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# Upper Digestive Bleeding Caused by Mixed Gastrointestinal Stromal Tumor

*Case Report*

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## Abstract

Gastrointestinal stromal tumors (GIST) are the mesenchymal tumors with the greatest presentation in the digestive tract and represent 1% to 2% of all gastrointestinal tumors and the stomach is the most frequent location. One of the clinical manifestations is upper gastrointestinal bleeding, which is why these tumors are discovered when performing an upper gastrointestinal endoscopy. The present case is an adolescent, we can see the clinical presentation such as endoscopic findings and imaging support and finally received surgical treatment with a distal partial gastrectomy.

**Keywords:** Upper gastrointestinal bleeding, Gastrointestinal stromal tumor, Digestive tract, Digestive endoscopy, Distal partial gastrectomy

## Introduction

Gastrointestinal stromal tumors (GIST) are the mesenchymal tumors with the greatest presentation in the gastrointestinal tract and represent 1% to 2% of all gastrointestinal tumors and the stomach is the most common location. Approximately the incidence rate of GIST is 1 case per 100,000 inhabitants per year [1].

In Peru, the INEN (National Institute of Neoplastic Diseases) carried out a retrospective study on 152 patients with gastrointestinal stromal tumors in 10years (1999-2009), of which 77 are expression of gastric GISTs, in this regard, at the INEN in 50years (1950-1999) it was possible to evaluate 50 patients with gastric GIST tumors, with medical equipment such as endoscopy or ultrasound endoscopy, an early and timely diagnosis can be made to patients with suspicion of these tumors [2].

Inherited mutations in the KIT gene exons 8,11,13or17 confer a high risk of developing GIST of the stomach or small intestine at ages as early as 18years [3]. 95% of gastrointestinal stromal tumors (GIST) are positive for CD117 (KIT), 60% to 70% for CD34 (PDGFRA), especially in the esophagus and, to a lesser extent, for muscle actin smooth (35%), S-100 (10%) and desmin (5%) [4]. They can present as small asymptomatic nodules, found accidentally together with aggressive tumors and whose symptoms are non-specific (abdominal pain or discomfort, palpable mass, hemorrhage) [5]. Below, the case of a minor patient who presented upper digestive bleeding will be presented, which is why a digestive endoscopy was performed, finding a submucosal lesion. The reason for presenting this case is to know the clinical, imaging and endoscopic presentation of these stromal tumors.

## Clinical Case

A 15-year-old female patient from Huánuco-Peru, with no significant history, was admitted as an emergency with an illness of 3 days of abrupt onset and progressive course. The patient's mother reports the presence of black, bad-smelling stools associated with dizziness and headache as an initial symptom. She is medicated with analgesics

without improvement. Due to persistence of symptoms and increased volume of dark stools, seek medical attention.

On the day of admission, the patient was evidently tachycardic and pale, with a rectal examination with melena characteristics, with no other alterations on the physical examination. Laboratory tests revealed moderate anemia of 7.3g/dl of the normocytic and normochromic type: liver profile, coagulation profile and platelets within normal values. Upper gastrointestinal bleeding is diagnosed, initial management is carried out and the Gastroenterology service is consulted, who schedules an emergency upper gastrointestinal endoscopy once the patient is hemodynamically stable in order to search for the origin of the bleeding.

The endoscopy shows a multilobulated lesion with a subepithelial appearance measuring approximately 45x35mm in a lesser curvature. In one of its lobes, a congestive region is evident with the presence of fibrin on its surface, without signs of active bleeding. The first possibility is a gastrointestinal stromal tumor. (GIST), multiple biopsy shots are performed with the endoscopic forceps. A contrast-enhanced tomographic study is requested that confirms the presence of a heterogeneous mass in lesser curvature with contrast enhancement predominantly in the venous phase suggestive of leiomyoma vs leiomyosarcoma.

It was decided to repeat endoscopy up to two times to take samples using the biopsy-on-biopsy technique due to the suspicion of a subepithelial lesion and the lack of endoscopy in our institution makes it difficult to see the margins of the lesion in greater detail as well as the possibility of a better taking a biopsy using fine needle aspiration biopsy (FNAB). Both histological studies were inconclusive even with the use of immunohistochemistry; the study was expanded with contrast-enhanced magnetic resonance imaging, which suggested GIST as the first possibility (Figure 1-3).

