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Case report / Caso clínico

Diagnostic challenge in gastrointestinal bleeding due to GIST: Case report

Desafío diagnóstico en hemorragia digestiva debido a tumor GIST: Reporte de caso

Juan Cáceres Zuña [1], Christian Ferro Gutiérrez [2], Christian Esparza Jurado [3], Andrés Litardo Mosquera [4]

1 First-year postgraduate in Internal Medicine, Hospital Clínica San Francisco - UEES, Guayaquil, Ecuador.
2 Fourth-year postgraduate in Internal Medicine, Hospital Clínica San Francisco - UEES, Guayaquil, Ecuador.
3 Specialist in Internal Medicine, Hospital Clínica San Francisco, Guayaquil, Ecuador.
4 Specialist in Endocrinology, Hospital Clínica San Francisco, Guayaquil, Ecuador.

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ABSTRACT
Introduction: Gastrointestinal stromal tumors (GISTs) are rare non-epithelial neoplasms, with an incidence of 10 to 20 cases per million people, typically occurring in individuals between 50 and 71 years of age. These tumors are primarily located in the stomach and are associated with mutations in the Kit gene. **Clinical Case:** A 45-year-old female patient, who developed an abdominal tumor, is presented. The tumor clinically manifested as hypovolemic shock secondary to gastrointestinal bleeding; in this case, it was located in the mesentery, which is an unusual site for this type of neoplasm. The patient was successfully treated surgically. **Conclusion:** This case highlights the importance of considering GISTs as a differential diagnosis in patients with acute gastrointestinal bleeding and hypovolemic shock. The mesenteric location of the tumor is an uncommon feature, underscoring the variability in the presentation of GISTs. Early detection and appropriate surgical treatment are essential for managing this pathology. Additionally, this case emphasizes the need for thorough evaluation in younger patients, despite GISTs being more common in older adults.

Keywords (MeSH): Clinical case, GIST (Gastrointestinal Stromal Tumors), Non-epithelial neoplasms, Kit gene mutations, Gastrointestinal bleeding, Hypovolemic shock, Mesentery.

RESUMEN
Introducción: Los tumores del estroma gastrointestinal (GIST) son neoplasias no epiteliales raras, con una incidencia de 10 a 20 casos por millón de personas, que suelen presentarse en individuos de entre 50 y 71 años. Estos tumores se localizan principalmente en el estómago y están asociados con mutaciones en el gen Kit. **Caso clínico:** Se presenta el caso de una paciente femenina de 45 años que desarrolló un tumor abdominal, el cual se manifestó clínicamente como un choque hipovolémico secundario a hemorragia digestiva. El tumor, en este caso, se localizó de manera novedosa en el mesenterio, lo que constituye una característica poco común para este tipo de neoplasia. La paciente fue tratada quirúrgicamente con éxito. **Conclusión:** Este caso resalta la importancia de considerar los GIST como diagnóstico diferencial en pacientes con hemorragia digestiva aguda y choque hipovolémico. La localización mesentérica del tumor es una característica poco frecuente que destaca la variabilidad de presentación de los GIST. La detección temprana y el tratamiento quirúrgico adecuado son fundamentales para el manejo de esta patología. Además, este caso pone de manifiesto la necesidad de una evaluación exhaustiva en pacientes jóvenes, a pesar de que los GIST suelen ser más comunes en adultos mayores.

Palabras Clave (DeCS): Caso clínico, GIST (Tumores del estroma gastrointestinal), Neoplasias no epiteliales, Mutaciones del gen Kit, Hemorragia digestiva, Choque hipovolémico, Mesenterio.

*** Corresponding Author:** Christian Arnaldo Ferro Gutiérrez, christianferro@uees.edu.ec

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1. Introduction

Gastrointestinal stromal tumors (GISTs) have a global incidence of 10 to 20 cases per million people each year [1]. The average age at diagnosis is around 60 years, with no clear difference between sexes, although some studies suggest a higher prevalence in men. These neoplasms can affect the entire gastrointestinal tract, and in less than 1% of cases, they can present as extra-intestinal [2,3].

