

Minimal invasive management of proximal small bowel bleeding: A case report and reviewing the evidences

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Abstract

Objective: Gastrointestinal bleeding is one of the surgical emergencies that is routinely visited in emergency departments. Although most of these patients are managed with endoscopic modalities, some of them are managed with surgical interventions. Most of emergency surgical interventions are done via laparotomy. With evolution in minimal invasive surgery, the role of laparoscopic surgeries in emergency settings is on a rise.

Case Presentation: In this report we describe a case of lower gastrointestinal bleeding that was presented with melena and during workups no bleeding lesion was detected in colon, stomach or duodenum. Further investigations revealed bleeding of proximal jejunum mass that was resected with the laparoscopic approach which is rarely used in the emergency management of patients with gastrointestinal bleedings. Also, resection and anastomosis of proximal jejunal loop was challenging in this case.

Conclusion: This report is intended to describe the feasibility of laparoscopy in proximal small bowel lesion resection in emergency settings as well as the role of CT angiography in detecting the source of obscure gastrointestinal bleeding.

Keywords: Laparoscopic, Small intestine, Double balloon enteroscopy, Gastrointestinal stromal tumor, Computed Tomography Angiography, Gastrointestinal Hemorrhage

Introduction

Gastrointestinal stromal tumor (GIST) is the most common mesenchymal tumor of gastrointestinal tract and 40% of GIST is presented with gastrointestinal bleeding (GIB). Small bowel is the site of GIST in 20%-30% of gastrointestinal GIST (1).

Patients with massive GIB usually undergo esophagogastroduodenoscopy (EGD) and Colonoscopy for evaluation of bleeding lesion, but in patients with small bowel lesion the diagnosis is challenging (2). One of the available modalities for the evaluation of lower GIB is CT angiography which can detect the source of bleeding with adequate accuracy (3). It is feasible to perform laparoscopic resection for the GIST of small bowel with less blood loss, less postoperative pain and shorter hospital stay (4), but using laparoscopy in the emergency setting is a debate.

We report a case of lower GIB with negative EGD and colonoscopy findings. The case was diagnosed as jejunal GIST using CT angiography and enteroscopy. The lesion was resected using laparoscopy in the emergency setting.

Case Presentation

The patient was a 60-year-old man with chief complaints of dark stool and melena for three days prior to admission. Digital rectal exam revealed black and tarry stool and he

had bowel movement twice a day prior to admission. His history revealed epigastric pain without nausea, vomiting and hematemesis. He had no history of weight loss or any associated symptoms.

On admission, the patient had stable vital signs (Temp: 36.9°C, respiratory rate: 16/min, blood pressure: 118/70 mm Hg, pulse rate: 90/min, and O₂ saturation: 98%). Head and neck examination were unremarkable, and no lymphadenopathy was detected. Chest examination revealed clear breathing sound with regular cardiac rhythm and normal S₁ and S₂. The bowel sound was normal and no localized abdominal tenderness was detected. Extremity and neurologic examinations were also unremarkable.

In addition, hemoglobin was 11 g/dL, on admission, and it was reduced with serial checking to 7.8 g/dL. EGD showed antral gastritis with mild bulbar duodenitis. On the second day of admission, colonoscopy was done. The scope was passed through ileocecal valve and melanotic stool was observed in the right colon and terminal ileum (Figure 1). No fellow of fresh bleeding was seen from the proximal part of ileum and after aggressive irrigation, no polyp and diverticula as well as arteriovenous malformation was found.

Due to hemoglobin drops, CT angiography of abdomen



was done and an 18 x 14 mm mass in the proximal part of jejunum with no active bleeding was found (Figure 2). The mass radiologic features which were reviewed by a radiologist seemed to be a bleeding GIST tumor. The patient underwent balloon enteroscopy which showed a large polypoid lesion in the proximal part of jejunum with ulcerated surface and tattooing with India ink was done (Figure 3). Then, the patient was prepared for laparoscopic resection of the mass.

The patient was transferred to minimal invasive operating room. After induction of general anesthesia, pneumoperitoneum was established with the verse needle and four ports (two 5 mm, one 10 mm and one 12 mm) were inserted. The exploration of abdominal cavity showed deposition of previously injected tattoo in the mesentery (Figure 4). Marked lesion had about 10 cm distance from Treitz Ligament. So, by using LigaSure, the mesentery of jejunum was divided and with 5 cm margin of small bowel it was resected with three 45mm linear staplers (Figure 4). The stapler line was over-sewed with PDS 3-0 and the procedure was terminated.

He had uncomplicated recovery and after three days liquid diet started and successfully advanced. He was

discharged from hospital on the fourth post-operative day in good general condition. Histopathology confirmed the diagnosis of low grade GIST which was mixed type; both epithelioid and spindle. All margins were free and no lymph node involvement was detected.

Discussion

In this report the feasibility of laparoscopic resection of jejunal bleeding GIST tumor in emergency settings is demonstrated. It is worth mentioning that the procedure has been described for elective settings previously (5).

Acute GIB without known sources in EGD and colonoscopy is a challenging issue since it is essential to understand the source of bleeding for definitive surgical interventions. One of the suggested approaches to such patients is angiography, but its limited diagnostic value in detecting low volume bleeding restricts its application. Previous studies have demonstrated the acceptable high accuracy of CT angiography in detecting such lesions. With demonstration of intraluminal extravasation of contrast the diagnosis of GIB (Figure 2) is confirmed (6).

After confirmation of lesion especially in the small bowel as a source of bleeding it is mandatory to mark the site of lesion with a stable dye such as India ink or indocyanine green to facilitate laparoscopic resection of the lesion (5).

