

# Acute Gastrointestinal Bleeding Caused by Jejunojejunal Intussusception in an Adult: A Case Report and Literature Review

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## ABSTRACT

Intussusception in adults is an uncommon entity with various clinical manifestations and complications such as acute gastrointestinal bleeding. A 30-year-old man was reported who referred to our hospital with loss of consciousness, and developed two separate courses of acute gastrointestinal bleeding after admission. During second surgery, we came across a jejunojejunal intussusception as the main cause of gastrointestinal bleeding. Hereby, we reviewed and analyzed our experience in the management of this disease and also compared our findings with respective literature and other studies.

## INTRODUCTION

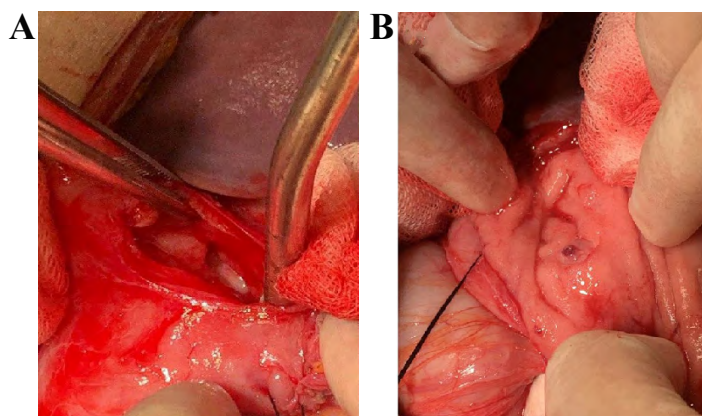
Although intestinal intussusception is a common disorder in children, but it is a rare condition in adults and may present with various clinical manifestations such as abdominal pain, constipation, nausea and vomiting and diarrhea [1]. Acute gastrointestinal bleeding due to intussusception is one of the uncommon presentations of the disease and can be fatal if not treated properly.

Here we report a case with unexplained intestinal invagination and review our experience in diagnosis and management of the disease.

## CASE PRESENTATION

A 30-year-old man referred to our hospital's emergency department with loss of consciousness. He was admitted with a diagnosis of multidrug toxicity in intensive care unit and received respective treatment. Due to the patient's altered mental status we could not take a thorough history of his addiction and drug regimen. On the other hand, laboratory toxicity panels only showed increased levels of amphetamines and opioids. During the first 24 hours, the nasogastric tube contents became coffee ground, repeated episodes of melena found and hemoglobin level decreased to 6 g/dL. Upper gastrointestinal endoscopy showed a 15 mm clean based ulcer in duodenal bulb and no ongoing active bleeding was seen. He did not respond to resuscitative treatment despite six units of PRBCs transfusion.

The patient was taken to the operating room and mid-line celiotomy was performed. After gastrotomy, we found a 15 mm ulcer with non-bleeding visible vessel and another one cm clean based ulcer in posterior wall of duodenal bulb (Figure 1). Both ulcers were ligated and sutured with a thick silk thread and pyloroplasty in the style of Heineke-Mikulicz was performed. Other intra-abdominal organs were normal without any pathological findings. The patient developed a low-grade fever (38.1°C) on the third day of post-operative period and in abdominopelvic CT, no pathologic findings were detected. The patient discharged four days after surgery. Nine days later he



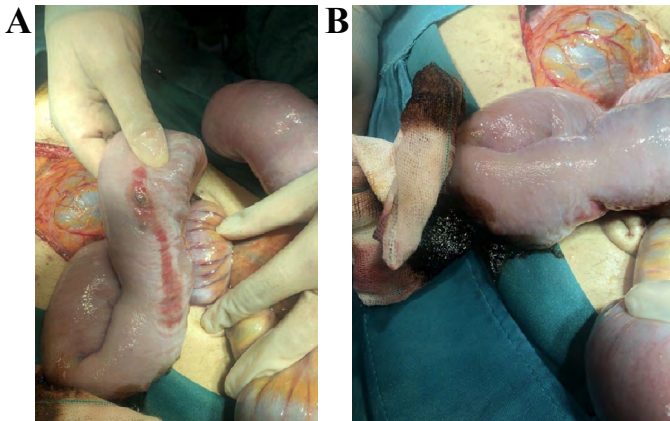
**Figure 1.** photographs taken from first surgery. **A:** a 15mm clean based ulcer located at the posterior wall of duodenal bulb. **B:** a non-bleeding visible vessel located near the same ulcer



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**Figure 2.** images from second surgery. **A:** dilated small bowel loop and some patterns of patchy necrosis alongside the bowel wall. **B:** perforation site. Extracted bowel contents show melena.



**Figure 3.** jejunojunal intussusception found during abdominal exploration

developed another course of loss of consciousness, bleeding, melena and decreased Hb level (Hb=4 g/dL). Due to patient's hemodynamic instability, he was taken to the operation room one more time. Two liters of reactive liquid was found in the abdominal cavity which had aspirated completely. Prior surgery site was in an appropriate condition. Several patchy ischemic points and one perforation, were found in 100 centimeters away from Treitz ligament (Figure 2). At 200 cm away from Treitz, small bowel intussusception was seen (Figure 3). Distal to intussusception site, dark bloody contents were observable through small bowel wall. So, the involved bowel were resected and an end-to-end anastomosis was performed (Figure 4). The patients tolerated oral regimen 4 days after surgery and was discharged afterwards. Surgical specimen pathology examination indicated 15 reactive lymph nodes and confirmed small bowel intussusception. Further radiologic studies like thoracoabdominal CT showed no suspicious lesions for malignancy.