Extra-intestinal gastrointestinal stromal tumors (EGISTs) are rare, representing less than 5% of all GISTs, around 80% are located in the omentum or mesentery [4]. Three theories have been proposed for their development: the first suggests they originate in the gastrointestinal tract, with an exophytic growth followed by the acquisition of autonomy; the second suggests that EGISTs are peritoneal metastases of an undetected GIST; and the third proposes a mesothelial origin with characteristics similar to those of the Cajal cells [5].

Ninety percent of primary GISTs may have mutations in the KIT gene (in 80% of cases), resulting in a positivity for the monoclonal antibody CD-117 in 94-95% of cases, or in the PDGFRA gene (in the remaining 10%). The remaining 10% do not have mutations in either of these genes, so they are classified as wild-type GISTs. The main treatment is surgical resection, which can be curative in most cases [6].

This article presents a case of a GIST located in the mesentery, a rare site, diagnosed from an episode of persistent gastrointestinal bleeding.

2. Clinical Case

A 46-year-old female patient with a history of uterine fibroids, unspecified anemia, radical hysterectomy, and two cesarean deliveries. Her family history includes hypertension in her mother and siblings, and neurofibromatosis type 1 in her father and one brother.

She was admitted with a condition of several days' duration, characterized by melena, without abdominal pain and exacerbation over the last 48 hours, reporting lower gastrointestinal bleeding of approximately 400 cc. Upon examination, she presents generalized pallor, café-au-lait spots on her skin, and nodules on her posterior chest (Image 1). Laboratory studies reveal hemoglobin of 3.3 g/dl, hematocrit of 10%, and platelet count of 67,000 IU, thus categorizing her as having grade III hypovolemic shock due to upper gastrointestinal bleeding. A transfusion of packed red blood cells is initiated, along with treatment with proton pump inhibitors. Due to the severity of her condition, it was decided to admit her to the intensive care unit for continuous monitoring and further studies.

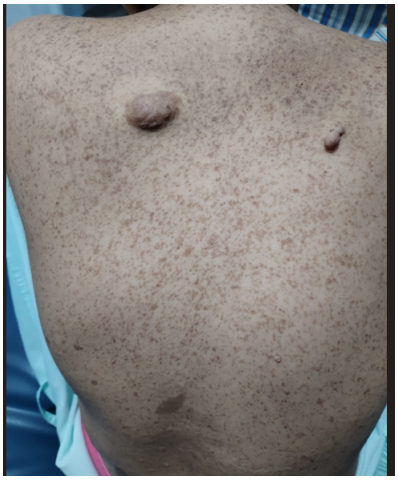


Image 1. Hyperpigmented and hypopigmented macules (café-au-lait color), with small tumors compatible with fibromas in the posterior thoracic region.

The patient is evaluated by the Gastroenterology service, which schedules an upper gastrointestinal endoscopy that showed normal mucosa without identifying the site of the bleeding. Subsequently, a colonoscopy is performed, revealing large clots and blood remnants that hinder the continuation of the study, so it is rescheduled for 48 hours later.

In the following days, the patient does not present new episodes of melena and maintains a stable hemoglobin level of 7.4 g/dl, without the need for transfusions. In the new colonoscopy, abundant blood remnants are observed throughout the colon. Due to the difficulty in locating the source of the bleeding, a capsule endoscopy study is scheduled.

On the fifth day of hospitalization, a slight decrease in hemoglobin levels is recorded (from 9.9 g/dl to 8.8 g/dl), and the diagnosis of gastrointestinal bleeding of uncertain origin is maintained. The capsule endoscopy study reveals normal villi in the duodenum, jejunum, and ileum, along with angiectasia in the proximal ileum (Image 2), without evidence of tumor lesions.