Feasibility of laparoscopic resection of small bowel GIST has been investigated previously (7), but its application within the emergency settings is a debate. Another issue with this case was the possibility of intracorporeal anastomosis of small bowel near the Treitz ligament which is not well reported before.

In conclusion, CT angiography is a reliable option for the diagnosis of bleeding source in patients with GIB in which no source of bleeding is found in EGD and Colonoscopy and laparoscopic resection of proximal small bowel lesions is applicable even in emergency settings.

Conclusion

Performing laparoscopic resection in the emergency setting is possible and it is associated with improved

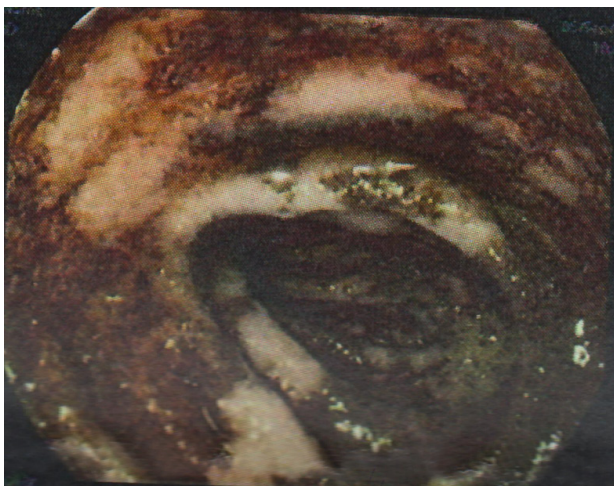


Figure 1. Presence of melanotic stool in terminal ileum.

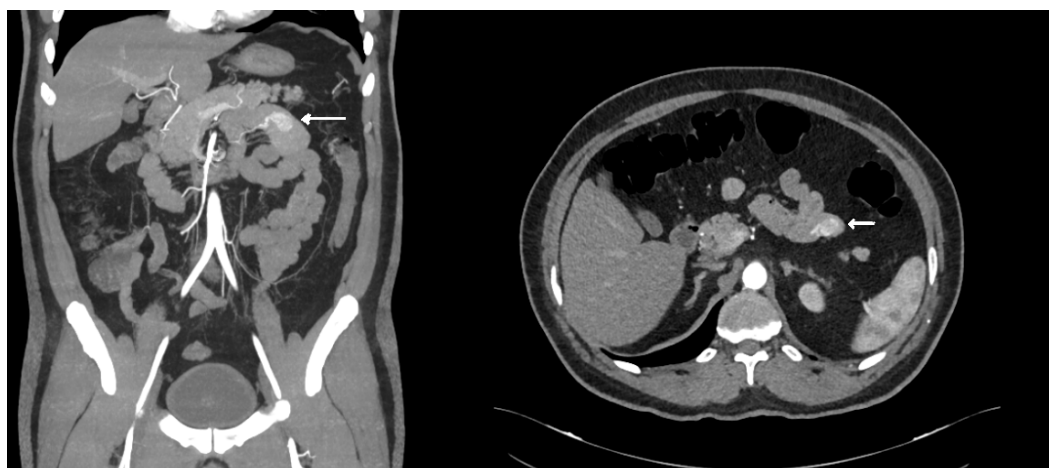


Figure 2. Extravasation of contrast and small bowel lesion.



Figure 3. Tattooing the lesion with enteroscopy.

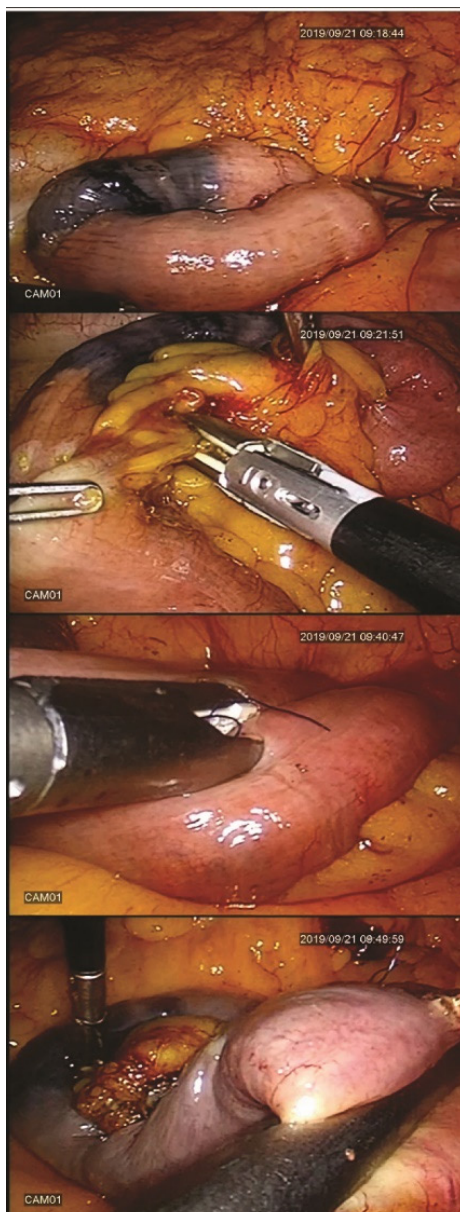


Figure 4. Operative steps in resection and anastomosis of lesion.

patient outcome, but prior to operation exact localization of lesion is mandatory.

Authors' contributions

MR and SVH both did the intervention and followed the management of the patient. MR prepared the manuscript.

Ethical issues

The patient agreed upon the use of data for research purposes or publications.

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