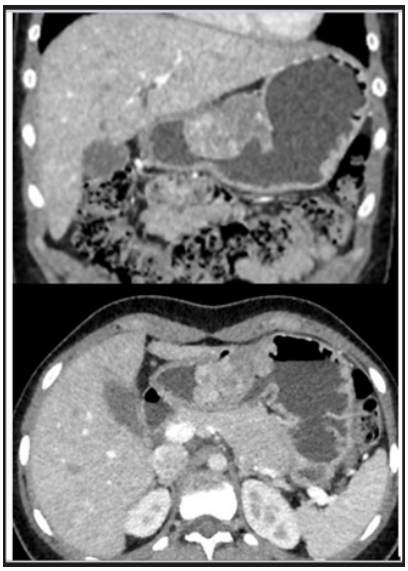


**Figure: 1.**

Given the high suspicion of GIST, it was decided to consult with the oncology surgery service, who, analyzing the difficulty of determining the etiology of said gastric lesion and seeking to act promptly for the benefit of the patient, decided to schedule exploratory laparotomy. Already during the operation, a 7 x 5cm multilobulated and neovascularized tumor was evident dependent on the lesser curvature and anterior face without evidence of lymphadenopathy. Distal partial gastrectomy + D1 lymphadenectomy + Billroth II gastroenteroanastomosis was performed. In the immediate postoperative period, the patient had an optimal recovery without complications. Upon discharge, the histological study of the surgical specimen concluded as a high-grade GIST CD 117 +, with a mitotic range of 7/5mm$^2$, lymph nodes and lesion margins free of tumor. Patient continues his outpatient controls by Medical Oncology and Gastroenterology.

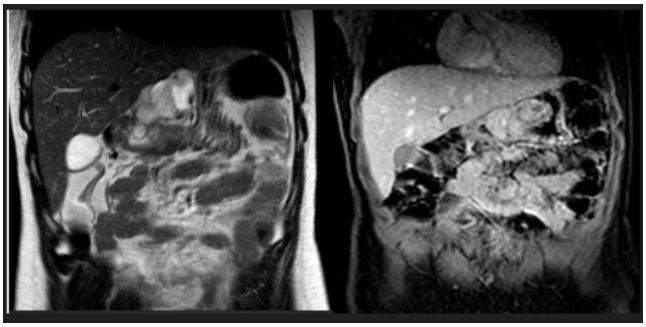


**Figure: 2.**

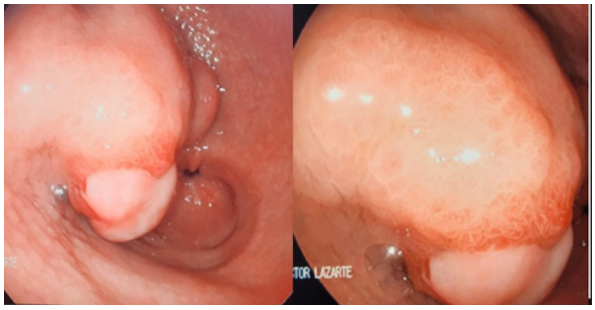
**Figure: 3.**

## Discussion

Mixed GIST is a type of gastrointestinal stromal tumor that shows characteristics of both benign and malignant tumors. These tumors develop from interstitial cells of Cajal (ICC), which are specialized gastrointestinal stromal cells involved in the regulation of intestinal motility. Mixed GISTs can vary in size and aggressiveness, and their behavior can be difficult to predict. The most frequent location of GISTs is in the stomach (60-70%), followed by the small intestine (20-30%), colon and rectum (<5%), esophagus (<2%) and, less frequently, in peritoneum, mesentery and omentum [6].

