

# Complexity in care for an ostomate with surgical dehiscence after herniorrhaphy: a case study

## ABSTRACT

Performing stoma surgery is often complex for the surgeon to undertake especially when the patient has pre-existing complications. Postoperatively, peristomal complications affect the adherence of the collection bag, and impair the self-care and wellbeing of the person with an ostomy, which increases the need for professionals trained in the management of peristomal skin complications. In addition, health professionals need to be able to educate the ostomate in self-care of the stoma or support them in managing peristomal complications. The aim of this case study is to report the management of a complex clinical case of a patient postoperatively following a herniorrhaphy and construction of a colostomy that resulted in surgical dehiscence and ensuing peristomal complications. The case study also highlights the clinical care advocated by the stomal therapist to manage these complications.

**Keywords** ostomy, herniorrhaphy, postoperative complications, nursing care, stomal therapist

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## INTRODUCTION

About 100,000 surgical procedures to create stomas are performed each year in the United States of America (USA)<sup>1</sup> and it is estimated that approximately 1 million people in the USA have an ostomy<sup>2</sup>. In Brazil, the data on ostomy surgery and stoma creation are uncertain; however, a high number of cases

are estimated due to the annual increase in colorectal cancer, the main cause for surgery<sup>3</sup>.

Surgeons who perform ostomy surgery face challenges associated with modifying intestinal structures to create ileostomies or colostomies that alter intestinal transit times and thereby consistency of faecal output. Often there are associated complications in forming the stoma such as an obese abdomen<sup>4</sup>. Postoperatively, the primary problems reported are stoma and peristomal complications which can occur immediately or can be delayed complications; both reduce an ostomate's quality of life<sup>5</sup>.

A study that analysed the incidence of complications after ostomy surgery found that 28.4% of participants developed some complication, and that the most common were superficial mucocutaneous separation (19.5%) and stoma retraction (3.2%)<sup>6</sup>. The syndrome of post-surgical complications in another study was 33.3%, of which 13.6% had retraction, 10.6% had parastomal hernia, and 28.8% had complications arising from the stoma – dermatitis (21.2%) and mucosal oedema (4.5%)<sup>7</sup>. Peristomal complications are the main complications that affect the collection bag's adherence to the skin and impair the self-care and wellbeing of the ostomate since these can lead to leakage, irritant dermatitis, and other complications such as infection.

Thus, care both in the perioperative and postoperative rehabilitation processes are essential for the ostomate to adjust to living life with a stoma and achieve independence in self-care where possible. In this context, health professionals have

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an important role in the treatment of complications and in the health education process<sup>5</sup>.

The study complied with ethical standards in research, with approval of the project by the Research Ethics Committee of the Federal University of Paraíba, Brazil, under article 2,562,857. The participant signed the terms to consent to participate after clarifying the objectives and procedures of the case study.

The aim of this case study is to report the complex clinical case of a patient in the postoperative period following herniorrhaphy plus colostomy, and the management strategies of the stomal therapist.

## CASE REPORT

### Presenting problem

The patient reported here was a female patient, aged 56 years old who was both obese and suffering from diabetes. In July 2018 she was admitted to the hospital complaining of severe abdominal pain with possible intestinal obstruction. On further examination, the laboratory tests and tomography showed a white blood cell count of 17,650, and a diagnosis of strangled inguinal hernia. She underwent an emergency exploratory laparotomy, herniorrhaphy, enterotomy and colostomy.

On 15 July 2018, Day 3 postoperatively, the patient developed purulent drainage from an opening in the middle of the surgical incision adjacent to the colostomy stoma. The abdomen was also distended, indicating the need to remove alternate sutures below the level of the umbilicus to alleviate the tension on the suture line adjacent to and to the right of the suture line. Suture removal subsequently led to the

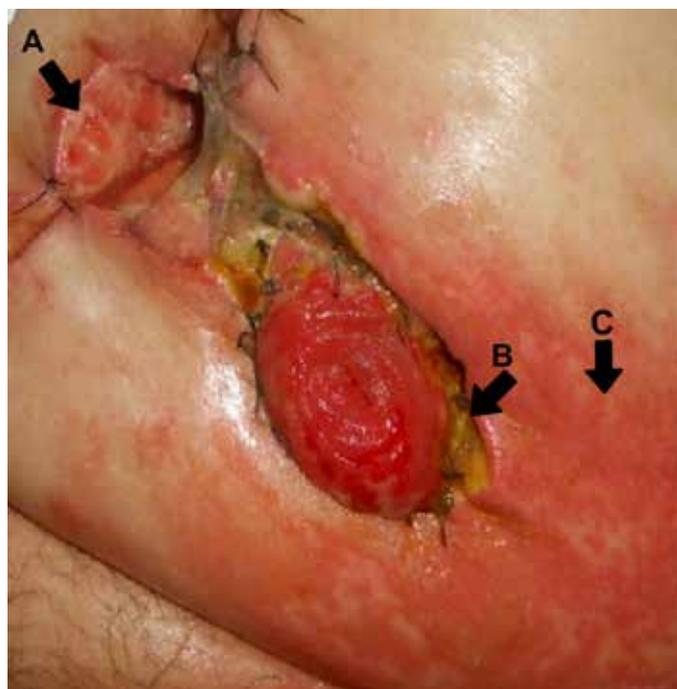


Figure 1. A: surgical wound dehiscence; B: mucocutaneous detachment of the stoma; C: peristomal dermatitis

