked healthy and non-infected. Anorectal exam revealed dark and bright blood, otherwise unrevealing. Other systemic exam was unremarkable. The results of lab examinations showed as follows: hemoglobin concentration, 124 g/L; mean corpuscular volume (MCV), 88.1 fL; platelet count, 158 000/ μ L; activated partial thromboplastin time (aPTT), 25.4 s; and international normalized ratio (INR), 1.2. Hepatic and renal function panels were within normal limits.

CT-guided percutaneous aspiration of pelvic collection revealed non-purulent bloody fluid, with culture revealing polymicrobial growth, for which he was treated with ciprofloxacin and metronidazole. Flexible sigmoidoscopy revealed a defect about 5–6 cm long with a 1-cm orifice at the colorectal anastomotic site and hematoma in the lumen (Figure 1). The bleeding source was not identified. Therefore, conventional endoscopic approaches, such as hemo-clips and thermotherapy, were not feasible. Fibrous tissue was noted at the anastomotic site as a result of anastomotic tension and recent radiation therapy for prostate cancer. Unhealthy tissue at the margins of the anastomotic leak precluded the deployment of endoscopic sutures, as tissue apposition would have been suboptimal. For a similar reason, over-the-scope clip (OTSC) would not have been adequate. Moreover, OTSC often migrates due to intestinal peristalsis [9]. We decided not to use sutures or clips to treat the defect due to the above-mentioned reasons. During the procedure, the defect and bleeding hematoma was sprayed with 50% dextrose. The bleeding was temporarily controlled (Figure 2). Twelve hours after the hypertonic dextrose spray, bleeding recurred. He was readmitted and received 250 mL of 50% dextrose enema twice, with progressive reduction and cessation of bleeding. He had no recurrence of bleeding and was discharged home with 250 mL of 50% dextrose enema twice daily for the following 10 days. The patient had persistent bleeding for close to 20 days before the endoscopic intervention. Spraying of 50% dextrose at the bleeding site resulted in significant control, and the subsequent administration of hypertonic dextrose enema for 2 weeks resulted in permanent cessation of the bleeding, making it unlikely that the bleeding stopped spontaneously. We did not use hemospray to treat the bleed because it is not yet approved by the Food and Drug Administration (FDA) and is used only for research purposes at our institution. During the follow-up, he has not had re-bleeding and the anastomotic leak has healed (Figure 3), although the previous hematoma was replaced by a pre-sacral sinus, at the colorectal anastomotic site. The pre-sacral sinus was treated subsequently with endoscopic needle knife sinusotomy.

Discussion

Major anastomotic bleeding is a dangerous complication after colorectal resection, with incidence rates of 0.5–4.2% [5, 7]. No specific risk factors have been identified. Initial management is supportive with blood transfusions and correction of any underlying coagulopathy [10]. In stable patients with persistent bleeding, endoscopic management is the first-line treatment, with surgical intervention reserved for unstable patients or those who fail conservative treatment [5, 7, 10]. Endoscopic techniques to achieve hemostasis in this setting have included irrigation with isotonic saline, electrocoagulation, epinephrine injection and hemostatic clips [4–8]. Angiographic localization with intra-arterial vasopressin injection may also be used, but complications like ischemia and anastomotic dehiscence

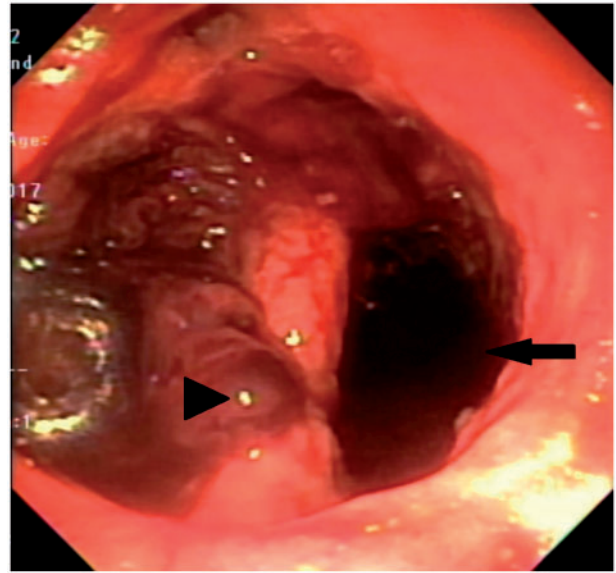


Figure 1. Pre-sacral hematoma from anastomotic leak before hypertonic dextrose treatment. Arrow indicates colonic lumen and arrowhead shows the site of the defect.

