

Hemorrhagic Shock Caused by Gastrointestinal Stromal Tumor of the Stomach: A Case Report

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Abstract : Gastrointestinal stromal tumor (GIST) is a rare stromal tumor, which is the most common mesenchymal tumor in the gastrointestinal tract. It is characterized by indolent clinical symptoms, although it can present as a life-threatening emergency. Here, we present a case of hemorrhagic shock caused by gastric (GIST) successfully treated with emergency surgery. A 53-year-old male patient presented to the emergency room of the Avicenne military hospital in Marrakech on March 18, 2020, for several episodes of upper gastrointestinal hemorrhage made up of high abundance hematemesis, in a context of initial hemodynamic stability (normochromic normocytic anemia at 8.2). Upper gastrointestinal endoscopy revealed an ulcerated submucosal gastric tumor with active bleeding complicated by hemorrhagic shock, tumor resection was performed urgently. Histological examination of the excised tumor revealed proliferation of spindle-shaped cells and immunohistochemical staining of the tumor was positive for CD34, KIT and smooth muscle α -actin, but negative for S-100 protein. These immunohistological findings supported the diagnosis of gastric GIST. The patient recovered without incident and came out in good general condition. Histological examination of the excised tumor revealed proliferation of spindle-shaped cells and immunohistochemical staining of the tumor was positive for CD34, KIT and smooth muscle α -actin, but negative for S-100 protein. These immunohistological findings supported the diagnosis of gastric GIST. The patient recovered without incident and came out in good general condition. Histological examination of the excised tumor revealed spindle-shaped cell proliferation and immunohistochemical staining of the tumor was positive for CD34, KIT and smooth muscle α -actin, but negative for S-100 protein. These immunohistological findings supported the diagnosis of gastric GIST. The patient recovered without incident and came out in good general condition.

Keywords: gastrointestinal stromal tumor, hemorrhage from the gastrointestinal tract, immunohistochemistry.

1. INTRODUCTION

The gastrointestinal stromal tumor (GIST), first described by Mazur and Clark (1983) [1], is the most common mesenchymal neoplasm of the gastrointestinal tract; however, it accounts for less than 1% of all gastrointestinal tumors [2]. It originates from the interstitial cells of Cajal, which are part of the autonomic nervous system of the intestine [3]. The majority of lesions are benign with a possibility of 20 to 30% of malignancy [4].

The estimated frequency of GIST tumors is 10 to 20/1 million people [4, 5], and it occurs in patients in the sixth decade of life and can occur anywhere in the gastrointestinal tract, from esophagus to rectum. GISTs (mainly tumors larger than 4 cm) can present as abdominal emergencies, including gastrointestinal bleeding, usually due to pressure necrosis and ulceration of the overlying mucosa [6].

We report here an emergency case of gastric GIST operated urgently in our department.

2. CASE REPORT

A 53-year-old male patient presented to the gastroenterology department of the Avicenne

military hospital in Marrakech on March 18, 2020 for several episodes of upper gastrointestinal hemorrhage made up of hematemesis of great abundance, in a context of initial hemodynamic stability (blood pressure 11/72 mmHg, normochromic normocytic anemia at 8.2 g / dl).

Upper gastrointestinal fibroscopy revealed an ulcerated gastric submucosal tumor measuring 5 cm in diameter at the greater gastric curvature with active bleeding (Fig. 1).

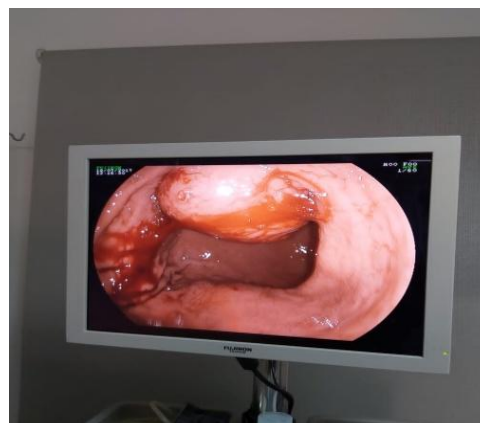


Fig1: Gastric GIST with active bleeding at FOGD

The digestive bleeding continued and the patient developed hemorrhagic shock (blood pressure, 76/42 mmHg; hemoglobin 6.5 g / dl), after transfusion of 2 red blood cells, an emergency

resection of the tumor was performed for 2 h after. There was no sign of peritoneal spread or hepatic metastasis. The excised tumor (5 × 4cm) was ulcerated (Fig. 2).



Fig2: surgical specimen for gastric GIST

The tumor cut revealed solid, greyish-white tissue. Histological examination of the excised tumor revealed proliferation of spindle cells in the submucosa towards the subserosa.

Immunohistochemical staining of the tumor was positive for CD34, KIT and α -smooth muscle actin, but negative for S-100 protein.

The immunohistological results supported the diagnosis of gastric GIST [7]. The patient recovered without incident and was monitored in our ward.