development of surgical dehiscence (Figure 1A). In addition, mucocutaneous detachment of the stoma from the abdomen occurred from the medial edge of the suture line and upper margins of the stoma (Figure 1B). Further, extensive peristomal dermatitis occurred which spread outward in a 10cm radius from the right side of the colostomy (Figure 1C). The peristomal dermatitis was caused by the semi-liquid stool from the colostomy coming into contact with intact skin due to poor adhesion of the ostomy appliance due to leakage of stool from around the stoma as a result of the combined effects of the surgical dehiscence and mucocutaneous separation.

### Stomal therapy and nursing interventions

Wound, skin and stoma hygiene were performed with 0.9% saline solution. To manage and facilitate repair of the surgical wound dehiscence a calcium alginate was inserted into the wound bed. A protective piece of hydrocolloid sheet was placed over the calcium alginate and areas of dermatitis to provide a stable base upon which to apply the base plate (or flange) of a 2-piece colostomy appliance. After 2 days, the dressing and colostomy appliance needed to be removed due to further wound dehiscence, wound necrosis and subsequent leakage (Figure 2).

On 17 July 2018, Day 5 postoperatively, the area of surgical dehiscence had expanded, measuring 8x7x5cm with the presence of infection and purulent exudate (Figure 2). This required a change in management strategy. In this case, the stomal therapist advocated the use of a hydropolymer dressing with silver (silver dressing) for antimicrobial control and absorption of exudate. The silver dressing was placed in the wound cavity. To ensure the stoma was isolated from the wound and to provide a good seal around the stoma to prevent leakage, stomahesive powder was applied to the areas of wet dermatitis proximal to the stoma. Stomahesive paste and hydrocolloid strips were used to fill in and cover wound beds created by the mucocutaneous separations and mould around the stoma to form a dry surface on which to place a convex base plate (2-piece colostomy bag system) to further assist with stoma retraction; this would also encourage wound healing.

Due to the patient's obesity and abdominal distension, it was difficult to secure adherence of the ostomy appliance, and on 20 July 2018, Day 7 postoperatively, the degree of incisional surgical dehiscence markedly increased, measuring 27x18x4cm. Within the wound cavity, not only was there obvious drainage of faecal fluid, there was opaque fibrinous tissue, with areas of liquefaction necrosis averaging 30% of the wound's surface (Figure 2). To cope with physical changes to the abdominal wound and stoma, amendments to the dressing regimen were made as follows.

The wound was cleaned with 0.9% saline and 0.2% polyhexanide because, in the hospital in question, it is routine to use 0.9% saline solution and polyhexanide solution for cleaning. Saline solution was used to clean and remove excess dirt and the polyhexanide solution to clean a wound area due to its antiseptic properties. After cleaning, excess fluid was

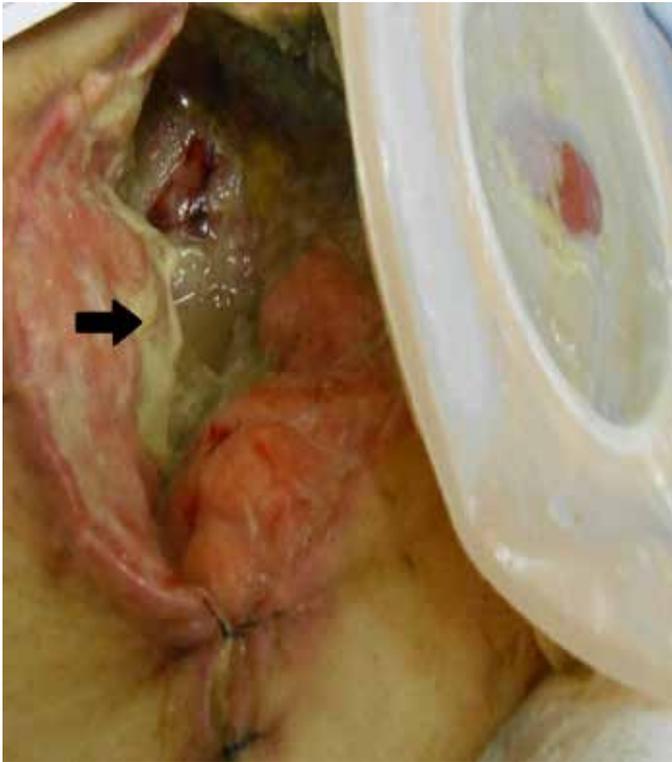


Figure 2. Surgical dehiscence with presence of liquefactive necrosis and fibrin in the wound

