Complete circumferential rectal ulceration and haemorrhage secondary to the use of a faecal management system

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Abstract: This structured case report is a brief case report describing an episode of complete circumferential rectal ulceration and haemorrhage secondary to the use of a faecal management system. An elderly lady was admitted for elective cardiac surgery. Prior to admission, the patient was taking warfarin in view of her atrial fibrillation. Following surgery, the patient developed faecal incontinence, which was managed with a faecal management system. However, the patient subsequently developed massive rectal haemorrhage from an area of complete circumferential ulceration in the rectum. This ulceration resulted from pressure necrosis secondary to the faecal management system balloon placed in the patient's rectum. The implication for care is that faecal management systems are an important adjunct in the management of faecal incontinence, but caution must be exercised with prolonged use, particularly in anticoagulated patients.

Keywords: anticoagulation, CT angiography, faecal incontinence, haemorrhage, rectal ulceration

Introduction

Faecal incontinence is common in acutely ill hospitalized patients, occurring in up to 33% of critically ill patients [Bliss *et al.* 2000] often in association with diarrhoea. This presents a challenging problem in patient management and can lead to breakdown of skin, ulceration and infection [Gray *et al.* 2002]. Conventional management of faecal incontinence is problematic and may drain limited nursing resources [Wishin *et al.* 2008]. Incontinence pads, for example, require frequent changing and are of limited benefit whilst rectal pouches are difficult to secure and cannot be used in all patients [Wishin *et al.* 2008].

Faecal management systems (FMSs) are a recent innovation in the management of faecal incontinence. They are utilized in over 2000 intensive care centres across the USA [ConvaTec, 2008] and are recommended for use in critically ill patients by the National Institute for Care and Excellence (NICE) in the UK [National Institute

for Health and Clinical Excellence, 2007]. FMSs consist of a catheter secured inside the rectum with a balloon (Figures 1 and 2). This diverts faecal matter to a collection bag and keeps the perianal skin dry and free from faecal contact (Figure 3).

We present a case report of life-threatening complications of a FMS.

Case report

A 75-year-old lady was admitted for elective cardiac surgery. She had a history of atrial fibrillation and was anticoagulated with warfarin. In the postoperative course she was admitted to the cardiac intensive care unit and was commenced on fractionated heparin. She required a prolonged period of inotropic and ventilatory support.

She was commenced on nasogastric feeding which resulted in the passage of loose stools the

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Figure 1. Method of insertion of a faecal management system into the rectum. Illustration courtesy of Helen Carruthers. Copyright © 2013.

Figure 2. Faecal management system secured inside the rectum with balloon inflated. Illustration courtesy of Helen Carruthers. Copyright © 2013.

following day. Owing to concerns over areas of sacral skin integrity, a FMS balloon was inserted into the rectum 1 day later. Five days after the FMS was introduced the patient developed rectal bleeding, though remained haemodynamically stable. Urgent flexible sigmoidoscopy was suggestive that the bleeding appeared to originate from the rectum. The integrity of the rectal wall was

intact with no significant damage and the FMS remained *in situ* with active monitoring.

Seven days later (12 days after insertion of the FMS) the patient developed massive lower gastrointestinal haemorrhage which resulted in haemodynamic instability. Blood products were required to resuscitate the patient. An urgent

Figure 3. Faecal management system, with collection bag visible. Illustration courtesy of Helen Carruthers. Copyright © 2013.

Figure 4. Mesenteric CT angiogram (transverse view) with arrows indicating bleeding sites into the distal rectum.

Figure 6. Severe ulceration involving the whole circumference of the rectum visible on flexible sigmoidoscopy.

Figure 5. Mesenteric CT angiogram (sagittal view) with arrows indicating bleeding sites into the distal rectum.

oesophagogastroduodenoscopy was performed which excluded bleeding from the upper gastrointestinal tract. Owing to ongoing haemodynamic instability a CT angiogram was promptly performed which revealed significant bleeding coming from the distal rectum (Figures 4 and 5). An emergency flexible sigmoidoscopy showed severe ulceration involving the whole circumference of the rectum and evidence of active bleeding from a small artery. This was felt to be secondary to pressure necrosis caused by the FMS balloon (Figure 6). Haemostasis was achieved via argon-beam photocoagulation, a haemostatic stitch to the bleeding point and packing of the rectum with alginate ribbon. The FMS was removed and anticoagulation was reversed. The patient continued to have

intermittent moderate bleeding which required further packing and blood transfusion. The bleeding eventually settled 8 days later and the patient was discharged with no further complications.

Discussion

FMSs have considerable advantages over traditional methods and have been shown to be highly effective in the management of faecal incontinence in severely ill hospitalized patients [Padmanabhan *et al.* 2007]. However, the inflatable nature of the FMS balloon results in pressure on the rectal mucosa which risks necrosis and bleeding. Ulceration has previously been reported as an uncommon complication [Padmanabhan *et al.* 2007] and in light of this, some manufacturers advise a 29-day limit of use [ConvaTec, 2009]. In this case, the initial bleeding was minimal and it was felt that the clinical benefit of controlling faecal incontinence in a bed-bound patient outweighed the risk from minimal bleeding. This view was reinforced by the generally healthy appearance of the rectal wall when visualised with flexible sigmoidoscopy when rectal bleeding was first noticed. However, the continual pressure combined with anticoagulation resulted in severe ulceration and torrential bleeding.

The pathophysiology in this case may be similar to that seen in stercoral perforation of the bowel in severely constipated patients [Oakenful and Lambrianides, 2011]. As with severe FMS complications, this occurs when impacted faeces cause pressure on the rectal mucosa resulting in ischaemia, tissue necrosis, ulcer formation and eventual perforation. Similarly, complications from pressure on the rectal wall are seen in inflatable rectal balloons used for irrigation in severe constipation and neurogenic bowel dysfunction. Rates of minor rectal bleeding are found in up to 20% of cases with perforations being relatively uncommon and occur in 1 in 50,000 cases [Faaborg *et al.* 2009; Christensen *et al.* 2009].

This is the first case report in the literature of circumferential rectal ulceration secondary to a FMS resulting in potentially life-threatening haemorrhage. Although FMSs can be effective at controlling incontinence, it is important to exercise caution with prolonged use of these devices. Extra vigilance should be taken in anticoagulated patients by monitoring for signs of bleeding and employing a low threshold for removal of the device.

Implications for clinical care

FMS are an important adjunct in the management of critically ill patients presenting with diarrhoea and faecal incontinence, however caution must be exercised with prolonged use of these devices, particularly in anticoagulated patients.

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Conflict of interest statement

The authors have no conflicts of interest to declare.

Informed consent

Informed consent has been obtained by the patient discussed in this case report for use of their anonymized details.

Research ethics

No ethical approval was required for this work.

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