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A Case of a Particular form of Gastric GIST Revealed by Upper Gastrointestinal Bleeding

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Abstract **Case Report**

Gastro Intestinal Stromal Tumors (GISTs) are mesenchymal tumors that develop from the intestinal Cajal cells or their precursors, mainly located in the stomach. They are often asymptomatic but can present clinical signs ranging from abdominal discomfort to upper gastrointestinal bleeding, which requiring practitioners to be aware of their presence. In endoscopy, they are typically covered by mucosa, though ulcerated forms can exist, leading to digestive hemorrhages. Diagnosis is based on histopathological examination coupled with an immunohistochemical study to detect antibodies specific to KIT and DOG-1 proteins, which are present in 95% of cases. Their treatment is surgical, involving resection performed in one block via open surgery or laparoscopic surgery, with tyrosine kinase inhibitors for locally advanced or metastatic GISTs.

Keywords: Stromal, endophytic, hemorrhagic, stromal.

INTRODUCTION

GISTs are mesenchymal tumors that develop from Cajal cells or their precursors, most commonly in the stomach (60%) and the small intestine (25%), and more rarely in the rectum, colon, esophagus, or mesentery [1].

These tumors are generally asymptomatic as they primarily grow outward from the digestive wall. When symptoms are present, they are nonspecific and include abdominal discomfort, and sometimes digestive bleeding [2].

Their endoscopic appearance is that of a regular nodule, submucosal in appearance, covered with normal mucosa [3,4]. Although this appearance is nonspecific, when combined with the frequency of occurrence, it allows the diagnosis to be considered, particularly in the gastric region. In larger gastric GISTs, the tumor may become ulcerated at its peak, especially in the case of digestive bleeding [5].

Diagnosis is based on histopathological examination, which reveals a typically spindle or epithelioid appearance of the tumor cells, combined with immunohistochemical studies using specific antibodies for the KIT and DOG-1 (discovered on GIST-1) proteins [6]. The positivity of tumor cells for each of these two markers is around 95% [7,8]. Endoscopic biopsies are most often negative, as the tumor develops from the muscular layer of the digestive tract [9].

Complete surgical resection of the tumor in one block is the standard, potentially curative treatment for localized GISTs. The effectiveness of medical treatment using tyrosine kinase inhibitors for locally advanced or metastatic GISTs is well-established, as well as in the adjuvant setting after surgery [10].

The goal is to alert practitioners to remain aware of the existence of GISTs whose clinical and radiological presentation deviates from the usual typical features, and to ensure appropriate therapeutic management without ambiguity.

PATIENT AND OBSERVATION

This is a 60-year-old female patient with comorbidities of diabetes and hypertension, under treatment. Her medical history includes a Helicobacter pylori infection and a family history of a father who died of gastric neoplasia. The symptoms began 5 years ago, with epigastric pain, an anemic syndrome, which later

developed into upper gastrointestinal bleeding, manifesting as melena and hematemesis.

Her body mass index was 25 kg/m², and the abdominal examination revealed no palpable mass. There was conjunctival pallor, and the rectal examination showed a stained finger with melena. The patient had anemia with a hemoglobin level of 9.3 g/dl, while other lab results were normal.

The esophagogastroduodenoscopy noted a fundic mucosa with a tumoral, budding process, well-defined contours, measuring 5 cm along its longest axis, and ulcerated. The antral mucosa appeared normal.

The thoraco-abdomino-pelvic computed tomography (CT) scan revealed a tissue formation in the posterior gastric fundus, budding endoluminally, oval, well-circumscribed with irregular contours, ulcerated in places, containing air bubbles, isodense, with heterogeneous enhancement after contrast injection, delineating necrotic areas, measuring 66x45 mm, extending over 40 mm. It was in contact with the cardia anteriorly and extended beyond the gastric wall, reaching the short vessels and diaphragm, with the loss of the separation line on the inside and at the back.