In the emergency service of reference hospitals, it is common for patients to arrive with upper gastrointestinal bleeding, with non-variceal bleeding being common, and of these, peptic ulcer. What is not common is for minors to come with symptoms of upper gastrointestinal bleeding and moderate anemia is found. In the present case, the patient came for upper gastrointestinal bleeding (which is the most common documented frequency of symptomatic presentation) [7,8] due to erosions of the mucosa surrounding the subepithelial lesion; The biopsies were taken based on the recommendation of the AGA CPG 2022 [7] which advises "Bitebite biopsies with forceps or deep well or tunnel biopsies can sometimes establish a pathological diagnosis of subepithelial lesions" however The pathology results achieved were not in accordance with the diagnostic suspicion that was held or inconclusive. It is important to mention that the Hospital does not have an Ultrasound Endoscopy, the use of which would have helped us more accurately in the early diagnosis of the tumor lesion, avoiding

new endoscopies to take a biopsy or radiodiagnostic images such as tomography or magnetic resonance imaging (Figure 4-6).



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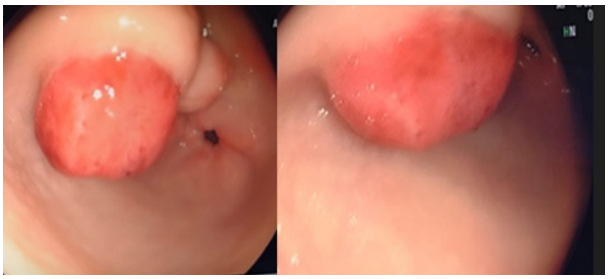

**Figure: 5.**

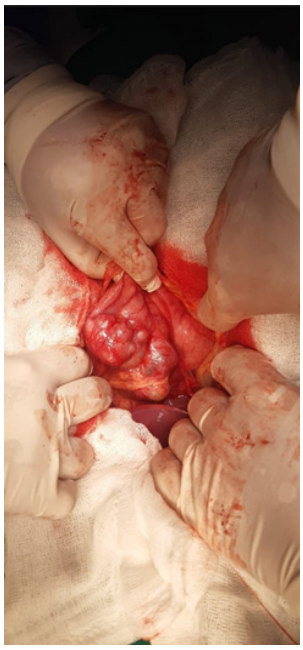

**Figure: 6.**

The recommendation of the ACG CPG 2023[6] to add clinically useful information was analyzed, but this should be reserved for situations in which EUS is not available" which is why other methods of supporting diagnosis such as contrast-enhanced tomography were chosen and the magnetic resonance imaging that mentioned a heterogeneous mass of approximately 70x70mm with irregular border, cystic spaces, ulceration, no lymph node involvement and echogenic foci and taking into account the following recommendations.

"Due to their malignant potential, we suggest resection of gastric GISTs >2 cm and all non-gastric GISTs" [7,9] "if the lesion causes gastrointestinal symptoms or bleeding, resection may be justified regardless of the size of the lesion the lesion and without a diagnosis prior to resection" [9] It was decided to make the decision of surgical resection by performing a distal partial gastrectomy with Billroth II gastroenteroanastomosis on the patient.

The biopsy revealed a mixed gastrointestinal stromal tumor. Most gastrointestinal stromal tumors are of spindle cell morphology (70%) and around 20-25% of epithelioid type [10]. The rest of the cases are mixed like the patient in question. Treatment of mixed GIST is based on a thorough evaluation of the extent of the tumor and assessment of the risk of recurrence or metastasis. The most important factor in determining the therapeutic approach is the size of the tumor and its mitotic index. Complete surgical resection of the tumor remains the main treatment for mixed GISTs. However, in some cases, it may be necessary to combine surgery with additional therapies. Mixed GISTs are generally resistant to conventional chemotherapy and radiotherapy, but have notable sensitivity to tyrosine kinase inhibitor (TKI) drugs. These drugs, such as imatinib, sunitinib, and regorafenib, have revolutionized the management of mixed GISTs [10].

## Contributions

Dr. Víctor Moisés Lizarzaburu Rodríguez: research and writing

Dr. Kevin Brian Payano Camacho: research and writing

Dr. Kevin Roger Peña Delgado: research and writing

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None

## Conflicts of Interest

those present certify that they have no conflicts of interest

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