

Case Report

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Acute Adhesive Small Intestinal Obstruction with Secondary Jejunal Volvulus

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Abstract

Jejunal diverticular disease is a rare clinical entity with few complications including acute gastrointestinal bleeding. A 69-year-old man presented with massive lower GI bleeding, which was initially believed to be colonic in origin. He was initially stable but suddenly became hypotensive without tachycardia. Serum haemoglobin dropped from 9 to 4.8 g/dL with evidence of consumptive coagulopathy. Emergency upper and lower endoscopy failed to localise the source of bleeding. As embolisation service was not available, he proceeded with emergency laparotomy and multiple jejunal diverticula were seen at the jejunum. On table enteroscopy showed stigmata of recent haemorrhage and proceeded with resection of the affected segment. Our case showed that bleeding from jejunal diverticula can be catastrophic and challenging.

Keywords: Jejunum, Diverticulosis, Diverticular Diseases, Diverticular bleeding

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INTRODUCTION

Small bowel diverticulosis is less common (<5%) compared to colonic diverticula.¹ The jejunum is the most common part compared to the other small bowel, due to a larger diameter of the penetrating jejunal arteries.² The aetiology of the jejunal diverticular (JD) can be attributed to small bowel dyskinesia and

neuromuscular disorder that leads to irregular muscular contraction resulting in increase in the intraluminal pressure which favours the formation of diverticula.³ Colonic diverticular is among the most common causes of gastrointestinal (GI) bleeding in the elderly, especially in the Western population.⁴ Bleeding from

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JD can present like colonic diverticular bleeding. Therefore diagnosing jejunal diverticular bleeding can be challenging and often initially suspected to be colonic in origin. We report our experience in managing a 69-year-old man with massive JD bleeding and discuss the investigations and treatment strategies.

CASE REPORT

A 69-year-old man with no known medical illness presented with a massive lower GI bleeding, suspected to be colonic in origin. He had been passing out black stools for two days associated with symptoms of anaemia. He has not taken any medication prior and denies using any traditional medications.

On examination, he was stable but his condition changed in the ward when he developed haematochezia—he hemodynamic status changed and he became hypotensive with a blood pressure of 97/43 mmHg but no tachycardia. He passed a large amount of bloody stool with blood clots. His haemoglobin dropped drastically from 9 gm/dL to 4.8 gm/dL with evidence of consumptive coagulopathy (thrombocytopenia and deranged clotting profile). He was resuscitated with 10 mls per kg of crystalloids, and later received blood products. Altogether, he received seven units of packed cell, four units of fresh frozen plasma, and four units of cryoprecipitate. He was also given a stat dose of intravenous tranexamic acid (one gram) and intravenous esomeprazole 80mg bolus followed by 8 mg/hour.

Emergency upper endoscopy was carried and this revealed uncomplicated duodenal diverticulum at descending duodenum (D2). Lower endoscopy showed multiple blood clots in the proximal colon but was not able to localise the source of bleeding. As there was embolisation service available, it was decided to proceed with emergency laparotomy with no embolisation services at the district hospital. During laparotomy, multiple jejunal diverticula (**Figure 1a**) were seen at 10 cm from the duodeno-jejunal junction to one meter of jejunal length with the stigmata of recent haemorrhage seen via on-table enteroscopy. Intraoperatively another five pints of packed cell were given together with one cycle of disseminated intravascular coagulation cycle which comprises of four units of fresh frozen plasma, four units of platelet and six units of cryoprecipitate. Surgical resection of the involved jejunal segment and primary anastomosis were performed (**Figure 1b**). There were also multiple uncomplicated right-sided colonic diverticula which

