Case Report of the surgical management of small bowel and colonic ischaemia associated with Anorexia Nervosa binge/purge subtype

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ABSTRACT

INTRODUCTION: Anorexia Nervosa affects up to 1% of the population and can present with binge/purge episodes. A paucity of literature exists regarding small bowel and colonic ischaemia relating to this common condition. We report our own experience and management of a patient with anorexia nervosa binge/purge subtype with small bowel and colon ischaemia and review existing cases in the literature. PRESENTATION OF CASE: A 32 year old female self-presented to the emergency department complaining of abdominal pain, abdominal distension and vomiting on a background history of binge/purge subtype eating disorder, following consumption of a large amount of carbohydrates. Computed tomography (CT) of the abdomen was performed urgently which revealed extensive pneumatosis involving the stomach and its draining veins with evidence of extensive portal venous gas. A right hemicolectomy followed by re-look laparotomy in 48 h with resection of jejunum, jejunojejunal anastomosis and end-ileostomy was performed with a successful outcome.

DISCUSSION: Anorexia nervosa can be a potentially life-threatening disease, with rates of death 10–12 times that of the normal population. Ischaemic bowel is a rare potential complication, with mortality rates of up to 80% having been reported prior to this case. Although the exact mechanism remains to be elucidated, gastric dilatation, abnormal digestive motility, and faecal impaction appear to contribute, on a background of impaired blood supply.

CONCLUSION: Clinicians need to exhibit a high index of suspicion for patients with abdominal pain on the background of an eating disorder, particularly in the context of suspected recent refeeding/binge eating. Prompt involvement of appropriate radiology and surgery input are pivotal to outcome.

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1. Introduction

Bulimia Nervosa and Anorexia Nervosa affect up to 1% of the female population and commonly present with a range of gastrointestinal complaints [1]. While the most common causes of death in this condition include severe malnutrition and suicide, there are significant gastrointestinal complications which may occur. These range from relatively common complaints affecting up to 90% of patients including postprandial fullness, abdominal distension, early satiety and nausea to rare surgical emergencies [2]. Significant binge eating episodes in this patient group have previously been reported to be associated with surgical emergencies such as acute gastric dilatation which can lead to complications such as gastric necrosis and perforation [1,3–5]. There are only five previously reported cases of binge eating episodes resulting in small bowel and colonic ischaemia, the majority resulting in mortality [6–10]. Here, we report our own experience and successful surgical management of an Anorexia Nervosa patient exhibiting binge/purge subtype with small bowel and colon ischaemia and review the existing cases in the literature.

2. Case report

A 32 year old female was brought by ambulance to the emergency department complaining of abdominal pain, abdominal distension and vomiting on a background history of binge/purge subtype eating disorder. She described a binge of a large amount of carbohydrates (1 kg of porridge and approximately 20–30 potatoes, along with an unrecorded amount of split pea soup). On abdominal examination she had a distended and tender abdomen. Inflammatory markers were normal with a white cell count value of 5.4 and a C-reactive protein value of <1. Lactate on initial blood gas was 8.0, following fluid resuscitation this came down to 4.9, and she had a metabolic acidosis with a pH of 7.28. Computed tomography (CT) of the abdomen was performed urgently which revealed extensive pneumatosis involving the stomach and the draining veins of the stomach with evidence of extensive portal venous gas (Fig. 1).
Based on the clinical and radiological findings an emergency laparotomy was performed within approximately 6 h of presenting to the emergency department revealing small and large bowel diffusely dilated with contents from the binge episode. There was patchy ischaemia present throughout the small bowel and an ischaemic segment of terminal ileum and caecum, also noted was black thrombosed veins in small bowel and colonic mesentery intra-operatively. Decompression of the bowel was performed via an enterotomy and a right hemicolecctiony was performed to resect the ischaemic segment of caecum and terminal ileum (Fig. 2).

Due to the areas of patchy ischaemia throughout the small bowel including proximal jejunum, the stapled ends of terminal ileum and transverse colon were not anastomosed and a re-look laparotomy was performed following 48 h. At re-look laparotomy further areas of non-viable proximal jejunum were resected with jejunoejunal handsewn anastomosis and end ileostomy exteriorised in the right iliac fossa. The histology from the resected areas of bowel revealed ischaemic small and large bowel with variable mucosal to transmural necrosis and serositis. Focal small areas of thrombosis in small mesenteric veins were identified. Following several days of parenteral nutrition she returned to enteral diet and was discharged well with a plan for stoma reversal in the future and continued psychiatric input.