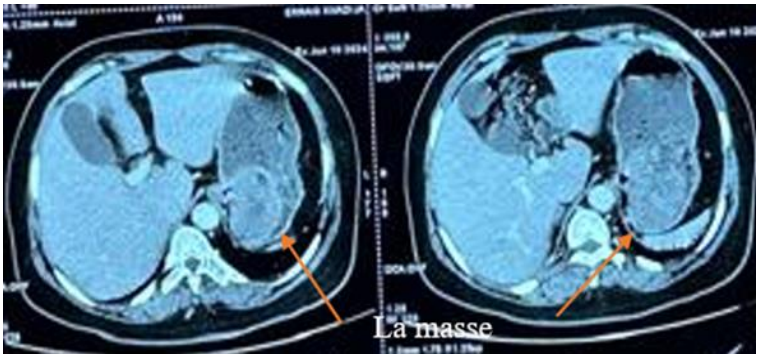


Figure 1: Computed tomography scan appearance of the mass

The case was discussed in a multidisciplinary consultation meeting, and the decision was to proceed with surgery. Atypical gastrectomy was performed to remove the fundic GIST under laparoscopy, with left subphrenic drainage using a Redon drain.

Exploration revealed a tumour in the gastric fundus measuring 5cm long and endo-phytic, without invasion of surrounding organs.

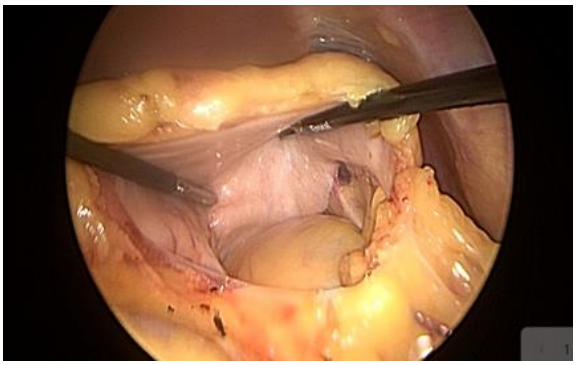


Figure 2: Operative images

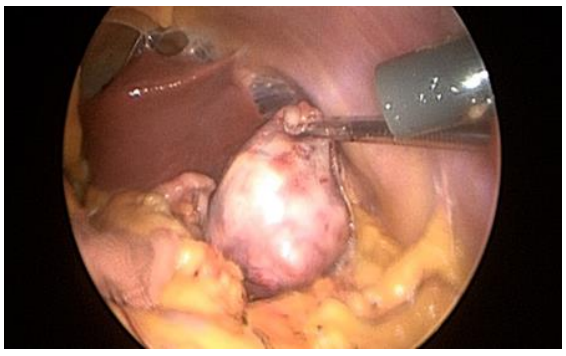
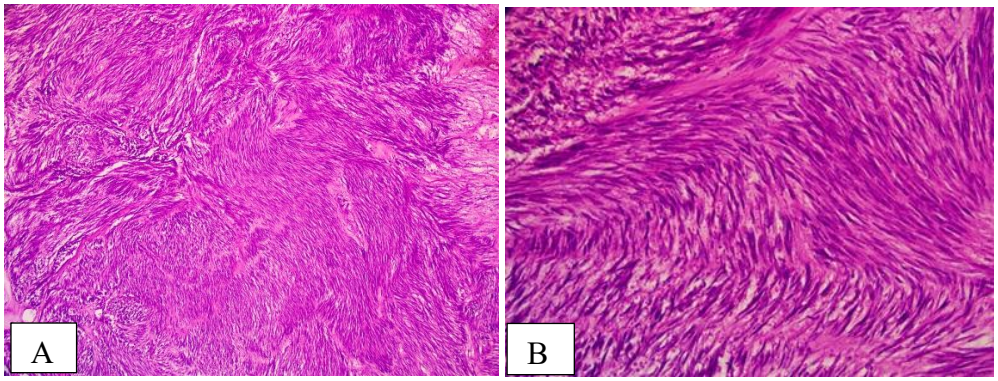