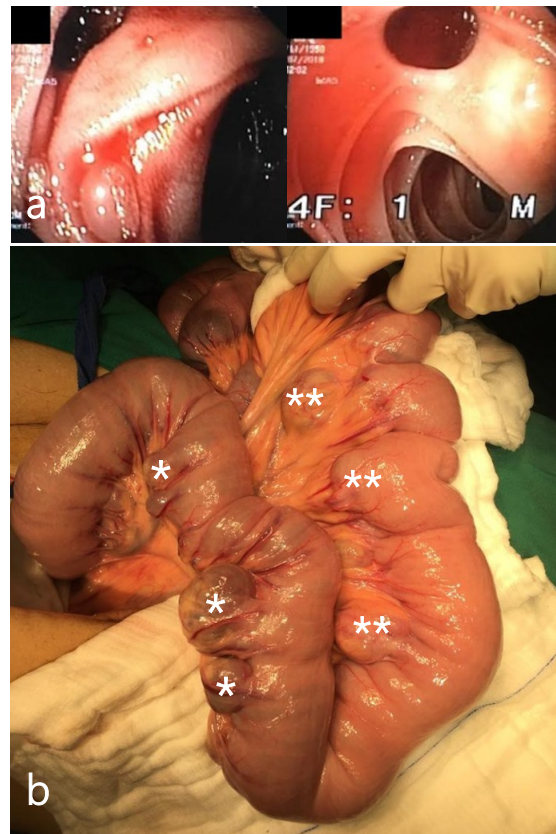


Figure 1: a) On table enteroscopy images showing jejunal diverticulum with blood, and b) Intraoperative image of multiple jejunal diverticulosis at the mesenteric border where the proximal part shows diverticuli (*) that are filled with blood clots while the distal part has more clear-looking diverticuli (**).

were left intact. The patient had no post-operative events and was discharged well on day ten post operation. On follow up, the patient remained well with healed surgical scar and symptom resolution.

DISCUSSION

The prevalence of jejunoileal diverticula on autopsy ranges from 0.06% to 1.3% and it increases with age in the sixth to seventh decade.² Coexistent diverticula are found in the colon (20%-70%), duodenum (10%-40%), and oesophagus and stomach (2%).² Our patient had coexisting colonic and duodenum diverticuli.

Complications of JD include obstruction, haemorrhage, diverticulitis and perforation. The prevalence of haemorrhage as a complication is only 2%.^{1,2} The management of asymptomatic JD is conservative and resection is not required.

It is not possible to localise the location of bleeding clinically. On clinical examination, patient may only have signs and symptoms of anaemia. Presence of haematochezia and melaena are helpful to differentiate

the location of bleeding to either upper or lower GI tract. However, this is not necessarily the case. Hypotension and tachycardia indicate volume loss and severity. Interestingly, in our case, the patient did not have tachycardia and may be due to paradoxical bradycardia that may occur with acute reduction in the blood volume - vasodepressor-cardioinhibitory reaction. This response leads to a longer diastolic ventricular filling time, resulting in increase of stroke volume. This phenomenon has been seen in previous cases reported.^{5,6}

Endoscopy plays an central role in the management of GI bleeding. In most centres, upper and lower GI endoscopies are readily available, but not enteroscopy or capsule endoscopy. As in our case, both upper and lower GI endoscopies were carried out. Capsule endoscopy or enteroscopy would be ideal to examine the small bowel, the latter with therapeutic capability. Capsule endoscopy will not be suitable in the emergency setting. CT angiography (CTA) is a useful modality to locate bleeding, but only useful when there is active bleeding. The advantages include rapid, non-invasive localisation of active extravasation, high sensitivity for detecting low-rate bleeding (as low as 0.3-0.5 mL/min) and precise anatomical mapping of the bleeding source, which is crucial for guiding subsequent therapeutic interventions like angiographic embolisation or surgical resection.⁷ CTA is now routinely used for suspected small bowel bleeding. Mesenteric angiography with interventions is now the preferred modality when endoscopies are non-diagnostic, thus avoiding the more invasive surgery.⁸ However, this depends on the availability of the service.⁹

We proceeded with surgery and on-table enteroscopy as angiogram service was not available at our centre, a district general hospital. In an unstable patient with ongoing bleed, resuscitation is important as there is a small risk of anastomosis failure. The surgery was uncomplicated and our patient recovered and did not have any further bleed.

CONCLUSION

The diagnosis of bleeding from JD can be challenging. Upper and lower GI endoscopies are important investigations to rule out upper and lower sources of bleeding. In the acute setting, CTA and mesenteric angiography are important modalities for assessment of small bowel bleed. However, in centres where such facilities are not available, surgery with or without on-

table enteroscopy should be considered without delay.

Take Home Message

- Small bleeding such as jejunal diverticular bleeding can be challenging to diagnose.
- In the acute setting, resuscitation is important followed by assessment of the small bowel.
- Computed tomography angiography (less invasive) and mesenteric angiography (therapeutic) can locate site of bleeding, but requires active bleeding (at least 0.3-0.5 mL/min of bleeding).
- Surgery with on-table enteroscopy remains an important modality when angiographic modalities are not available.

Abbreviations

JD	Jejunal diverticulum
GI	Gastrointestinal
CT	Computed tomography
CTA	Computed tomography angiography

Declarations

Conflict of interests

The authors declare no conflict of interests.

Consent

Consent has been obtained from the patient for publication.

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