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BMH Med. J. 2020;7(4):10-16. **Case Report**

Pitfalls in the Diagnosis of Obscure Gastrointestinal Bleeding from Gastrointestinal Stromal Tumor of Jejunum; Case Report and Literature Review

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Abstract

Background: Gastrointestinal Stromal Tumors (GIST) represent < 1% of Gastrointestinal (GI) neoplasms and jejunal involvement by GIST is very rare. GIST presenting with Obscure Gastrointestinal Bleeding (OGIB) is a rare clinical manifestation. Often these tumors are diagnosed by GI imaging studies, endoscopy, capsule endoscopy or enteroscopy.

Case Presentation: We report a case of an 80-year-old male who presented with recurrent episodes of GI bleeding over a period of seven months without a definite diagnosis. Different diagnostic modalities including upper endoscopies, colonoscopies and CT scan of the abdomen without intravenous (IV) contrast have failed to find the source of bleeding. The capsule endoscopy that was done during a phase of active bleeding showed up a lesion in the jejunum, and a push enteroscopy confirmed a tumor in the jejunum. The patient underwent surgical resection of the tumor, and histology was consistent with GIST. Subsequently, the GI bleeding stopped, and no further recurrences of bleeding happened.

Conclusion: We are highlighting the pitfalls of diagnostic modalities in diagnosing obscure GI bleeding and specifically the GIST in the jejunum through this patient's clinical presentation.

Keywords: Obscure gastrointestinal bleeding; small intestine bleeding; gastrointestinal stromal tumor; capsule endoscopy; gastrointestinal hemorrhage

Background

Gastrointestinal stromal tumors (GIST) are mesenchymal tumors of the GI tract and they constitute less than 1% of the GI neoplasms. GIST is most commonly seen in the stomach

but to arise from the jejunum is extremely rare and represents 0.1% to 0.3% of all gastrointestinal tumors [1]. Clinical manifestations of GIST include abdominal pain, intestinal obstruction, and bleeding, or it might be detected incidentally during imaging studies [1-3].

Obscure GI bleeding is defined as the failure to diagnose the source of recurrent or persistent GI bleeding with upper and lower endoscopies [4,5]. GIST presenting as obscure GI bleeding is an uncommon clinical manifestation [2]. Objective of this case report is to highlight the pitfalls of diagnostic modalities in obscure GI bleeding and specifically for the diagnosis of the GIST.

Case Presentation

An elderly male, who is a known case of hypertension, diabetes mellitus type-2, ischemic heart disease status post Coronary Artery Bypass Graft (CABG) and congestive heart failure, was referred to our center for further evaluation of recurrent episodes of GI bleeding. He has been on multiple medications for his comorbid illnesses including clopidogrel. His medical illnesses were under control with treatment.

Initially he developed melena and was found to be anemic. The patient underwent gastroscopy and colonoscopy at a local hospital. The gastroscopy displayed multiple small gastric ulcers, and the colonoscopy was unremarkable. The patient was treated with proton pump inhibitors. Following this, he had recurrent episodes of melena over a period of seven months that required repeated gastroscopies and colonoscopies during that period. The upper endoscopies on different occasions showed gastric erosions, and these were attributed to non-steroidal anti-inflammatory drugs (NSAID). The colonoscopies were all normal. He received multiple blood transfusions and during one of the bleeding episodes, he developed transient ischemic attack (TIA). Hospitalizations, outpatient visit, endoscopy procedures, blood transfusions, and surgery are shown in (**Figure 1**).