irrigated from the wound cavity using a number 8 nelaton catheter and 10cc syringe. To absorb wound exudate, the calcium alginate was placed as the primary dressing or contact

layer in all areas of the surgical wound dehiscence wound bed, including all entrances to any sinus tracts/tunnels on view. The secondary dressing used for antimicrobial control was a hydropolymer with non-adhesive silver. Finally, a tertiary coverage of gauze combine was applied and externally fixated with a polyurethane film (Figure 3 A–F).

The above wound dressing regimen was agreed upon by a multidisciplinary team including the responsible surgeon, the advising stomal therapist and nursing staff. The dressing was undertaken by the stomal therapist or nursing staff and nurse technicians. In addition to the wound care provided, it was necessary to continue to isolate the colostomy and peristomal skin complications present. Therefore, the colostomy was isolated by reconstructing the peristomal area with hydrocolloid strips and the ostomy paste. To further cover and protect the area of peristomal dermatitis from faecal fluid, a 20x20cm stomahesive sheet was used, in which an opening for the stoma was cut out and fixed around the stoma. A drainable transparent 2-piece ostomy appliance with a convex base was applied over the protective sheet.

The patient was followed up for another 15 days. Although showing good evidence of wound healing and continued adherence of the wound dressings and ostomy appliance, the patient unfortunately died on 5 August 2018 due to her comorbid conditions and sepsis.

