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Clostridium Difficile Infection (CDI) following reversal of loop ileostomy – an uncommon but significant complication.

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Ileostomy reversal following rectal cancer surgery is a common procedure with a low complication rate¹. *Clostridium Difficile* Infection (CDI) after ileostomy reversal is rare but can result in serious complications such as pseudomembranous colitis, toxic megacolon and death. Early recognition and appropriate antibiotic treatment for CDI may minimise the risk for developing post-operative complications².

There are few cohort and case studies describing CDI following loop ileostomy reversal. Previous studies have reported incidence of up to 4%^{3,4}, but a systematic review in 2017 found it to be less common at 1.8%⁵.

The aetiology is unclear but may be due to a reduced diversity of microbial flora in diverted colons, particularly in the *Eubacterium* and *Bifidobactium* species⁶. A small study suggested that the presence of *C. Difficile* colonization may be up to 38 per cent, but it is unclear why some patients develop severe colitis⁷.

Diagnosis of CDI is made with confirmation of *C. Difficile* toxin in a stool sample². However, in the post-operative period, a CT scan is usually performed to investigate abdominal sepsis. Evidence of colitis will serve as a prompt to further investigate for CDI. One study calculated a 88% positive predictive value in the use of contrast CT in the diagnosis of *C. Difficile* colitis⁸. However, findings on CT may be non-specific and may be indistinguishable from other forms of colitis including those due to ischaemia and infection⁹.

We report on four cases of CDI following elective loop ileostomy reversal in patients from a single tertiary institution over 6 years. During this time, a total of 124 patients had a loop ileostomy reversal following their rectal cancer surgery.

All patients were immunocompetent, with no previous CDI recorded and no history of inflammatory bowel disease. There was no history of previous oral antibiotic usage, and there was no routine pre-reversal screening for *C. Difficile*. All patients received a single dose of IV cefazolin and metronidazole on induction.

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Symptoms emerged on post-operative day 2-4 and consisted of abdominal pain, loose watery stools, and nausea. Three patients had a CT scan due to the high suspicion of an anastomotic leak which demonstrated an intact anastomosis and evidence of colitis (Figure 1&2).

All four patients were initially started on intravenous (IV) ceftriaxone and metronidazole to treat their sepsis. All patients had a stool culture and *C.Difficile* PCR sent together with results returning in 2-3 days. All patients returned negative blood and stool cultures, and a positive *C.Difficile* stool PCR result.. The IV ceftriaxone was ceased on confirmation of CDI and they were treated with either a 14-day course of vancomycin alone, or vancomycin and metronidazole. All 4 patients had a longer length of stay compared to the 6-year median at our institution of 4.2 days (IQR 3.1-8.0)¹ (Table 1).