Figure 3: Histology images of the surgical specimen

The histopathological examination revealed a morphological appearance consistent with a gastric GIST, measuring 7.2 cm along its longest axis, with a low mitotic index, classifying it as low risk for recurrence according to the prognostic classification of Miettinen and Lasota, with clear surgical margins. The immunohistochemical study showed diffuse co-expression of C-Kit and DOG-1, corresponding to the immunohistochemical profile of a GIST.



A: Fascicles composed of spindle cells. (Gx10)
B: Fusiform cells with elongated nuclei and eosinophilic cytoplasm. (Gx40).

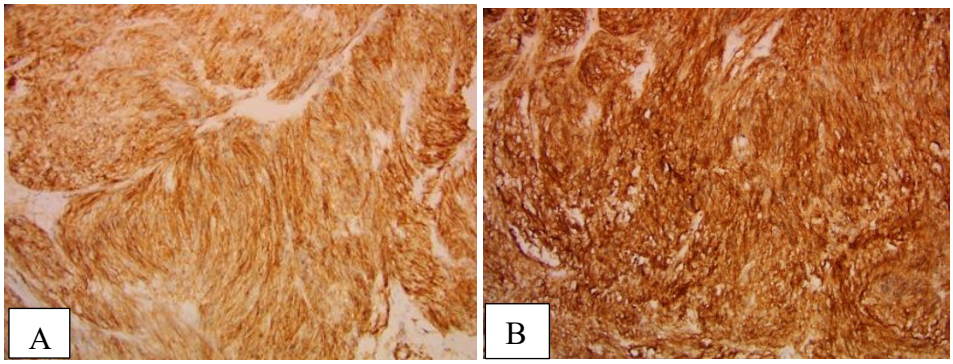


Figure 4: Immunochemistry images of the surgical specimen
A: Immunochemistry showing diffuse expression of c-Kit (CD117) – cytoplasmic immunopositivity. (Gx20).
B: Immunochemistry showing strong and diffuse expression of DOG1 – membranous and cytoplasmic staining. (Gx20)

DISCUSSION

GISTs occur in adults at any age, but they are rare before the age of 40, with a peak incidence around 50-60 years, as in our case at 60 years old, with a sex ratio of approximately 1/1 [3]. GISTs are often asymptomatic until they become large or lead to complications [11]. The endoscopic appearance is that of a submucosal tumor covered by normal mucosa, which may sometimes be ulcerated at its peak, particularly in cases presenting with digestive bleeding [12].

In the case we report, the tumor was symptomatic primarily due to upper digestive bleeding and presented endoscopically as a budding tumoral process with well-defined contours, measuring 5 cm along its longest axis, ulcerated, and a posterior parietal tissue formation, budding endoluminally, with irregular contours, ulcerated in places, containing air bubbles, isodense, with heterogeneous enhancement after contrast injection, delineating areas of necrosis on the CT scan.

In accordance with the 2018 European Society for Medical Oncology recommendations [4], the patient underwent an atypical R0 gastrectomy under laparoscopy, removing the tumor.

The histological examination of the surgical specimen revealed a morphological appearance consistent with a gastric GIST with a low mitotic index. The immunohistochemical study showed diffuse co-expression of C-Kit and DOG-1, consistent with the GIST profile.

CONCLUSION

GISTs are the most common mesenchymal tumors, with the majority of cases located in the stomach. Their usual imaging appearance of a lesion with an exophytic growth covered by healthy mucosa does not exclude cases of endophytic lesions, which may be covered by ulcerated or even hemorrhagic mucosa. Their treatment is mostly surgical and also involves adjuvant medical treatments in cases of locally advanced or metastatic forms.

Conflict of Interest: The authors declare no conflict of interest.

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