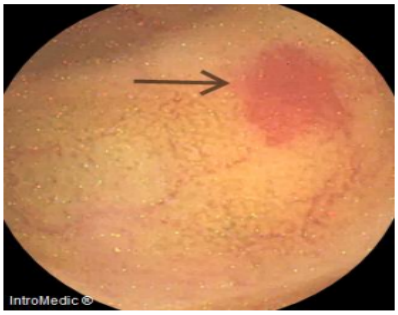


Image 2. Capsule endoscopy at the level of the ileum (proximal angiectasia).

A diagnostic angiography is performed, revealing a hypervascular solid lesion in the mesenteric branch of the proximal ileum (Image 3), which could correspond to a GIST tumor.

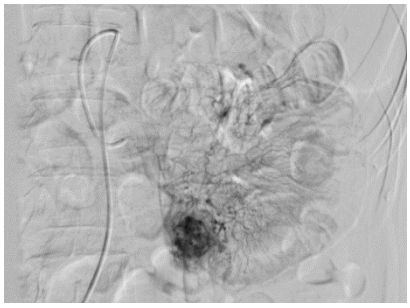


Image 3. Mesenteric angiography, showing an image compatible with a GIST tumor.

In reference to this finding and the family history of neurofibromatosis, imaging studies of the brain, chest, abdomen, and pelvis are requested, along with a thyroid ultrasound and tumor markers. Notably, the brain MRI, both simple and contrast-enhanced, shows enlargement of the optic chiasm and the intracranial segment of both optic nerves in the suprasellar region, isointense to gray matter on T1 and T2 sequences. After contrast administration, there is a slight heterogeneous enhancement, a finding suggestive of an optic pathway glioma (Image 4). Further tumor marker results are collected: carcinoembryonic antigen, alpha-fetoprotein, CA125, CA19-9, CA15-3, CA72-4, all negative, as well as additional imaging studies that rule out the presence of neoplasms in extra-intestinal organs.

On the 15th day of hospitalization, due to the persistence of melena episodes, the General Surgery service decided to perform a diagnostic and therapeutic laparoscopy. During the surgical intervention, a distended gallbladder with thickened and edematous walls and internal calculi is observed. Additionally, dense adhesions between the gallbladder and colon, as well as between the gallbladder and duodenum, are identified. In the proximal jejunum, between 4 and 20 small tumors are found on the antimesenteric

borders, located 30 and 40 cm from the Treitz angle. A rounded and irregular tumor of 4 cm is also observed on the antimesenteric border of the distal jejunum, 140 cm from the Treitz angle, vascularized and protruding into the abdominal cavity and the intestinal lumen (Image 5). Surgical resection of the intestinal tumor is performed, along with laterolateral isoperistaltic anastomosis, and samples are taken for histopathological study.

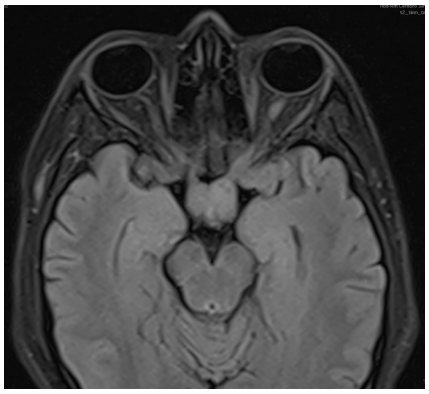
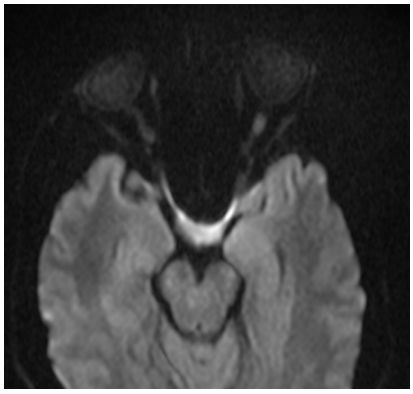
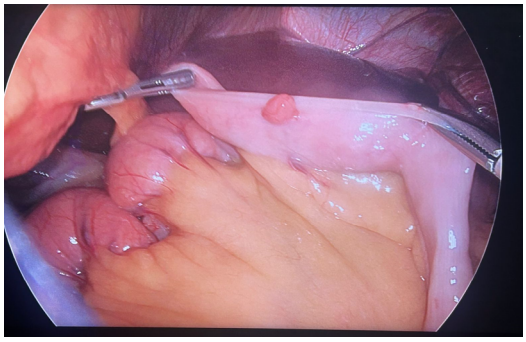
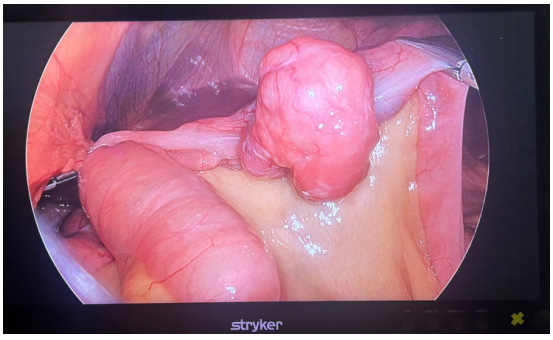
A  B 

