

Indwelling Bowel Management System as a Cause of Life-Threatening Rectal Bleeding

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Key Words

Faecal incontinence · Diarrhoea · Gastrointestinal haemorrhage · Indwelling catheters

Abstract

A 79-year-old male was transferred to the intensive care unit for postoperative respiratory support. An indwelling bowel management system was inserted for containment of noninfective diarrhoea. Following only 11 days of continual use the patient developed life-threatening rectal bleeding. Preoperative normal rectal mucosa and anatomy were documented. There was no evidence of postoperative coagulopathy. Mesenteric angiography identified bleeding from a branch of the superior rectal artery. Rectal mucosa pressure necrosis secondary to the indwelling Flexi-Seal[®] Fecal Management System was diagnosed. The patient required an 11-unit transfusion of packed red cells. Following intraarterial coil embolization of the superior rectal artery the bleeding abated. Indwelling bowel management systems are commonly used in immobile and critically ill patients with diarrhoea or faecal incontinence. This is the first report of this important complication in the literature.

Introduction

Indwelling bowel management systems are commonly used in immobile and critically ill patients with diarrhoea or faecal incontinence. These devices protect against perianal skin excoriation, restrict the potential spread of infection and reduce basic nursing requirements. We report a rare case of rectal mucosal pressure necrosis resulting in life-threatening rectal bleeding following the use of such a system. This is the first reported case in the literature.

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Case Report

A 79-year-old male underwent an elective right hemicolectomy for carcinoma of the ascending colon. Diagnosis was made by histology from biopsies taken at colonoscopy, during investigation for anaemia. Past medical history included myocardial infarction and cerebrovascular accident. The patient was taking several medications including antihypertensives and atorvastatin. Dipyridamole was stopped ten days prior to surgery. Whilst on the intensive care unit (ICU) for ventilatory support to treat a postoperative respiratory infection, he developed noninfective diarrhoea. A Flexi-Seal® Fecal Management System (ConvaTec, Bristol-Myers Squibb Company, Princeton, N.J., USA) was inserted. After 11 days of continual use the patient developed profuse rectal bleeding requiring resuscitation. In total 11 units of packed red cells and 2 units of fresh frozen plasma were transfused. There was no evidence of postoperative coagulopathy prior to this episode and dipyridamole had not been recommenced postoperatively. The Fecal Management System (FMS) was removed and a rigid sigmoidoscopy performed revealing blood clots in the rectum with normal mucosa below and no obvious source of bleeding. Computed tomography scan of the abdomen showed a high density area along the posterior and lateral aspect of the rectum in keeping with fresh blood, but no obvious bowel wall pathology. Mesenteric angiography identified bleeding from a branch of the superior rectal artery ([fig. 1](#)). This was successfully embolized with three 5 mm coils following selective catheterization of the superior rectal artery via the inferior mesenteric artery ([fig. 2](#)). The rectal bleeding subsequently abated. At 4 months postoperatively, the patient remains on ICU for respiratory support and continues to recover.

Discussion

FMS are an effective tool for the diversion of faecal matter in the critically ill. They protect against perianal skin excoriation and help reduce the spread of nosocomial infections [1]. The Flexi-Seal® Fecal Management System (ConvaTec, Bristol-Myers Squibb Company, Princeton, N.J., USA) is composed of a soft silicone catheter inserted into the rectal vault, connected to a collection system. The catheter is held in place by inflation of a balloon with 45 ml of water. The balloon can be easily inserted past the anal sphincter via use of the adjacent finger pocket. The indicator chamber on the inflation port indicates overinflation, whilst a safety line can be viewed externally to position the balloon relative to the patients' anus. Contraindications for the use of this system are: (1) lower colonic/anal surgery within the past year; (2) any rectal or anal injury, stricture or stenosis; (3) severe haemorrhoids; (4) confirmed rectal or anal tumour; (5) faecal impaction; (6) inflammatory bowel disease. The manufacturer advises discontinuation of use at 29 days. Other indwelling collection systems include traditional Foley catheters, the Zassi Bowel Management System (Zassi Medical Evolutions, Fernandina Beach, Fla., USA) similar in composition to the FMS and the rectal trumpet [2].

Traditional rectal catheters consist of 20–30-French Foley catheters. Although effective, newer systems have been invented as these traditional catheters require periodic deflation and reinflation to protect against anorectal barotrauma [3]. The balloon pressure of the FMS when inflated is <1 PSI (pounds per square inch), less than mucosal tissue pressure. Periodic balloon deflation is therefore unnecessary to prevent trauma. Grogan and Kramer [2] described the use of a 32-French nasopharyngeal airway passed into the rectum to lodge above the anal sphincter. Successful stool containment and no adverse effects were reported with this experimental and unlicensed method.

In a review of the limited literature we identified no definite cases of anorectal barotrauma with the use of indwelling faecal management systems. Disappointingly all documented series are small, with patient numbers ranging from 3 to 42 [4, 5]. In all studies individuals were immobile or bedridden with diarrhoea and included ICU, burns, spinal injury and stroke patients. Indwelling faecal management systems were left in situ for up to 59 days [6] with endoscopic evidence of normal rectal mucosa following such

prolonged periods. Atraumatic use has also been confirmed in patients with pseudomembranous colitis [7].

In one individual admitted with gastrointestinal bleeding, further rectal bleed developed 4 days post FMS insertion [5]. Following endoscopic identification of lower gastrointestinal ulceration, the authors concluded the probable relationship to the FMS. As the patient did not undergo preinsertion endoscopy, this is difficult to conclude with absolute certainty. In our patient there was no previous history of gastrointestinal bleeding and preoperative diagnostic colonoscopy was performed confirming healthy rectal mucosa and no evidence of anorectal pathology prior to the use of the FMS.

We can therefore conclude with confidence in our patient that life-threatening rectal bleeding resulted from FMS-induced rectal mucosal pressure necrosis. In addition this bleeding arose after only 11 days of FMS use. To our knowledge there have been no other reports of rectal bleeding with the use of indwelling faecal containment systems in patients with previously documented normal rectal mucosa.

Fig. 1. Angiogram showing the bleeding vessel.



Fig. 2. Post-coil embolization of the superior rectal artery.



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