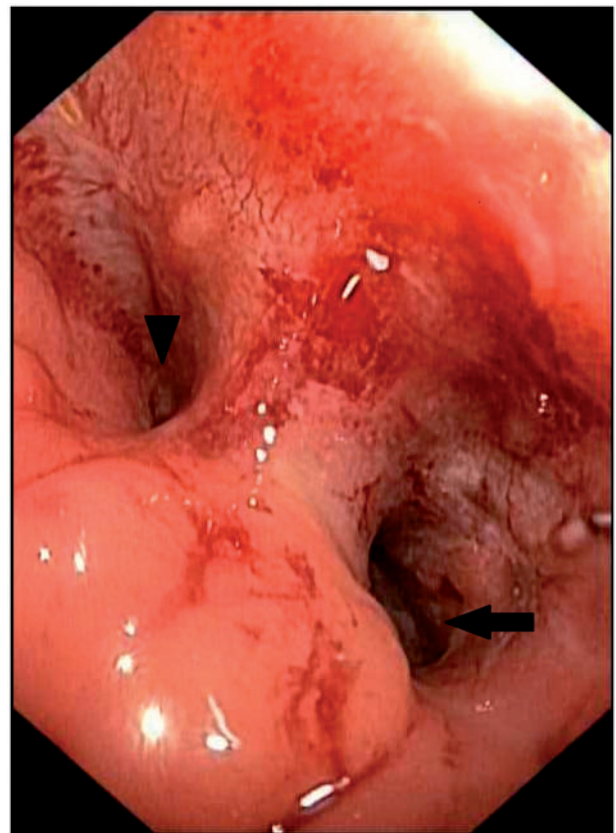


Figure 2. Healed anastomotic leak after hypertonic dextrose. Arrow shows colon lumen and arrowhead indicates the pre-sacral sinus.

may occur [11]. If these measures fail, reoperation with resection of bleeding anastomosis may be performed as a last resort [6, 10].

We report a unique case of major anastomotic bleeding controlled with endoscopic hypertonic dextrose spray and

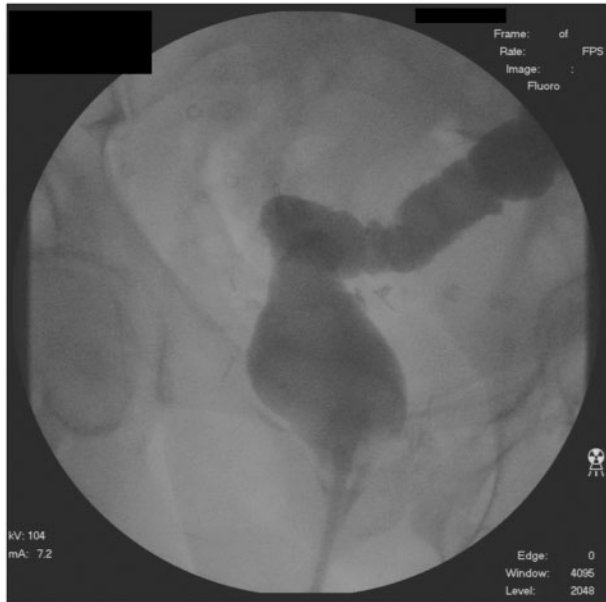


Figure 3. Barium enema after hypertonic dextrose treatment showing resolution of the anastomotic leak.

enema. There is not much evidence supporting the use of dextrose in anastomotic bleeding, although it has been employed with remarkable success in other types of gastrointestinal bleeding. Hypertonic dextrose endoscopic injection has been used successfully to treat bleeding gastric varices [12], peptic ulcers [13] and hemorrhoids [14] with no significant increase in complications such as re-bleeding or the need for subsequent surgeries compared to other available techniques and sclerosants. In a prospective randomized trial, hypertonic glucose was found to be superior to sodium tetradecyl sulphate as a sclerosant in treating gastric variceal bleeding in advanced liver cirrhosis patients [15]. Our group previously reported two cases where hypertonic dextrose spray was used successfully for bleeding—one from radiation enteritis [16] and the other in diversion pouchitis [17]. It has also been used as an adjuvant treatment of residual gastric varices after tissue adhesive injections, thereby reducing risk of re-bleeding [18]. Hypertonic dextrose spray could be a safe, effective and easily available alternative to other hemostatic measures, particularly when there is diffuse mucosal bleeding, which may be challenging to control. In our patient, the combined treatment with hypertonic dextrose spray and enema also assisted in the healing of the anastomotic defect without the need for surgical repair. Hypertonic dextrose causes osmotic dehydration, thereby inducing mural necrosis of blood vessels, resulting in their obliteration, along with inflammation and fibrosis in the perivascular space. This has previously been shown to promote control of bleeding and also to help in the coaptation of tissue margins, thereby promoting mucosal healing [14–17]. Theoretical concerns regarding widening of a mucosal defect due to vascular mural necrosis have not been borne out in previous studies [18, 19]. It may cause mild hyperglycemia, particularly in diabetic patients, but it is usually transient and not of much concern [16, 17].

In conclusion, we describe a case where hypertonic dextrose was successfully used to treat anastomotic bleeding. Further studies need to be conducted to validate the effectiveness of this modality.

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Conflicts of interest

None declared.

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