INTRODUCTION

Diverting ileostomies are routinely performed for patients with ultra-low rectal anastomoses, and are frequently reversed after completion of adjuvant treatment and ensuring the integrity of the rectal anastomosis by preoperative flexible sigmoidoscopy (FS) and / or gastrograffin enema (GGF). Significant colonic dysmotility has been observed in a series of patients after ileostomy reversal giving rise to colonic pseudo-obstruction. Patients present with persistent abdominal distension and acute bowel dilatation on radiological investigations, even resulting in perforation in one case. We present a series of patients from a single institution who developed this rare occurrence and discuss its possible contributing etiologies.

METHODS

Medical records of patients diagnosed with colonic dysmotility after closure of ileostomy between 2016 to 2020 were reviewed. Data relating to their presentation, investigation and management were obtained.

RESULTS

There were five patients who developed this unusual clinical phenomenon after ileostomy reversal. Table 1 below describes their baseline demographics, tumour characteristics and summary of clinical management. Preoperatively, all patients had either FS and GGF which did not demonstrate anastomotic complications. Postoperatively, all of them developed nausea and vomiting, persistent abdominal bloatedness and distension despite frequent bowel movements. Radiological investigations demonstrated dilated large bowel loops with possible transition point at the neorectum (Fig. 1). Subsequent FS did not demonstrate any mechanical obstruction. Of note, varying degrees of anastomotic complications were observed in four (80%) patients (Fig. 2).

Three patients (60%) were managed conservatively and were discharged 18-29 days after ileostomy reversal. One patient who required a transverse colostomy for pelvic sepsis while another patient developed cecal perforation and demised from septic shock.

<table>
<thead>
<tr>
<th>Case</th>
<th>Age / Gender / ASA</th>
<th>Distance from anal verge</th>
<th>Neoadjuvant treatment</th>
<th>Operative details</th>
<th>Final histology</th>
<th>Adjuvant treatment</th>
<th>Time to reversal</th>
<th>Pre-reversal investigations</th>
<th>Summary of presentation</th>
<th>Anastomotic issues</th>
<th>Intervention</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>74 / M / ASA 1</td>
<td>7 cm</td>
<td>Long course</td>
<td>Robotic ULAR</td>
<td>ypT2N0 (0/13)</td>
<td>No</td>
<td>7 months</td>
<td>FS – Anastomosis intact</td>
<td>–</td>
<td>Developed pneumatia and prostatic fistula.</td>
<td>Multiple anastomotic sinuses</td>
<td>Not known</td>
</tr>
<tr>
<td>2</td>
<td>70 / M / ASA 2</td>
<td>3 cm</td>
<td>Short course</td>
<td>Laparoscopic ULAR</td>
<td>ypT2N0 (0/15)</td>
<td>No</td>
<td>4 months</td>
<td>FS – Anastomosis intact</td>
<td>–</td>
<td>Developed septic shock from perforated caecum.</td>
<td>Multiple anastomotic sinuses</td>
<td>Not known</td>
</tr>
<tr>
<td>3</td>
<td>69 / M / ASA 2</td>
<td>4 cm</td>
<td>Long course</td>
<td>Robotic ULAR</td>
<td>ypT2N0 (0/15)</td>
<td>No</td>
<td>12 months</td>
<td>FS – Anastomosis intact</td>
<td>–</td>
<td>Opening bowels but persistent ileus after reversal surgery.</td>
<td>Anastomotic sinuses managed conservatively</td>
<td>Small 11 o'clock sinus</td>
</tr>
<tr>
<td>4</td>
<td>67 / M / ASA 2</td>
<td>8 cm</td>
<td>Long course</td>
<td>Robotic ULAR</td>
<td>ypT3N1 (1/16)</td>
<td>Yes</td>
<td>10 months</td>
<td>FS – Anastomosis intact GGF – No contrast leak opening bowels but persistent ileus after reversal surgery.</td>
<td>Anastomotic sinuses managed conservatively</td>
<td>FS and flatus tube</td>
<td>FS and flatus tube</td>
<td>Discharged</td>
</tr>
<tr>
<td>5</td>
<td>49 / M / ASA 1</td>
<td>4 cm</td>
<td>Long course</td>
<td>Robotic ULAR</td>
<td>ypT2N0 (0/18)</td>
<td>Yes</td>
<td>8.5 months</td>
<td>FS – Anastomosis intact GGF – No contrast leak opening bowels but persistent ileus after reversal surgery.</td>
<td>Anastomotic sinuses managed conservatively</td>
<td>FS and flatus tube</td>
<td>FS and flatus tube</td>
<td>Discharged</td>
</tr>
</tbody>
</table>

DISCUSSION

Colonic dysmotility after ileostomy reversal for ultra-low anterior resections is a rare clinical occurrence and has not been widely described in literature. Our series of patients present with persistent colonic distension proximal to the neorectum, in the absence of mechanical obstruction. This subset of patients develop symptoms of nausea, vomiting and abdominal distension despite frequent loose bowel movements, similar to overflow diarrhoea observed in patients with intestinal obstruction. Here, we discuss the possible etiologies and contributing factors, raising awareness about this clinical presentation which may lead to potentially detrimental outcome.

In our series, anastomotic complications was observed in four of five patients suggesting a possible correlation although these were not apparent on pre-operative contrast studies and endoscopy. Frequent, loose bowel movements and pseudo-obstruction from colonic dysmotility may be early signs and symptoms from delayed anastomotic leak [1]. It is therefore important to recognise and administer timely and appropriate interventions as these could be early indicators for anastomotic complications.

Both chemotheraphy and radiotherapy (RT) could result in significant gastrointestinal toxicities such as radiation enteropathy and intestinal dysfunction [2], mucositis and increased risk of bacterial translocation [3]. All of the patients in the series have at least neoadjuvant treatment +/- adjuvant therapy. Obstructive symptoms have also been reported after RT due to muscular and neuronal injury [4] contributing to colonic dysmotility. Last but not least, a case of megacolon after ileostomy reversal secondary to acquired isolated hypoganglionosis (AIHG) following colitis of unknown etiology was recently described by Tominaga et al [5]. AIHG is rare, and requires a pathological diagnosis demonstrating reduced ganglion cells, degeneration and ganglionitis of myenteric ganglion cells and decreased activity of acetylcholinesterase in the lamina propria [6], suggesting that ongoing colitis may have inadvertently damaged the ganglion cells within Auerbach’s plexus resulting in hypoganglionosis and impaired gut motility.

Conclusion

Colonic dysmotility after ileostomy reversal is a rare but an important clinical entity for clinicians to recognise. Appropriate interventions should be carried out timely to avoid bowel ischemia and perforation. Management of these patients carry the same principles, requiring urgent decompression with a trans-anal flatus tube and / or nasogastric tube, initiation of prokinetics and treatment of contributing insults especially if anastomotic leaks are suspected. The presence of these symptoms should raise the clinician’s suspicion for anastomotic complications, prompting the need for early endoscopic evaluation.

References