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Case Report: Upper Gastrointestinal Bleeding Due to Gastric Ulceration over Intraluminal Gastrointestinal Stromal Tumor (GIST) at the Fundus of the Stomach

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ABSTRACT

Gastrointestinal stromal tumors (GISTs) are rare mesenchymal neoplasms originating from the interstitial cells of Cajal in the gastrointestinal tract. They can manifest anywhere along the GI tract but are most commonly found in the stomach. GISTs are often asymptomatic, but when symptoms do occur, they may include abdominal pain, gastrointestinal bleeding, or signs of obstruction. In this case, we report on a 70-year-old male who presented with upper gastrointestinal bleeding caused by gastric ulceration over an intraluminal GIST located at the fundus of the stomach. The patient had a history of occasional painless melena over the past month, anemia symptoms, and a significant drop in hemoglobin levels. Despite prior difficulties with anesthesia due to challenging intubation, successful surgical excision of the tumor was achieved after meticulous preoperative preparation. The postoperative course was uneventful, and histopathological examination confirmed a spindle cell type GIST. The patient was subsequently managed according to GIST guidelines with long-term oncological follow-up. This case highlights the clinical presentation, diagnostic challenges, and management strategies for upper gastrointestinal bleeding due to an intraluminal GIST.

KEYWORDS: Gastrointestinal stromal tumor, gastric ulcer, upper gastrointestinal bleeding, intraluminal tumor, surgery, fiberoptic intubation.

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INTRODUCTION

Gastrointestinal stromal tumors (GISTs) represent the most common mesenchymal tumors of the gastrointestinal tract, although they constitute only 1-3% of all gastrointestinal neoplasms (1). The majority of GISTs arise in the stomach, with the fundus being a less commonly affected region. These tumors can present with a spectrum of symptoms, from asymptomatic masses detected incidentally to life-threatening hemorrhage or obstruction (2).

Upper gastrointestinal bleeding is a severe complication of GISTs, often resulting from ulceration of the overlying mucosa. The bleeding may be occult, presenting as iron deficiency anemia, or overt, manifesting as hematemesis or melena (3). The management of GISTs complicated by bleeding involves stabilization of the patient, endoscopic evaluation, and, in many cases, surgical intervention (4).

Intraluminal GISTs, which project into the lumen of the stomach, are particularly prone to cause ulceration and bleeding. Their endoscopic appearance can mimic other polypoid lesions, making preoperative diagnosis challenging (4). This case report discusses the clinical presentation, diagnostic approach, and successful surgical management of a 70-year-old male with upper gastrointestinal bleeding due to an intraluminal GIST at the fundus of the stomach.

CASE PRESENTATION

A 70-year-old man presented to the emergency department with a one-month history of occasional painless melena. He reported episodes of black, tarry stools, occurring off and on, with no associated abdominal pain. The patient also experienced generalized weakness, fatigue, and symptoms consistent with anemia, including shortness of breath on exertion and dizziness. There was no history of vomiting, weight loss, or abdominal distension. He had no significant medical history except for a prior episode of upper gastrointestinal bleeding one year ago, which was evaluated with an esophagogastroduodenoscopy (OGD) revealing a polypoidal growth at the fundus of the stomach. Surgery had been planned at that time, but it was postponed due to anaesthetic concerns related to difficult intubation.

On examination, the patient appeared pale and was in no acute distress. His vital signs were stable, with a blood pressure of 120/80 mmHg, heart rate of 88 beats per minute, respiratory rate of 18 breaths per minute, and temperature of 36.8°C. Abdominal examination revealed a soft, non-tender abdomen with no palpable masses. There was marked pallor, and rectal examination confirmed the presence of melena, with no palpable rectal mass.

Laboratory investigations revealed a hemoglobin level of 6.4 g/dL, indicating severe anemia. The white blood cell count was 7,000/µL, and platelet count was 145,000/µL. The patient was transfused with three units of whole blood, after which his hemoglobin level increased to 9.8 g/dL.

The following day, an upper gastrointestinal endoscopy was performed, revealing multiple deep erosive ulcerations over a polypoidal growth at the fundus of the stomach (Figure 1). The lesion was actively erosive, though there was no evidence of retained blood or clots within the stomach. Given the findings, a decision was made to proceed with surgical intervention after thorough counseling and informed consent.