Image 4. A: Simple brain MRI showing optic glioma and thickening of the optic nerve and optic chiasm. **B:** Diffusion MRI confirming the presence of optic glioma.

A  

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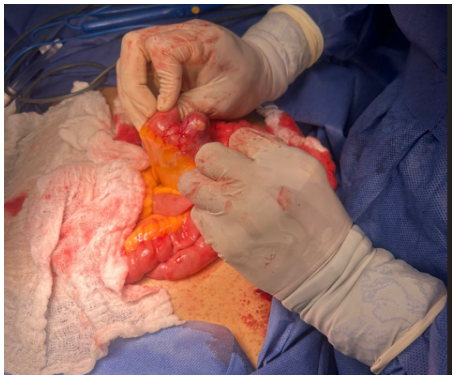

Image 5. A: Image obtained by laparoscopic surgery, showing small tumors on the antimesenteric border. **B:** 4 cm tumor located 140 cm from the Treitz angle. **C:** Larger tumors in the intestine.

The patient, after the surgical intervention, shows good oral tolerance and no new evidence of active gastrointestinal bleeding in the subsequent days.

During her recovery in the hospital, the biopsy result of the small intestine segment is obtained. The findings reveal a 5 cm biphasic mesenchymal neoplasm with slight atypia and low mitotic activity, consistent with a low-grade GIST. As a result, the patient was transferred in optimal health conditions to a third-level oncology center to continue her comprehensive oncological treatment (Image 6).

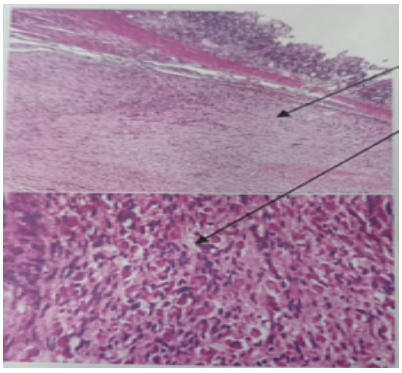

Image 6. Histopathological finding of intestinal tumor: with H&E staining, a moderately differentiated neoplasm is observed, composed of fusiform elements with slight atypia. At higher magnification, elongated nuclei arranged in loose fascicles are seen.

3. Discussion

Gastrointestinal stromal tumor (GIST) is a rare tumor of the small intestine, with an incidence of 10 to 20 cases per million inhabitants. Its early diagnosis is difficult due to nonspecific symptoms; gastrointestinal bleeding being the most common manifestation, which can be accompanied by anemia, melena, or hematemesis. Fifty percent of patients report bleeding, and 37.5% report pain, while only 5% are asymptomatic. Diagnosis is made through endoscopy, endoscopic ultrasound, and computed tomography [7,8,9]. In this case, the upper gastrointestinal endoscopy and colonoscopy were normal, so an abdominal angiography was performed, which located the vascular lesion at the mesenteric level, with a possible diagnostic of GIST based on imaging. What makes this case unique is its unusual location that makes it a diagnostic challenge during the approach.