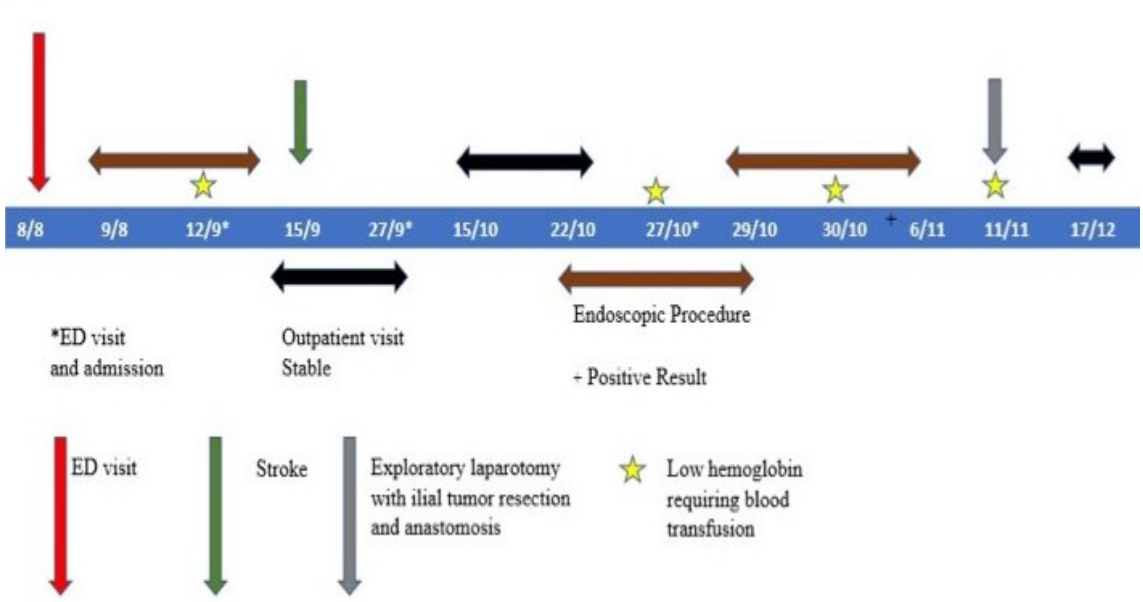

Figure 1: Hospitalization, Emergency Department (ED) visits, Investigations, Surgery, and outpatient visits

The patient was transferred to our hospital for further management. His initial hemoglobin was 62 g/L. On physical examination, he was pale, tachycardic but normotensive. There was no evidence of telangiectasia in the oral cavity or over his skin. Direct rectal examination was positive for melena. The rest of his physical examination was unremarkable. The patient was admitted, transfused 2 units of packed red blood cells and continued on supportive therapy. Due to high creatinine level (146 micromole/L) a non-contrast CT scan of the abdomen was

performed and revealed blood in the left side of the colon, but no other findings to explain etiology of the recurrent GI bleeding. The coronal section image of the CT scan of the abdomen is shown (**Figure 2**).