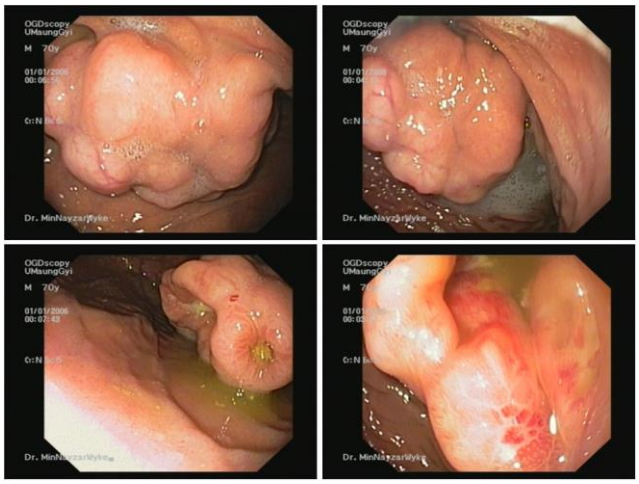

Figure 1. Endoscopic views of multiple deep erosive ulcerations over a polypoidal growth at the fundus of the stomach.

Given the previous difficulties with intubation, special preparation was made in consultation with the anaesthetic team. The patient underwent a comprehensive preoperative and cardiac assessment. On the day of the operation, fiberoptic intubation was performed successfully with a 7.5 mm endotracheal tube under bronchoscopic guidance. (Figure 2).

Figure 2. Fiberoptic intubation with 7.5 mm endotracheal tube under bronchoscopic guidance.

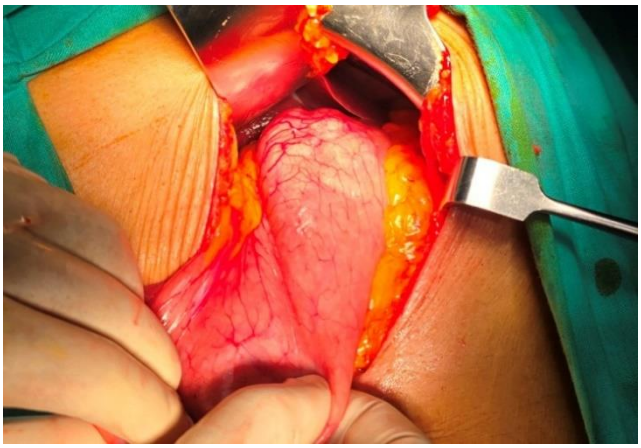

Figure 3. Intraoperative finding of gastric mass at the fundus of the stomach.

Intraoperative findings included a polypoidal mass with ulcerations at the fundus of the stomach, measuring approximately 5x4 cm (Figure 3). The mass was confined to the lumen, with no invasion of the serosa or surrounding structures (Figure 4). The liver appeared normal, and no other abnormalities were noted.

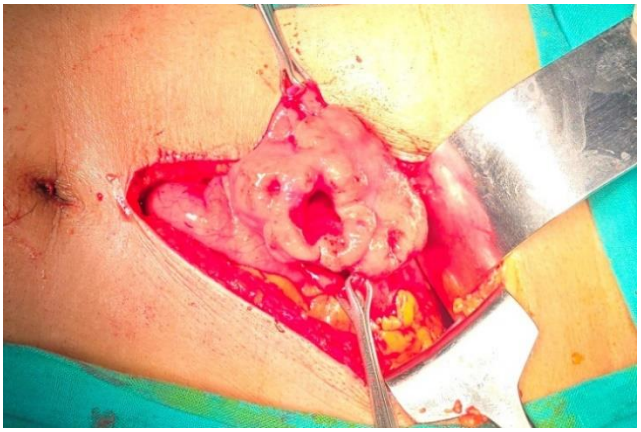

Figure 4. Intraoperative finding of intraluminal polypoidal gastric fundus mass excision.

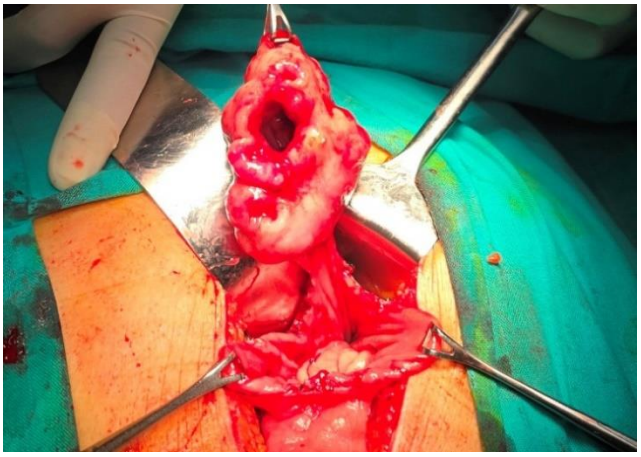

Figure 5. Intraoperative finding of excision of intraluminal gastric fundus mass with ulcerations.