Patients with neurofibromatosis type 1 have a higher risk of developing GIST, with a frequency of 5-25%. Gastrointestinal manifestations include submucosal hyperplasia, stromal tumors, carcinoids, and a greater predisposition to adenocarcinomas. GISTs in these patients may appear late, even after cutaneous symptoms, and are more common in women. They are often asymptomatic, especially if they are smaller than 3 cm, but they can cause gastrointestinal bleeding, anemia, abdominal pain, and intestinal obstruction [10,11]. It is important to note that the patient did not have an established diagnosis of neurofibromatosis, but due to her family history, specifically her brother, this condition should also be considered in her case, as it could be linked to GIST tumors. The main treatment is surgical, followed by adjuvant therapy with kinase inhibitors to reduce the growth of microscopic tumors after resection [12]. Imatinib is the drug of choice, showing improved recurrence-free survival. In cases where resection is not possible, neoadjuvant treatment with Imatinib for 4 to 6 months before surgery is considered, evaluated by computed tomography or PET scan [13,14]. Other therapeutic options within this family include Sunitinib and Regorafenib, which have been approved for patients who have previously received Imatinib, thus providing an additional option for subsequent treatment lines. Currently, the PEAK clinical trial is underway. This phase III study is evaluating the combination of Sunitinib with Bezuclastinib (formerly known as CGT-9486) in patients with progressive GIST after limited response to Imatinib treatment [15].

The prognosis after surgery depends on factors such as the mitotic rate, tumor size, location, surgical margins, and tumor rupture status. Studies show that most patients remain disease-free after surgical resection and adjuvant treatment, with success rates of 82% at 1 year, 89% at 3 years, and 92% at 5 years [16].

4. Conclusions

EGISTs are a rare and difficult-to-diagnose pathology that require a comprehensive approach managed by a multidisciplinary team. Although mesenteric GIST tumors are uncommon, imaging studies can be useful for early identification and assessing tumor resectability. Surgery is a crucial step and can offer a favorable prognosis when the diagnosis is made early. Neoadjuvant or adjuvant support will depend on the results of the pathological report. Additionally, it is recommended that patients with neurofibromatosis be screened for this type of tumor, given the higher likelihood of presenting GIST in this population.

5. Limitations of the study

The patient could not be approached from a genetic standpoint as the necessary studies were not available at the healthcare facility where she was located, despite having a family history of neurofibromatosis and physical exam findings compatible with it. Additionally, the patient was referred to an oncology center to continue her treatment, so follow-up could not be performed.

6. Abbreviations

GIST: Gastrointestinal Stromal Tumors

EGIST: Extra-gastrointestinal Stromal Tumors

dl: deciliter

PET: Positron Emission Tomography

ul: microliters

7. Administrative Information

7.1 Additional Files

No additional files declared by the authors.

7.2 Acknowledgments

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7.3 Contributions of the Authors

All authors read and approved the final version of the manuscript.

7.4 Funding

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7.5 Data and Material Availability

Data is available upon request to the corresponding author. No other materials are reported.

8. Declarations

8.1 Informed Consent

The patient gave written informed consent for the publication of this case report and the accompanying images. The journal's chief editor holds a copy of the written consent for review.

8.2 Conflict of Interest

The authors declare no conflicts of interest related to this article. None of the authors have received funding from any organization or entity to conduct this study. There are also no personal, professional, or commercial relationships that could influence the results or interpretation of the data presented in this work.