3. DISCUSSION

Gastrointestinal stromal tumors (GISTs) are the most common mesenchymal tumors of the gastrointestinal tract [8], are usually found in adulthood and are diagnosed most frequently during the sixth decade of life, with predominantly male.

Common localization sites are, in order, stomach (60-70%), small intestine (20-30%), rectum and colon (5%), esophagus and a small percentage may be located elsewhere in the abdominal cavity (<5%) [9, 10].

GISTs are usually indolent tumors. They can be discovered by symptoms, mostly nonspecific, such as abdominal pain and early satiety. They can be responsible for chronic gastrointestinal bleeding, although in rare cases, acute massive bleeding can occur. The cause of their bleeding potential is ulceration of the mucosa [11]. Most patients with GIST have variable clinical manifestation, which also depends on the size and location of the tumor [12, 13]. The median size of GISTs at diagnosis is 5-7 cm, although these tumors can exceed 30 cm.

The preoperative diagnosis can be difficult and is often confirmed during surgery. In cases

presented as acute gastrointestinal bleeding, endoscopic examinations are usually the first modality to determine the source of the bleeding. If it cannot be identified by endoscopy, a CT scan or angiography is often performed to provide additional information [14].

Severe bleeding can be complicated by hemorrhagic shock, with the need for transfusions, and sometimes the need for emergency surgery to control the source of the bleeding, which is the case with our patient. Hemorrhagic shock is defined as a condition of reduced perfusion of vital organs leading to an inadequate supply of oxygen and nutrients necessary for the normal functioning of tissues and cells. In patients suspected of GIST with severe hemorrhage and hemorrhagic shock, resuscitation, fluid management and blood transfusion are essential to normalize hemodynamic parameters and restore hemodynamic stability, first to confirm the diagnosis of the tumor and its location. by endoscopic and radiological modalities, and in the second, to prepare the patient for adequate surgery under good conditions. In case of hemorrhagic shock, surgical treatment is mandatory as soon as possible to control the source of the bleeding. Upper gastrointestinal endoscopy and colonoscopy should be performed in patients with acute gastrointestinal bleeding, to find gastric or colonic lesions explaining the bleeding [15].

This work presents a case of gastric GIST complicated by acute massive upper gastrointestinal bleeding and required emergency surgical treatment. Stomach GISTs are rare tumors of the gastrointestinal tract and

their presentation as acute massive bleeding is also rare.

The diagnosis of GIST is made by immunohistochemical staining of the tyrosine kinase receptor KIT (CD 117), which demonstrates the presence of interstitial cells of Cajal (ICC) [16]. Expression of CD 117 also differentiates GISTs from true leiomyomas and gastric schwannomas, which are consistently negative for CD 117. About 95% of GISTs are positive for KIT (CD117), 60-70% for CD34, 30-40% for smooth muscle actin, 5% for S-100 protein, 1-2% for desmin and 1-2% for keratin [17]. In general, tumor size and mitotic index are accepted as two independent prognostic factors for diagnosis [18]. For GIST, prognostic markers that include size greater than 5 cm, mitotic rate $> 5/50$, high power fields, tumor necrosis and a Ki-67 index (MIB-1) $\geq 10\%$ are all associated with a malignant tumor and high mortality [19,20]. Surgery is the mainstay of treatment for GIST when the primary lesion is judged to be resectable. The goal is a complete macroscopic resection with an intact pseudocapsule and negative microscopic margins. The tumor must be handled with care to avoid rupture and intra-abdominal spread. Tumor rupture before or during resection is a predictor of poor outcome [21]. Lymphatic spread of GIST is rare and therefore formal lymph node dissection is not standard surgical management. Therefore, complete surgical resection of the primary tumor is the most definitive treatment [22]. We believe that surgery for emergency is the treatment of choice for severely bleeding GIST with shock. In the present cases, a complete resection was performed with more than 2 cm of clear margin of the tumor, which is the recommended approach for GIST resection [23, 24, and 25]. Both for large tumors and for small, poorly positioned GISTs that are considered marginally resectable for technical reasons, neoadjuvant imatinib is recommended. Patients with primary localized GIST whose tumors are judged unresectable should also start with imatinib. For both large tumors and small, poorly positioned GISTs that are considered marginally resectable for technical reasons, neoadjuvant imatinib is recommended. Patients with primary localized GIST whose tumors are judged unresectable should also start with imatinib. For both large tumors and small, poorly positioned GISTs that are considered marginally resectable for technical reasons, neoadjuvant imatinib is recommended. Patients

with primary localized GIST whose tumors are judged unresectable should also start with imatinib.

4. CONCLUSION

Stomach GIST is an unusual tumor of the gastrointestinal tract and can have a variety of clinical presentations. Its presentation in acute gastrointestinal bleeding is unusual. Endoscopic and imaging examinations are often essential to establish the preoperative diagnosis. Emergency surgery after resuscitation, fluid management and blood transfusion is the treatment of choice in these cases. This book describes a case of gastric GIST causing massive upper gastrointestinal bleeding, requiring emergency surgery.

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