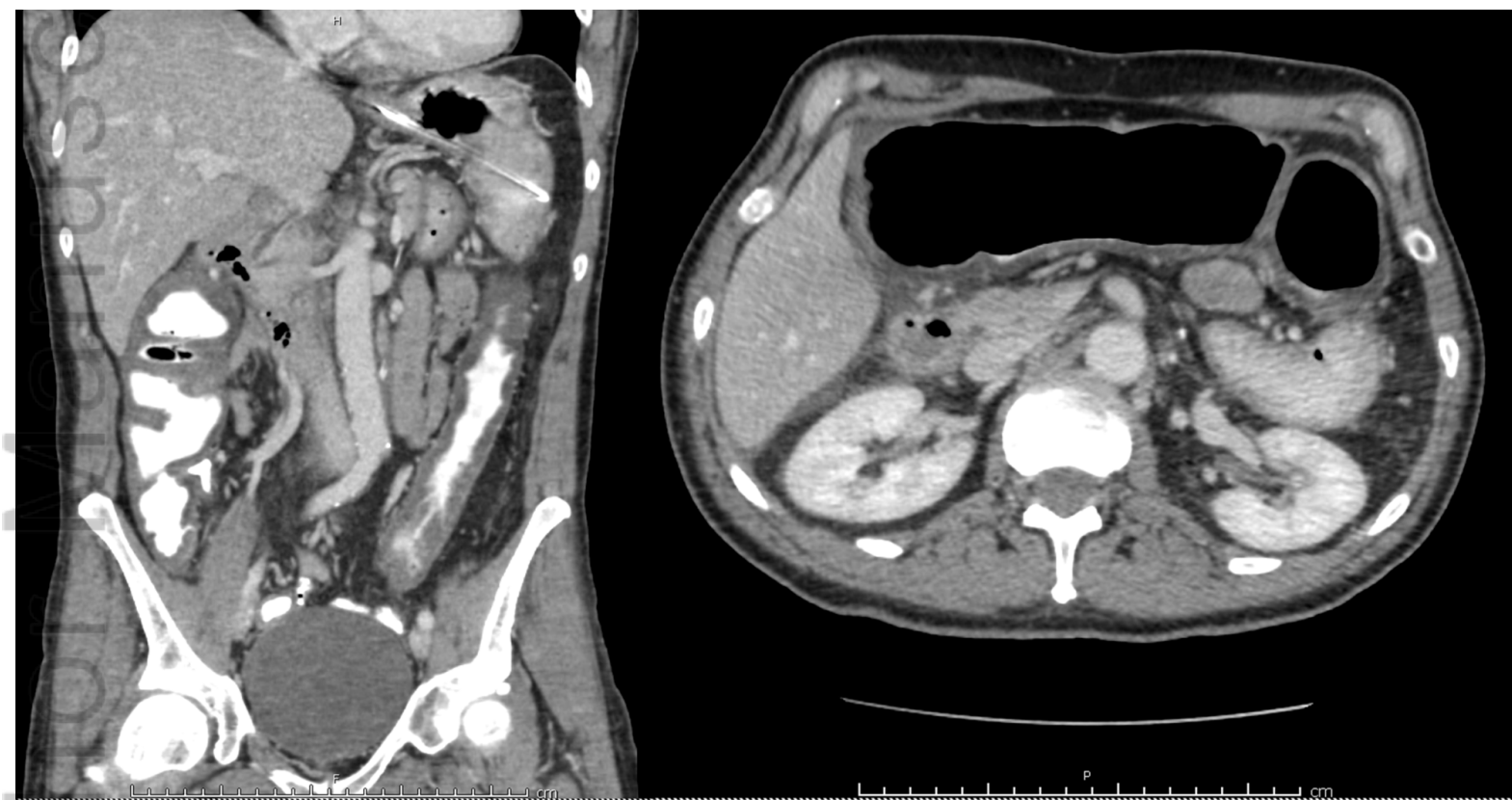
In conclusion, post-ileostomy reversal CDI is uncommon and can be initially difficult to differentiate from other causes. We suggest that a CT scan which confirms an intact anastomosis and with evidence of colitis following a recent ileostomy reversal, treatment for Clostridium Difficile should be strongly considered whilst awaiting confirmation on stool culture.

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ANS_16689_Figure 1.png



ANS_16689_Figure 2.png

Table 1: Comparison of patient characteristics.

	Patient 1	Patient 2	Patient 3	Patient 4
<i>Age</i>	55	63	59	74
<i>Gender</i>	Male	Male	Male	Male
<i>ASA</i>	2	2	2	3
<i>Comorbidities</i>	Thyroidectomy Cholecystectomy Ocular melanoma	Umbilical hernia repair	Cervical Laminectomy GORD	None
<i>Proton Pump Inhibitor therapy</i>	No	No	Yes	No
<i>Time from resection to reversal (months)</i>	12	7	11	16
<i>Adjuvant Chemotherapy (last dose)</i>	Yes (5.5 months prior)	No	Yes (7 months prior)	No
<i>Post-operative day of first symptoms</i>	4	2	3	3
<i>Peak WCC and CRP</i>	11.8, 209	12.0, 128	19.0, 152	20.1, 183
<i>CT performed</i>	Yes. Pan colitis	No	Yes. Diffuse colitis and toxic megacolon	Yes. Right colon colitis
<i>Total LOS</i>	9	11	9	24