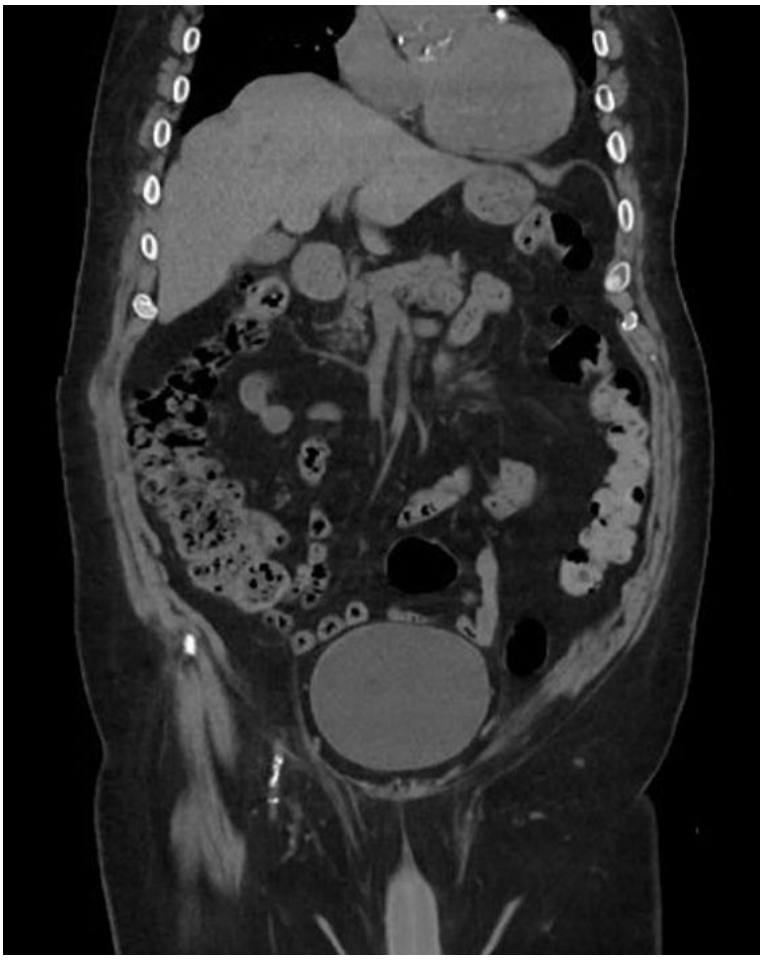

Figure 2: CT scan abdomen showing blood in the left side of the colon, but no other findings to explain etiology of the recurrent GI bleeding

The patient then had capsule endoscopy (CE) which showed one ulcerated polypoidal lesion in the proximal jejunum (40-50 cm from the pylorus) as shown in (**Figure 3**). Following this, the patient underwent a push-enteroscopy, which showed an ulcerated mass in the jejunum that was actively bleeding (**Figure 4**). Differential diagnosis was either jejunal adenocarcinoma, lymphoma, GIST or tuberculosis. Histopathology showed ulceration and inflammatory exudate.

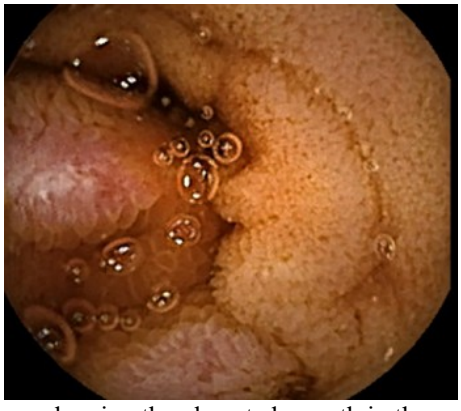

Figure 3: Capsule endoscopy showing the ulcerated growth in the proximal part of the Jejunum

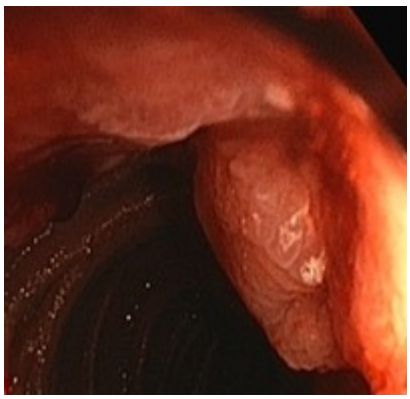

Figure 4: Push-enteroscopy showing an ulcerated growth in the jejunum, approximately 40 to 50 cm from the pylorus

The patient underwent an exploratory laparotomy and resection of a 4 cm jejunal mass. The gross pathology was described as a sub-serosal mass with nodular smooth outer surface measuring 4.0 x 3.0 x 3.5 cm. Upon serial sectioning, the mass was located mainly in the submucosa and reaching the mesenteric fat. It had lobulated white tan cut surface with focal hemorrhage. The remaining mucosa was unremarkable. No lymph nodes were identified. Immunohistochemistry was CD117 & DOG-1 positive (**Figure 5**) and CD34 was focally positive. On the other hand, DESMIN, ACTIN AND S100 were all negative. The patient was followed up for five months after the surgery and did not had any episodes of GI bleeding. The hemoglobin was 132 g/L without blood transfusions.