9. References

1. Kays JK, Sohn JD, Kim BJ, Goze K, Koniaris LG. Approach to wild-type gastrointestinal stromal tumors. Transl Gastroenterol Hepatol. 2018;3:92-92. https://doi.org/10.21037/tgh.2018.10.13
2. Pandit N, Das GP, Dahal M, Awale L. An unexpected extra-gastrointestinal stromal tumor (E-GIST) on the jejunal mesentery. J Surg Case Rep. 2018;2018(12):1-3. https://doi.org/10.1093/jscr/rjy339
3. Zhao X, Yue C. Gastrointestinal stromal tumor. J Gastrointest Oncol. 2012;3(3):189. https://doi.org/10.3978/j.issn.2078-6891.2012.031
4. Sousa D, Allen M, Mateus A, Cruz A, Marinho D, Ferreira A, et al. EGIST: A rare tumor. J Gastrointest Cancer. 2018;49(2):182-5.
5. Nishida T. Asian consensus guidelines for gastrointestinal stromal tumor: What is the same and what is different from global guidelines. Transl Gastroenterol Hepatol. 2018;3:11-11. https://doi.org/10.21037/tgh.2018.01.07
6. Board PATE. Gastrointestinal Stromal Tumors Treatment (PDQ®) [Internet]. National Cancer Institute (US); 2011 [citado 2018 abr 29]. Disponible en: https://www.ncbi.nlm.nih.gov/books/NBK65712/
7. Zhou L, Liu C, Bai JG, Wei JC, Qu K, Tian F, et al. A rare giant gastrointestinal stromal tumor of the stomach traversing the upper abdomen: A case report and literature review. World J Surg Oncol. 2012;10:66. https://doi.org/10.1186/1477-7819-10-66
8. Agaimy A, Vassos N, Croner RS. Gastrointestinal manifestations of neurofibromatosis type 1 (Recklinghausen's disease): Clinicopathological spectrum with pathogenetic considerations. World J Gastroenterol. 2012;5(7):852-62. Disponible en: https://pubmed.ncbi.nlm.nih.gov/23119102/
9. Dal Corso HM, Solej M, Nano M. Giant gastrointestinal stromal tumor of the stomach in an elderly patient. J Gastrointest Surg. 2007;11(5):804-6. https://doi.org/10.1007/s11605-007-0123-1
10. Guillaud O, Dumortier J, Bringuier P, et al. Tumeurs stromales gastro-intestinales (GIST) multiples chez un malade atteint d'une maladie de Recklinghausen. EM consulte. 2006;320-4. https://doi.org/10.1016/s0399-8320(06)73175-x
11. Nishida T, Blay J-Y, Hirota S, Kitagawa Y, Kang Y-K. The standard diagnosis, treatment, and follow-up of gastrointestinal stromal tumors based on guidelines. Gastric Cancer. 2016;19(1):3-14. https://doi.org/10.1007/s10120-015-0526-8
12. Vinagreiro M, Valverde JN, Guerreiro E. Initial presentation of a giant gastrointestinal stromal tumour of the stomach with recurrent spontaneous intra-peritoneal haemorrhage. Int J Surg Case Rep. 2015;9:1-4. https://doi.org/10.1016/j.ijscr.2015.01.033
13. Poveda A, García del Muro X, López Guerrero JA, Cubedo R, Martínez V, Romero I, et al. GEIS guidelines for gastrointestinal sarcomas (GIST). Cancer Treat Rev. 2017;55:107-19. https://doi.org/10.1016/j.ctrv.2016.11.011
14. Martin-Broto J, Martinez-Marín V, Serrano C, Hindi N, López-Guerrero JA, Ramos-Asensio R, et al. Gastrointestinal stromal tumors (GISTs): SEAP-SEOM consensus on pathologic and molecular diagnosis. Clin Transl Oncol. 2017;19:536-45. Disponible en: http://link.springer.com/10.1007/s12094-016-1581-2

15. PEAK Study Group. PEAK: Un ensayo clínico de fase III evaluando la combinación de sunitinib con bezuclastinib para GIST. J Clin Oncol. 2023;41(16_suppl):11537. https://doi.org/10.1200/JCO.2023.41.16_suppl.11537

16. Cappellani A, Piccolo G, Cardì F, Cavallaro A, Menzo EL, Cavallaro V, et al. Giant gastrointestinal stromal tumor (GIST) of the stomach causing high bowel obstruction: surgical management. World J Surg Oncol. 2013;11:172. https://doi.org/10.1186/1477-7819-11-172