

SURGICAL SAFETY UPDATE

Cases from the Confidential Reporting System for Surgery (CORESS)

Wrong end of colostomy brought out

1. A 68-year-old man underwent laparoscopic defunctioning colostomy to treat a colovesical fistula. The stoma was inactive postoperatively, but this was thought to be due to a postoperative ileus (very common). A suspicion was raised of a problem with the bowel on the morning of the fifth day postoperatively and it was discovered later that day that the distal loop of bowel had been brought out as the stoma by a mistake, rather than the proximal end. The proximal bowel had been stapled and was hence obstructed. The patient returned to theatre the same evening for laparotomy and refashioning of the stoma.

2. A 78-year-old woman presented unwell with a low sigmoid perforation secondary to diverticular disease. She had required three previous episodes of emergency surgery including formation of a loop colostomy, which had become ischaemic. This had been converted to an end-colostomy before subsequently being successfully reversed. On this occasion the presumed distal end of the colon was stapled and the proximal end brought to the abdominal wall to form a stoma in an already scarred abdomen. After four days the stoma had failed to produce any bowel content and the patient had symptoms and signs of abdominal obstruction. Imaging demonstrated the technical error with what was in effect a mucous fistula at what had been thought to be the end-colostomy site. The patient was taken back to theatre, the mucous fistula taken down and closed, and a new end-colostomy fashioned from the proximal colon, which had been stapled. The patient required prolonged ITU care.

3. I undertook an operation to form a defunctioning colostomy for an obstructing perforated carcinoma. The dissection was unexpectedly difficult due to multiple adhesions likely to have been secondary to a previous pelvic abscess. After 90 minutes of dissection, a loop of colon was brought up, divided and the distal end stapled and dropped under the abdominal wall to facilitate a further definitive cancer operation post-radiotherapy. However,

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The online
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form is on
our website,
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also includes
previous
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Reports.

I had inadvertently stapled the wrong end, unsure how the twist happened. On day three the patient had progressive abdominal distention and a CT scan demonstrated my error. I felt that COVID-19 stresses may have impacted as the theatre routines were severely disrupted.

CORESS comments:

NHS England Improvement undertook a review of the National Reporting and Learning System between 2018 and 2021. Twenty relevant incidents were identified, detailing the distal rather than the proximal end of the bowel being used incorrectly to form the colostomy. Recognition of the problem occurred between two and six days postoperatively, with a mode period of five days. Five cases were of documented laparoscopically performed procedures, but no record of open versus laparoscopic surgery was available for the remaining reports. In 17 cases return to theatre to correct the problem was necessary.

Risk-reduction strategies

Colorectal surgeons, nurses and surgical team members might consider the following actions to prevent, and/or identify and correct this technical error:

- Maintain vigilance when completing the finer technical steps involved in stoma creation, only delegating this task to junior or inexperienced members of the surgical team under proper supervision.
- Ensure that novice surgeons gain proficiency in end-colostomy formation through supervised direct clinical experience, including during laparoscopic training.
- Mark the distal (or proximal) bowel limb intraoperatively using either a suture or cautery. Use the same method of marking the same bowel limb each time.
- Ask surgical team members to confirm identification of the proximal and distal bowel limbs whenever possible.
- Before closing the distal bowel limb, insert a red rubber or urinary catheter into the distal limb, infuse fluid and check to see whether the fluid drains from the patient's anus.
- Toward the end of a laparoscopic procedure, reinsert the camera through the camera port, re-insufflate the



Figure 1: Fournier's gangrene affecting scrotum

References

1. Laor E, Palmer LS, Tolia BM, Reid RE, Winter HI. Outcome prediction in patients with Fournier's gangrene. *J Urol* 1995 Jul; 154(1): 89-92.

Published cases will be acknowledged by a Certificate of Contribution, which may be included in the contributor's record of continuing professional development.

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abdomen and check to ensure that the proximal bowel limb is being pulled up to create the stoma.

- After closing the distal bowel limb, insert a flexible sigmoidoscope or colonoscope through the rectum to visualise the staple/suture line and confirm creation of a blind pouch.
- Once the stoma has been formed and opened at the end of the operation, instil water or air into the distal bowel limb through the rectum. If fluid or air is expressed through the stoma, the colostomy has been incorrectly formed using the distal bowel limb.
- Monitor the patient postoperatively to confirm the return of bowel sounds within 24 to 72 hours and the production of ostomy effluent within the first several days.
- Aside from absent or diminished bowel sounds and lack of ostomy effluent, assess the patient for additional signs and symptoms of bowel obstruction, including abdominal distension and pain.
- In patients with postoperative ileus lasting more than 36 hours, consider instilling a contrast enema through the stoma to identify errors in colostomy formation or other causes for obstruction.

Fournier's gangrene fatality

A 59-year-old diabetic patient with end-stage renal failure underwent live unrelated donor kidney transplantation. Four months later, four days after developing an indurated perianal swelling, he was admitted to hospital with cellulitis of his scrotum spreading into the lower part of his anterior abdominal wall. Initially he required insulin to control hyperglycaemia and he was commenced on a broad-spectrum intravenous antibiotic and IV fluids. Surgery was delayed for 12 hours due to theatre availability and during that period he developed blistering and incipient skin

necrosis of the lower part of the abdominal wall. On palpation, crepitus was noted in the abdominal wall, extending above the cellulitic area.

Cephalosporin and metronidazole, to cover gram-negative anaerobes, were added to the antibiotic regime. The patient was taken to theatre, where a perianal abscess was drained and debridement of the affected skin of the abdominal wall and scrotum undertaken, with specimens sent for microbiological cultures. A vacuum dressing was applied to the area of the skin defect. Over the subsequent 24 hours, however, the cellulitis and skin necrosis continued to spread up the abdomen. A re-exploratory procedure with full-thickness resection of the abdominal wall was undertaken, with sterile packing of the ensuing laparostomy, but the patient deteriorated rapidly and succumbed the following day.

Reporter's Comments:

- There was delay in recognising the manifestations of Fournier's gangrene. The condition requires a multimodal approach with haemodynamic stabilisation, broad-spectrum antibiotics and early surgical debridement.
- Diabetes and immunosuppression are common aetiological factors for Fournier's gangrene.
- Delay in surgical intervention may have contributed to the rapid extension of affected tissue and poor outcome.
- The full extent of the disease may not be apparent from the area of cutaneous involvement, which is usually less than the subcutaneous disease.

CORESS comments:

Fournier's gangrene is a fulminant form of necrotising fasciitis commonly affecting perineal, perianal or genital regions, but which may spread to the abdominal wall, moving along fascial planes (Figure 1). It is a mixed infection caused by both aerobic and anaerobic bacterial flora, and associated with rapid spread and frequently with multi-system organ failure and death. High index of suspicion with early diagnosis and treatment by haemodynamic stabilisation, surgical debridement and antibiotics is essential, although mortality remains high. Diabetes and alcohol misuse are recognised risk factors. A Fournier's gangrene severity index developed by Laor et al¹ has been shown to predict mortality. NHS England in partnership with various Royal Colleges has recently produced an alert sheet with the mnemonic CUT to focus consideration on steps in the management of Fournier's gangrene:

- C - Consider Fournier's Gangrene (risk groups and high index of suspicion)
- U - Urgent surgical debridement back to healthy bleeding tissue
- T - Team (multidisciplinary approach)