## DISCUSSION

In this case study, following emergency surgery the patient

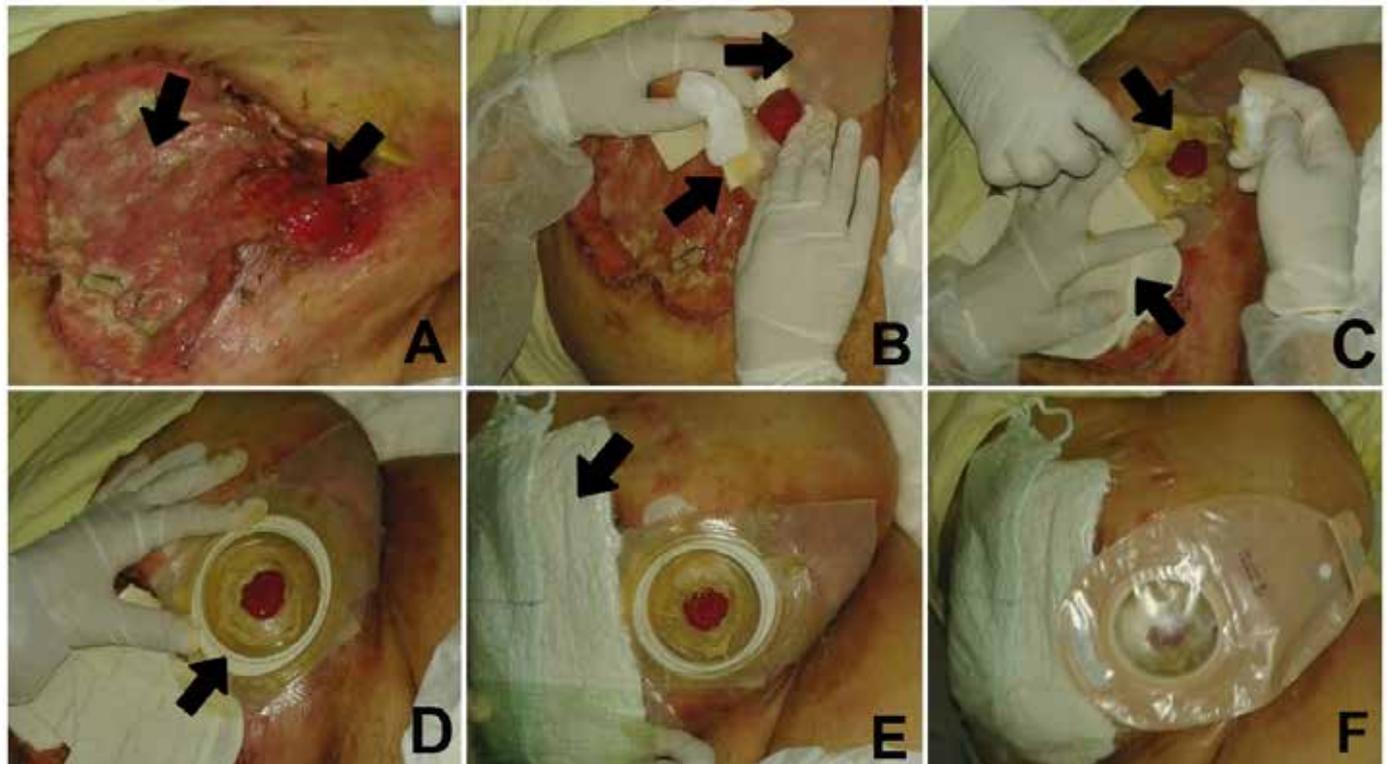


Figure 3. A: ostomy within the cavity of surgical dehiscence; B: isolation of the ostomy using protective sheets and hydrocolloid strips; C: use of stomahesive paste around the stoma and calcium alginate in the wound cavity; D: application of the base plate; E: secondary dressing with silver foam and tertiary dressing with gauze combine and polyurethane film; F: completed dressing

presented with suppuration from the suture line on Day 3 postoperatively. Post-removal of several abdominal sutures, the abdominal wound further dehisced along with simultaneous mucocutaneous separation of the stoma. These complications are deemed early surgical complications, all of which may occur due to tissue tension and comorbidities that impair healing, as well as due to infectious processes<sup>1</sup>.

Regarding emergency abdominal surgery, a higher prevalence of complications in the early postoperative period (36–66%), especially surgery involving construction of a stoma, are described. The expertise of the surgeon in creating a stoma is also a factor<sup>8</sup>. Surgical site infection, peristomal dermatitis and peristomal hernia are the main complications<sup>9–13</sup>.

It is also worth highlighting that diabetes and obesity as important factors related to mucocutaneous detachment and surgical dehiscence<sup>6</sup>. Obesity is a factor associated with difficult stoma construction and delayed postoperative recovery due to the challenges of resecting sufficient bowel to exteriorise the bowel through the abdominal wall to create a stoma. Obese individuals are more susceptible to wound dehiscence, surgical site infection and delayed wound healing due to raised intra-abdominal pressure, reduced perfusion of the tissues, and chronic inflammation of white adipose tissue that weakens tensile strength of the skin<sup>8,14,15</sup>. The association between diabetes and delayed wound healing are also well documented. All phases of wound healing are affected by diabetes, with prolonged inflammation thought to impede maturation of granulation tissue and the development of tensile strength within a wound arising from impaired blood vessels and resultant ischaemia<sup>1,16</sup>.

Post-surgery, peristomal skin conditions are the most common problem, varying from 10–70% of the cases<sup>17,18</sup>. Peristomal dermatitis can occur early or later in life around the skin of people with ostomies. This complication generates suffering, pain and difficulty in self-care, particularly where there is inadequate access to ostomy appliances and adjuvant skin care products<sup>19</sup>. The ostomy appliance and dressing remained intact without any leakage for 3 days (72 hours). This was a positive result and reduced secondary injury in continuously removing and replacing the dressing and ostomy appliance.

A comprehensive nursing assessment of patients in the peri and postoperative phases assists with identifying those patients at risk of compromised surgical recovery. This involves assessing the patient's abdomen for shape, the integrity or stability of the surgical wound, the location and construction of the stoma, and the presence of scars that may minimise complications.

Assigning a nursing diagnosis facilitates implementation of nursing interventions specific to the individual patient and their care needs<sup>20</sup>. In cases where complications do occur, such as that described within our case study, prompt stomal therapy nursing interventions are necessary to manage the skin deficits that have occurred, with a variety of ostomy and skin accessory products available to the stomal therapist such

as such as adhesive pastes and powder for ostomies, ostomy skin barriers and seals, as well as choosing an appropriate type of ostomy base plate and bag<sup>1</sup>. In addition, nurses need to understand the principles of caring for people with complex wounds and stomas and the importance of a multidisciplinary health team involvement; more nurses need to be skilled in this field of expertise<sup>21–23</sup>. There are also guidelines that address the importance of peristomal skin care, stoma care and appliance selection and how to prevent and manage early and late post-surgical ostomy complications. Adherence to advice within clinical practice guidelines on the aforementioned factors improves patient assessment, assists with early collaborative interventions and management of complications and, overall, improves patients' quality of life and health service outcomes<sup>13,17,24</sup>.

## CONCLUSION

The patient discussed here presented with postoperative complications of surgical dehiscence, mucocutaneous detachment of the stoma, and peristomal dermatitis following a herniorrhaphy and colostomy formation. These complications required the creative strategies of the stomal therapist to provide complex wound and ostomy care that involved the correct application and use of ostomy equipment and skin care accessories to minimise risk of wound contamination from faecal fluid, optimise the wound healing processes, and maintain patient comfort.

## CONFLICT OF INTEREST

The authors declare no conflicts of interest.

## FUNDING

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