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Open Surgery with Intraoperative Enteroscopy in Jejunoileal Massive Bleeding in Pediatric Patient: An Evidence-Based Case Report

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Abstract

Introduction. A case report of surgical exploratory laparotomy with intraoperative enteroscopy (IOE) as a treatment in massive jejunoileal bleeding in children.

Method. We conducted a literature search on databases such as Cochrane, PubMed, ScienceDirect, and Google Scholar. Abstract and title screening was done based on exclusion criteria, inclusion criteria, and double filtering. The selected article then reviewed using critical appraisal tools based on its validity, importance, and applicability. Selected articles were benchmark to the discussion.

Results. The application of open surgery with IOE as the final treatment that can be recommended in the critical or life-threatening condition of jejunoileal bleeding.

Conclusion: surgical exploratory laparotomy with intraoperative enteroscopy is the best final treatment that can be a choice for massive jejunoileal bleeding, whether in the acute case or repeated case, supported with the level of evidence 4.

Keywords: massive jejunoileal bleeding, pediatric patient, level of evidence, intraoperative enteroscopy

Introduction

Jejunoileal has a long twisting anatomical coverage of intestine and classified into the middle intestinal tract among ampulla Vater and ileocaecal valve.^{1,2,3} Bleeding in the region remains a problem in daily practice. Jejunoileal bleeding in the pediatric patient contributes 5% of total gastrointestinal bleeding and 75% of complete obscure gastrointestinal bleeding (OGIB) or gastrointestinal bleeding with the unknown source, even though bidirectional endoscopy has proceeded.^{4,5,6}

There are choices in diagnostic and therapeutic modality to evaluate pathologic site including cause of bleeding in the jejunoileal area, such as video capsule endoscopy (VCE), device-assisted endoscopy (DAE), balloon-assisted enteroscopy (BAE) with a single or double-balloon, push endoscopy, spiral enteroscopy, CT enteroscopy, or intraoperative enteroscopy (IOE).^{2,4} However, no one superior to the other in the assessment of the massive jejunoileal bleeding. According to the international guidelines of endoscopy, in cases with the life-threatening massive jejunoileal bleeding, the patient needs to be stabilized first. A surgical exploratory laparotomy with IOE, red blood cell scan or angiography is the further option.^{6,7}

We report massive jejunoileal bleeding in a pediatric proceeded an emergency exploratory laparotomy completed with the IOE as a diagnostic mean.

Case illustration

A–6 years old boy with hemorrhagic shock and severe anemia (hemoglobin content of 3.6g/dL) proceeded blood transfusion and diagnostic evaluation for suspicion leukemia. He had pancytopenia and elevated blast cells. There was no improvement, and on the sixth day of hospital stays, he had a massive hematochezia. Esophagogastroduodenoscopy and colonoscopy carried out; no apparent bleeding site identified. As a condition getting worst, an emergency exploratory laparotomy proceeded and completed with intraoperative enteroscopy to find out the source and to stop the bleeding. The laparotomy proceeded through a transverse incision approach. There was bondage at 150 cm of the Bauhini valve identified. The entrapment released; the procedure continued with intraoperative enteroscopy. The enteroscopy camera scope inserted to the intraluminal through two enterotomies, at 40 cm distal to Treitz ligament, and 140 cm proximal to the Bauhini valve, respectively.

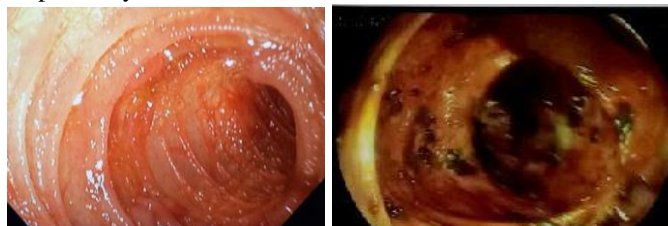


Figure1. Preoperative endoscopic assessment (esophagogastroduodenoscopy and colonoscopy). A. The Jejunoileal mucosa inflamed with multiple scar B. Blood clot without active bleeding shown

The evaluation had been made, and multiple ulceration with active bleeding identified at 70,55,45,40,10 cm proximal to the Bauhini valve. The ulcer found at 70 cm proximal to the Bauhini valve refreshed and sutured. The pathological segment resected and continued by ileoileal anastomosis. The pathological findings indicate Crohn's disease.



Figure 2. A. The figures showing intraoperative enteroscopy findings show multiple ulceration of jejunoileal wall (yellow sign) with active bleeding; B. The pathological segment resected (10–55 cm proximal to Bauhini valve) and continued by ileoileal anastomosis.

The literature search carried out to find out the best evidence supporting the reported case. The search proceeded in PubMed, ScienceDirect, and Google Scholar using keywords ‘Small bowel bleeding [Title/Abstract] AND life threatening[Title/Abstract] Intraoperative enteroscopy [Title/Abstract] [Pdat] AND OGIB[Mesh] AND Pediatric [Pdat] Filters: published in the last 15 years; Pediatrics surgery’. The articles screened through the criteria of inclusion, duplication, and critically appraised. Ten articles met the criteria. Six articles combined open surgery with intraoperative enteroscopy, and others with laparoscopic surgery in combination with enteroscopy, super-selective angiography, and embolization, and laparotomy RA alone with preoperative angiography.^{11,12,13,14,15,16}

Discussion

All articles reported surgical intervention with IOE a definitive treatment that might be recommended in an emergency setting where jejunoileal bleeding is life-threatening, especially if the former procedures failed to identify the source of bleeding.^{6,9} These articles were case reports with the level of evidence four, and no strong recommendation provide yet.¹⁰ However, the characteristics of the reported case in the articles look like to our situation. A noted of the reported cases in the articles was no recurrence found.