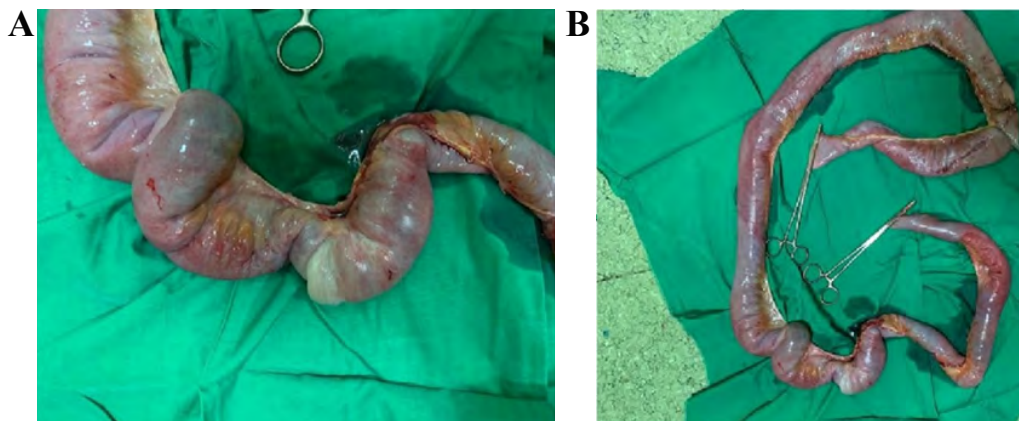
### DISCUSSION

Intussusception is defined as a condition in which a proximal segment of bowel (intussuscepted) moves through adjacent distal segment (intussusceptions). This condition is common among children but can be found rarely in adults. Considering its scarcity, there is not much data reporting its precise inci-

dence and prevalence. Some reported intussusception in adults represents in less than 1% of patients with bowel obstructions [2]. Anatomically intussusception also called invagination which could be found in entire gastrointestinal tract such as gastroesophageal junction, duodenum, small bowel, large bowel and even rectum [3-6]. Intussusception also is reported repeatedly in other animals like cats, dogs, horses and mice. On the other hand, it seems that the disease is not limited to mammals and can be found in other vertebrates too [7].

Intussusception usually presents in infants between 6 and 36 months of age but it can appear in older ages too [8]. Generally, the involved bowel causes obstruction and the patient presents severe progressive abdominal pain that is crampy and occurs every 15 to 20 minutes [8]. Several intussusception sites have been described but the most common type is ileocecal or ileocolic that accounts for more than 90% of all patients [9].

Generally, this condition in adults is quite different from children in etiology. In children, it is usually benign without any secondary lesions but in adults it is secondary to various pathologic triggers called "Lead points". In a large retrospective study in 1970, a total of 160 cases were reviewed and results indicate that less than 10% of intussusceptions were primary or without unexplained etiology [10].



**Figure 4.** resected bowel. **A:** intussusception site. **B:**100 cm specimen including perforation site and necrotized bowel

**Table 1.** Summarized cases of adult intussusceptions with acute gastrointestinal bleeding presentation

Reporter	Case age	Gender	Type	Surgery	Pathology
Kim et al. 2008	65	Female	ileocolic	resection	hemangioma
Hofflander et al. 1999	27	Male	jejunojejunal	resection	Mixed germ cell tumor
Yun et al. 2008	52	Male	jejunojejunal	resection	Lung cancer
Yang et al. 1987	31	Male	jejunojejunal	Resection	hepatocellular carcinoma
Li et al. 2018	19	Male	Ileoileal	Resection	Vascular hamartoma
Li et al. 2018	54	Male	Ileocecal	Resection	lipoma
Manouras et al. 2007	55	Male	jejunojejunal	resection	lipoma

Despite ileocolic type which is the most common in children, several studies reported a wide range of involved sites. For example, almost half of the patients in the study mentioned above had colonic etiologies. On the other hand, some authors reported that enteric type is more common.[11]. But it is obvious that intussusception can occur in any location inside gastrointestinal tract, that are junctions between freely and fixed moving segments. So it can potentially involve duodenum that is adhered to the retroperitoneal structures and jejunum as well as ileum, ascending and descending colons and rectum with the same rationale. However it seems that colonic etiologies are more likely to be malignant [12].

In adult, this condition is not typically like infants and can be presented with a wide variety of clinical manifestations like abdominal pain, nausea and vomiting, constipation, diarrhea, gastrointestinal bleeding, mass palpation and weight loss [1]. Acute gastrointestinal bleeding (GIB) can occur in these patients as mentioned above but none of case series described precisely this compliant and related etiologies. One report described a 65-year-old female patient with hemangioma in ileum that developed intussusception and the involved section of bowel was resected [13]. Also cases of acute GIB with etiologies of metastatic testicular germ cell cancer, metastatic lung cancer, hepatocellular carcinoma, vascular hamartoma and lipoma have been described in literature [14-18]. Table 1 shows summarized reports data. No colonic intussusception in the context of acute GIB has been reported. It seems that jejunojejunal types are more prone to cause bleeding. All cases mentioned underwent surgery and the involved intestinal site of GIB had been resected. Regarding pathology reports, it seems that it is imperative to resect the affected segment of bowel because of high rate of malignant lesions. In our case we also resected the affected site and pathology reported no significant lesion. Thoracoabdominal Computed Tomography (CT) also showed nothing special and the patient was discharged.

### CONCLUSION

Acute gastrointestinal bleeding is a rare manifestation of intussusception in adults and usually is found incidentally inside surgeries. Because of high risk of malignancy in these patients, the surgeon should keep in mind that every lesions causing acute gastrointestinal bleeding in the context of intussusception must be resected and further radiologic evaluation should be performed.

### CONFLICT of INTEREST

None of the authors have any conflict of interest. No funding was received for this study. The study is not an official representative or on behalf of the government.

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