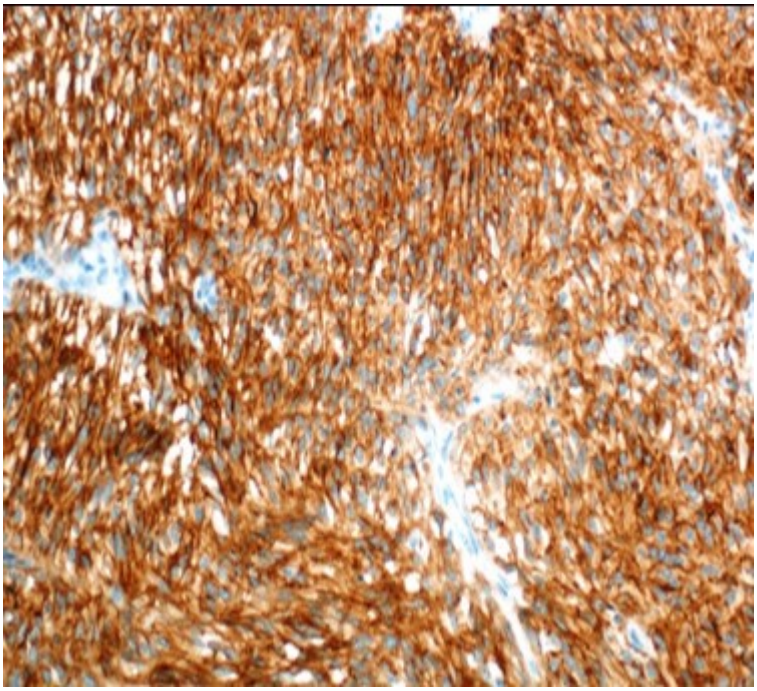

Figure 5: DOG-1 immuno-histopathology of the tumor further confirmed the diagnosis of gastrointestinal stromal tumor.

Discussion and Conclusion

Historically, OGIB has been defined as persistent or recurrent GI bleeding with successive negative results from bidirectional GI endoscopies [6]. The majority of OGIB are from the small intestine [5], and around 5% of all GI bleedings are from small bowel lesions [4]. Primary small bowel tumors (SBT) account for 5% of GI tumors [7]. A variety of investigation methods are used to diagnose small bowl bleeding including upper and lower endoscopies, capsule endoscopy, double balloon enterography and angiography [5,8,9]. Generally, the diagnosis of SBTs is usually delayed due to the absence of any specific clinical presentation [5].

Among the patients presenting with GI bleeding, the underlying etiology may not be found in 10-20% of them. In addition, half of these patients would present again with recurrent bleeding. As mentioned above, small bowel lesions account for the majority of OGIB (75%), with vascular lesions accounting for 70% of the causes in the western population and ulcerations accounting for 45% in the Asian population [6,10]. Other etiologies include extraluminal sources such as aortoenteric fistula, hemobilia and hemosuccus pancreaticus. A high index of suspicion is required to avoid unnecessary interventions and a delay in diagnosis [6].

Small intestinal bleeding diagnosis is challenging. When suspected, after ruling out a visible source by upper and lower GI endoscopy, CE is the recommended next step, and if the results were negative, deep enteroscopy is the investigation of choice [9]. Moreover, deep enteroscopy can be used as first line in cases where CE is contraindicated [9].

Despite being the most common mesenchymal tumors of the small bowel, GIST are still considered rare and are slow growing [2]. GIST typically presents in the sixth decade of life [11]. In a case report, Sadeghi et al, illustrated the journey of a patient who has had 5 months of OGIB and underwent multiple negative investigations including capsule endoscopy and CT enterography. Until he eventually presented acutely with small bowel obstruction caused by four centimeters intraluminal jejunal GIST [12]. Only a few cases of GIST presenting as OGIB were found in the literature, including the recently published case report by Duailm et al (6 cm x 6 cm x 3 cm mass, 30 cm away from the duodenojejunal flexure and it was missed by CE) [13].