The benefit of IOE is to catch the blind area of the middle intestine. Using the scopes, the jejunoileal area is relatively hard to be assessed, let the blind areas found in the duodenum to the terminal ileum.¹⁷ IOE may provide good access in the evaluation and treat massive jejunoileal bleeding at the same time and a study recommending IOE as a gold standar for this

case.⁸ The guidelines recommend that IOE indicated the source of bleeding could not be evaluated with another approach, and could not be treated endoscopically, and angiographic embolization, and noninvasive is not possible. IOE could be accessed with enterotomy incision.^{4,6}

Even though there's no strong recommendation yet, the use of this approach in our case shows the merit. With critical appraisal based on validity, importance, and applicability in this study, surgery with IOE recommended treating jejunoileal bleeding, even though the level of evidence is level 4 as a result of the rarity of the case in daily practice.¹⁰ However, the characteristics of the patients, site of the bleeding in jejunoileal area, and massive bleeding condition that becomes the chief complaint are similar to the case presented in this EBCR. All of the patients had no recurrence after the surgery.^{11,12,13,14,15,16}

This report shows that all of the articles have no recurrence after surgery, even though the surgery is done laparoscopically.

Conclusion

Based on this evidence-based case report, we can conclude that surgery is the last resort and can be a treatment of choice in massive jejunoileal bleeding, whether in the acute case and recurrent case, supported with the level of evidence 4. The use of the intraoperative diagnostic tool may vary and adjusted with instrument availability in the hospital. However, IOE is the first choice if-else fails to recognize the source of bleeding.

References

1. Monkemuller K, Neumann H, and Fry LC. Middle gastrointestinal bleeding. *Interventional and therapeutic gastrointestinal endoscopy*. 2009;(27): 221–239.
2. De Ridder L, Tabbers MM, and Escher J.C. Small bowel endoscopy in children. *Best Prac and res clin gastroenterology*. 2012(26): 337–345
3. Volk Neil, Lacy Brian. Anatomy and physiology of the small bowel. *Gastrointest Endoscopy Clin N Am*. 2017(27) 1–13
4. Romano Claudio, et al. Pediatric gastrointestinal bleeding: Perspectives from the Italian Society of Pediatric Gastroenterology. *World J Gastroenterol*. 2017; 23: 1328–1337
5. Gunjan D, Sharma V, Rana SS, and Bhasin DK. Small bowel bleeding: a comprehensive review. *Gastroenterol Rep*. 2014; (2): 262–275
6. Gurudu SR, et al. The role of endoscopy in the management of suspected small bowel bleeding. *ASGE Standards of Practice Committee. Endoscopy*. 2017; 85(1): 22–31.
7. Pant C, Olyae M, Sferra TJ, Gilroy R, Almadhoun O, Deshpande A. Emergency Department visits for gastrointestinal bleeding in children: result from the nationwide emergency department sample 2006– 2011. *Curr Med Res Opin*. 2015(31):347–351
8. Kim Earl, Kang Yunkoo, Lee MJ, Park YN, Koh Hong. Life-threatening lower gastrointestinal hemorrhage in pediatric Crohn's disease: Case Report. *Pediatr Gastroenterol, Hepatol & Nutr*. 2013(16):53–60.
9. Gerson LB, Fidler JL, Cave DR, and Leighton JA. ACG clinical guideline: Diagnosis and management of small bowel bleeding. *Am J Gastroenterol*. 2015(110)1265–1287

10. Sastroasmoro S. Menelusur asas dan kaidah evidence-based medicine: Buku kajian mandiri 3rd Ed. Jakarta. Sagung seto. 2017
11. Marangoni G, et al. A common cause of life-threatening gastrointestinal bleeding: 2 synchronous Dieulafoy lesions. *J Pediatr Surg.* 2008(44):441-447
12. Chao HC, Hsia SH, Ming YC, Hsueh Choen. Jejunal Dieulafoy Lesion Detected by Intraoperative Endoscopy in a Child. *Iran J Pediatr.* 2016; E7727- E7730
13. Srikanth KP, et al. Unusual Cause and Association of Gastrointestinal Bleed in a Young Boy. *J of Dig Endos.* 2017(8):142-4
14. Morowitz MJ, Markowitz R. Kamath BM. Allmen DV. Dieulafoy's Lesion and Segmental Dilatation of Small Bowel: An Uncommon Cause of Gastrointestinal Bleeding. *J Pediatr Surg.* 2004(11):1726-1728
15. Jensen M, Mysore K, El-Abiad R, et al. Double Ballon Enteroscopy in Children: a case series highlighting risk, and a review of the literature. *Fl Gastroenterol.* 2013(4): 82-86.
16. Coleman J, Philips R and Steiner R. Small Bowel Hemangioma in a Year Old Female with Recurrent Anemia. *Ochsner J.* 2018(18): 428-432.
17. Jae Hong Park., 2010. Role of colonoscopy in the diagnosis and treatment of pediatric lower gastrointestinal disorders. *Korean J Pediatr,* 53(9): 824-829.