The surgical procedure involved excision of the bleeding ulcer along with the affected portion of the stomach fundus (Figure 5). The excised area was repaired with a two-layer closure, using continuous vicryl sutures for the inner layer and interrupted silk sutures for the outer layer (Figure 6). The patient received one additional unit of blood intraoperatively, bringing the total transfusion to four units.

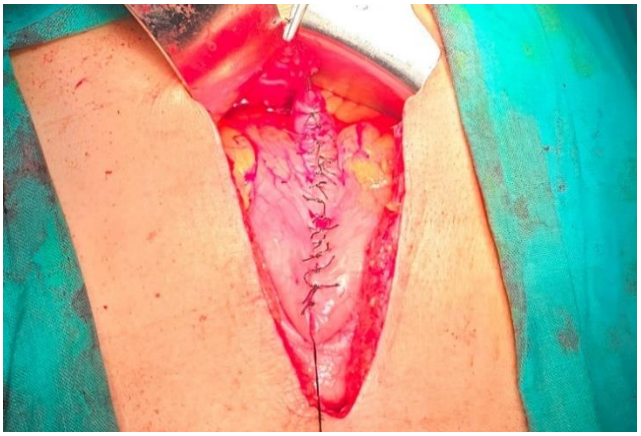

Figure 6. Intraoperative finding of primary repair with two-layer closure of fundus mass excised area.

The postoperative course was uneventful. The patient was started on clear fluids on the fifth postoperative day, gradually progressing to a soft diet. He was discharged on the tenth postoperative day in stable condition.

Histopathological examination of the excised specimen (Figure 7) confirmed the diagnosis of a gastrointestinal stromal tumor, spindle cell type, arising from the fundus of the stomach (Figure 8). The tumor was confined to the submucosa and mucosa, with no evidence of serosal involvement or metastasis. Immunohistochemical staining was positive for CD117 (c-KIT) and DOG-1, which are typical for GISTs and negative for SMA (Figure 9).

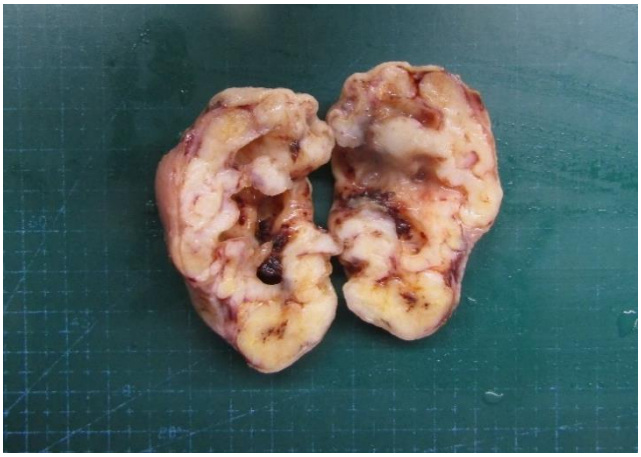

Figure 7. Gross cut section of polypoidal growth specimen (6x4x4 cm) with hemorrhage surface and ulcerative areas.

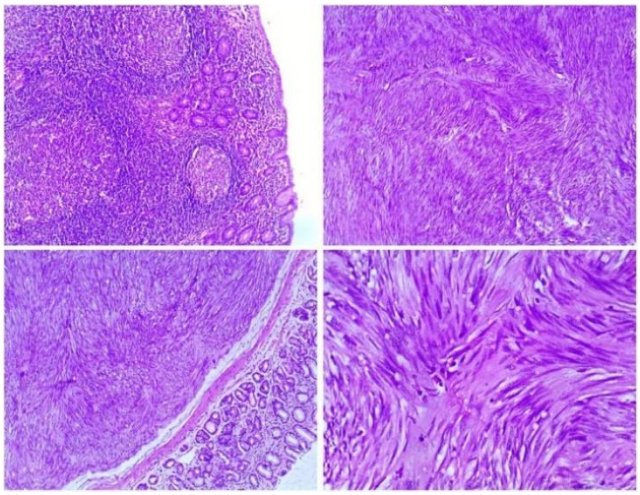

Figure 8. Histopathological findings of spindle cell type GIST arising from the fundus of stomach.