3. Discussion

Small bowel and colonic ischaemia following an episode of binge eating are exceptionally rare and are associated with a mortality rate of 80% according to previously reported cases [6–10] (Table 1).

The DSM-V describes two subtypes of Anorexia nervosa, namely the restricting subtype and the binge eating and purging subtype [11]. The patient in our case report appeared to display the latter subtype with a history of bulimia also. Ischaemic bowel is fortunately an exceptionally rare complication of anorexia nervosa. It does however, result in a high mortality rate with 80% mortality reported in the existing literature in this patient subgroup.

A constellation of gastrointestinal symptoms are common in patients with eating disorders with a previous series reporting up to 96% suffer with postprandial fullness, 90% experience abdominal distension and more than 50% complain of abdominal pain and nausea [12]. However this case along with the pre-existing literature stress the need for clinicians to exhibit a high index of suspicion for ischaemic bowel in patients with eating disorders who present with abdominal pain; especially if preceded by suspected binge eating/recent re-feeding. Survival is only reported in one of five of the case reports previously described, and in that case the patient was already in an intensive care setting when the condition was recognised and was successfully managed non-operatively. All other cases managed operatively have resulted in mortality, likely due to the length of time between binge eating and presentation (Table 2). Our case differed in that there was survival post-operatively. The patient had similar bowel histology to those described in the existing case reports. Contributing factors to survival could have been the small interval between presentation and surgery, and the fact that the patient had a normal BMI and a binge-purge subtype of eating disorder rather than purely restrictive.

The mechanism behind this condition remains poorly understood. Proposed mechanisms include a reduction in blood supply secondary to malnutrition, exacerbated by faecal impaction and paralytic ileus which are common in patients with eating disorders.

Table 1

| References          | Country of Origin | BMI  | Time from Refeeding to Presentation | Time to Imaging | Time to Surgery         |
|---------------------|-------------------|------|-------------------------------------|----------------|-------------------------|
| Diamanti et al. [7] | Italy             | N/a  | 4 days                              | N/a            | Conservative Management|
| Yamada et al. [9]   | Japan             | 12   | N/a                                 | 2 days         | 3 days                  |
| Kaye et al. [8]     | UK                | N/a  | 2 months                            | N/a            | 3 h                     |
| Neychev et al. [6]  | USA               | 11   | N/a                                 | Immediate      | Following imaging/resuscitation |
| Sakka et al. [10]   | UK                | N/a  | 2 days                              |                |                         |

N/a: Not available.
4. Conclusion

Ischaemic bowel following re-feeding or binge eating in the setting of an eating disorder is a rare but often fatal condition. Clinicians should have a high index of suspicion when patients with eating disorders present with abdominal pain especially in suspicion of recent re-feeding/binge eating; emphasis should be placed on prompt imaging and involvement of an appropriate surgical team as delay to operative treatment could prove fatal.

Conflicts of interest

None.

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Ethical approval

None.

Consent

None.

Table 2

| First Author | Segment of bowel affected | Management | Pathology | Outcome |
|--------------|---------------------------|------------|-----------|---------|
| Diamanti et al. | N/a | Conservative: antibiotics | N/a | Discharged after 4 months |
| Yamada et al. | Ileum | Surgery – removal of ileum and caecum | Transmural infarction, haemorrhagic necrosis | Death – 3 days post-op |
| Kaye et al. | Pancolic and distal ileum | Laparotomy – subtotal colectomy | Rectum impacted with ‘cement like’ faeces | Death – 8 h post op |
| Neychev et al. | Entire small bowel and right hemicolon | Exploratory laparotomy | N/a | Death – soon post-op |
| Sakka et al. | Colon from ileo-caecal junction to splenic flexure | Extended right hemicolecotomy | Necrotizing colitis with +ve tissue gram stain | Death – 12 days post initial procedure |

N/a: not available.

* Patient tried to manage patient conservatively, when this failed proceeded to surgery.

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