In our case, the bleeding was caused by pressure necrosis of the mucosa from the tumor. It was also reported by Blanchard et al. that the growth of the tumor towards the lumen causes ulceration and impairment of blood supply, leading to GI bleeding due to the necrosis in the mucosal layer [7].

Small bowel tumors may clinically present with different clinical manifestations. The GIST may present with hemorrhage, carcinoid with bowel obstruction, malignant lymphomas with perforation, and adenocarcinoma would show perforation or bowel obstruction [7]. GIST develops in the muscle layer of the small bowel, and since the jejunum has a more copious muscle layer it has a higher predilection to develop in it [7].

Multiple modalities are utilized to reach the diagnosis of GIST such as double contrast GI series, computed tomography (CT), and endoscopy. CT scan of the abdomen is highly sensitive for diagnosing GIST. A meta-analysis of 12 studies shows the sensitivity of CT scan for the diagnosis of GIST was in the range of 77.26–94.9%, specificity 77.2–100%14. Based on the latest recommendation by The National Comprehensive Cancer Network (NCCN), the initial workup of GIST should be done by a CT abdomen to evaluate, stage and monitor the response to treatment. GIST shows a low density well defined homogenous soft tissue mass on contrast CT [15]. In our patient, however, CT scan yielded a negative result due to lack of oral and IV contrast because of the underlying renal insufficiency.

When the small bowel is suspected in OGIB, capsule endoscopy has become the first diagnostic tool as it was found to detect 56% of clinically significant abnormalities in comparison to 26% using push enteroscopy [4,9]. In patients with OGIB and negative capsule endoscopy results, the possibility of missing a lesion cannot be underrated [16]. The sensitivity of capsule endoscopy for SBT detection was 83.3%, and the negative predictive value was 97.6%. The specificity and positive predictive value were both 100% [16].

A study by Zagorowicz et al, was done on 145 patients to highlight small bowel tumors missed by capsule endoscopy. They found 2 cases of GIST that were missed by all imaging modalities but found on laparotomy, and a single case missed by capsule endoscopy but found on contrast CT, concluding that balloon assisted enteroscopy should be considered the next diagnostic tool [16].

On the other hand, the yield of biopsy is poor due to its submucosal location. Furthermore, the characteristic features of GIST in both radiology and laparotomy include a large mass in the absence of lymphadenopathy with or without liver metastasis [1]. Immunohistochemistry staining is important in supporting the diagnosis of GIST, as 94% of these tumors express CD117 regardless of their origin or malignant potential, which was the case in our patient [1].

The main therapeutic method is surgical resection with the goal of complete en bloc resection of the mass to include any involved adjacent organ [17]. However, an immense number of GIST recur after surgery [1], and 40% may recur 2 years post tumor resection [17]. Multiple factors play a role in determining the prognosis. Patients with GIST with no metastasis at presentation had a median survival of 60 months [17]. Patients with esophageal GIST had the best prognosis, while intestinal GIST had the worst [18]. Upon follow up with our patient 1-month post operatively, he was doing well with no signs of recurrence.

GIST from the jejunum presenting as obscure gastrointestinal bleeding is rare. High index of suspicion is required to diagnose small intestine GIST due to its inaccessible location. A small bowel source of bleeding should be suspected after a negative upper and lower endoscopy, indicating the need for capsule endoscopy and enteroscopy to reach the diagnosis. When GIST is suspected, abdominal CT scan should be performed for initial evaluation. We highlighted the case of OGIB and the importance of multiple imaging modalities to diagnose GIST as the source of long-term bleeding. Surgical excision is the mainstay of management.

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