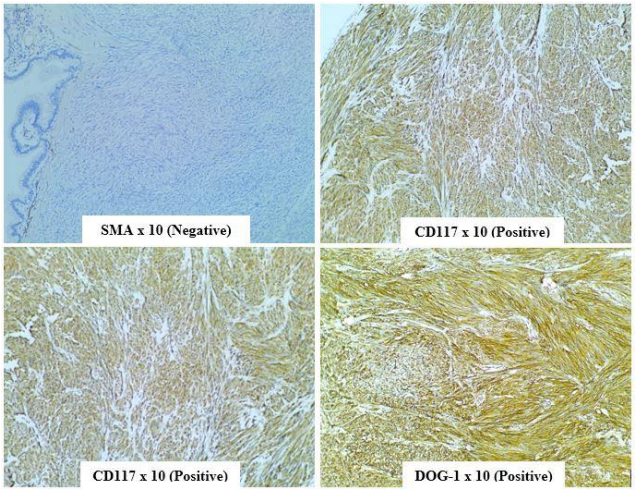

Figure 9. Immunohistochemistry for GIST confirmation with positive CD117, positive DOG-1 and negative SMA

Following surgery, the patient was referred to an oncologist for further management according to the GIST treatment guidelines. He was advised to undergo regular follow-up and surveillance, with no recurrence of gastrointestinal bleeding or other complications noted during subsequent visits.

DISCUSSION

Gastrointestinal stromal tumors (GISTs) are unique neoplasms with distinct clinical and pathological features. Their presentation can vary widely depending on the tumor's size, location, and the presence of complications such as bleeding or obstruction. The most common site of GISTs is the stomach, accounting for approximately 60-70% of cases, with the small intestine being the second most common site (1 & 2).

GISTs in the stomach are often asymptomatic and discovered incidentally during imaging or endoscopy for unrelated conditions. However, when symptoms do occur, they are typically nonspecific and may include abdominal pain, early satiety, or gastrointestinal bleeding. Bleeding is one of the most common complications of gastric GISTs, occurring in approximately 20-25% of cases. The bleeding is usually due to ulceration of the overlying mucosa, which can result in melena or hematemesis (4).

Intraluminal GISTs, such as the one presented in this case, are particularly prone to causing significant gastrointestinal bleeding. The polypoidal nature of these tumors can lead to erosion of the mucosal surface, resulting in deep ulcerations and persistent oozing of blood. Endoscopically, these tumors may appear similar to other polypoid lesions, making definitive preoperative diagnosis challenging (4).

The management of GISTs complicated by bleeding requires a multidisciplinary approach. Initial stabilization of the patient is crucial, including fluid resuscitation and blood transfusion as needed. Endoscopic evaluation is essential for both diagnosis and therapeutic intervention, such as endoscopic hemostasis. However, in cases where the bleeding is refractory to endoscopic treatment, surgical intervention becomes necessary.

Surgical resection remains the mainstay of treatment for localized GISTs. The goal of surgery is to achieve complete excision of the tumor with negative margins while preserving as much of the normal gastric tissue as possible. In the case presented, the tumor was successfully excised, and the patient had an uneventful recovery. The use of a multidisciplinary team approach, including careful preoperative planning and coordination with anaesthetic team for fiberoptic intubation, was critical in managing the patient's prior history of difficult intubation.

Histopathological examination and immunohistochemical staining are essential for confirming the diagnosis of GIST and differentiating it from other mesenchymal tumors. CD117 (c-KIT) is a highly specific marker for GISTs, and its presence confirms the diagnosis. The risk of recurrence and metastasis depends on several factors, including tumor size, mitotic index, and location. In this case, the tumor was confined to the mucosa and submucosa, with no evidence of serosal invasion or metastasis, suggesting a favorable prognosis.

Postoperative management of GISTs involves regular follow-up and surveillance to monitor for recurrence. Adjuvant therapy with tyrosine kinase inhibitors, such as imatinib, is recommended for patients with high-risk tumors or those with metastatic disease. In this case, the patient was referred to an oncologist for further management according to GIST guidelines, which will include ongoing surveillance and possibly adjuvant therapy.

CONCLUSION

This case highlights the challenges and complexities in managing upper gastrointestinal bleeding due to intraluminal gastric GISTs. The patient's presentation with anemia and melena, coupled with a history of previous GI bleeding, raised suspicion for a recurrent gastric lesion. The successful surgical resection of the tumor, despite the challenges posed by prior anesthetic complications, underscores the importance of a multidisciplinary approach in managing such cases. Histopathological confirmation and subsequent oncological management are essential components of the comprehensive care required for patients with GISTs. Long-term follow-up is necessary to monitor for recurrence and ensure the best possible outcome for the patient.

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CONFLICTS OF INTEREST

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