Case Report

Acute abdomen caused by nontraumatic hemoperitoneum is the first manifestation of gastric low grade stromal tumor

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BACKGROUND: Gastrointestinal stromal tumors (GISTs) are the most common mesenchymal tumors of the gastrointestinal tract in adults. We treated surgically a man with acute abdomen caused by non-traumatic hemoperitoneum and diagnosed by low grade gastric GIST.

METHODS: A 51-year-old Caucasian man came to the hospital for abdominal pain for 3 hours. He had no history of abdominal trauma. On admission, he was conscious and alert, and he had hypotension (80/50 mmHg) and moderate tachycardia. Abdominal ultrasonography showed the presence of free peritoneal fluid. Abdominal magnetic resonance imaging (MRI) showed diffuse intraabdominal hemorrhage and solid mass lesion at the greater curvature of the stomach. At an emergency laparotomy, a pedunculated, fragile mass of 5x6 cm originating from the posterior wall of the stomach was seen. The tumor was resected. Histopathologically a gastrointestinal stromal tumor was detected.

RESULTS: The patient had an uneventful postoperative course and was discharged on the sixth postoperative day. Follow-up showed no recurrence of the tumor 8 months after surgery.

CONCLUSION: Intraabdominal bleeding is a rare presentation of gastrointestinal stromal tumors. The diagnosis of the tumor should be based on whether sudden abdominal pain occurs in patients with an intraabdominal mass.

KEY WORDS: Gastrointestinal stromal tumors; Hemoperitoneum; Spontaneous rupture

World J Emerg Med 2012;3(3):232–234

DOI: 10.5847/wjem.j.issn.1920-8642.2012.03.013

INTRODUCTION

Gastrointestinal stromal tumors (GISTs) are the most common mesenchymal tumors of the gastrointestinal tract in adults.^[1] In the past years, most of these tumors have been considered as leiomyomas, leiomyoblastomas and leiomyosarcomas.^[2] GISTs arise in the muscularis mucosa and muscularis propria layers from the esophagus to the rectum. The most common anatomical sites of origin are the stomach (40%–60%), small intestine (30%–40%), colon and rectum (5%).^[3] About half of GIST is silent until it reaches a large size, at which point it may cause acute massive hemorrhage into the intestinal tract or the

peritoneal cavity from tumor rupture. The second most frequently seen sign is anemia.^[4]

In this article, we report a 51-year-old caucasian man with acute abdomen caused by non-traumatic hemoperitoneum, who had a diagnosis of low grade gastric GIST and was treated surgically.

CASE REPORT

A previously-healthy 51-year-old Caucasian man complained of abdominal pain for 3 hours on admission. His medical history revealed recurrent epigastric pain

Figure 1. Abdominal magnetic resonance imaging (MRI) showed a solid mass at the greater curvature of the stomach between the posterior wall of the stomach and pancreas (black arrow) (A: coronal imaging; B: axial imaging).

Figure 2. Intraoperative findings showed a pedunculated and fragile mass originating from the posterior wall of the stomach between the stomach and pancreas.

over the last 6 months. He had no history of abdominal trauma. On examination he was fully conscious and alert, and he had hypotension (80/50 mmHg), moderate tachycardia, but no fever. While waiting for the results of routine biochemical investigations and complete blood count (which revealed moderate anemia), he became pale and tachycardic. After resuscitation, diffuse peritoneal irritation and abdominal swelling were noted. Abdominal ultrasonography revealed the presence of free peritoneal fluid. Abdominal magnetic resonance imaging (MRI) showed diffuse intraabdominal hemorrhage and a 5×6 cm solid mass at the greater curvature of the stomach between the posterior wall of the stomach and pancreas (Figure 1). Emergency laparotomy was performed. Blood (2.5 L) was evacuated from the peritoneal cavity. During exploration, a pedunculated, encapsulated and fragile mass of 5×6 cm originating from the posterior wall of the stomach and pancreas was seen (Figure 2). Since no metastatic lesions of the liver or peritoneal seedling were evident, the tumor was resected as a pedunculated

lesion of the stomach. Histopathology study showed a gastrointestinal stromal tumor of gastric origin. Malignant potential was deemed to be uncertain because of extensive necrosis, although the low count of mitotic figures (2 mitoses per highpowered field) suggested a benign nature.

The patient had an uneventful postoperative course and was discharged on the sixth postoperative day. He was followed up as an outpatient without any sign of tumor recurrence 8 months after surgery.

DISCUSSION

GISTs are a group of rare tumors of the digestive tract that constitute about 1% of all gastrointestinal cancers. The incidence of the tumors is about 1–2/100 000, and 20%–30% of them are malignant. They are rare before the age of 40 years.^[4] In most series, patients are between 55 and 65 years old, and 55% of GISTs were detected in men.^[6] The most common anatomical sites of origin are the stomach (40%–60%), small intestine (30%–40%), colon and rectum (5%).^[3] Size and mitotic rate are the best indicators for malignancy of GISTs. Tumors less than 2 cm and less than per 50 mitoses per high-powered field (HPF) are typically benign, whereas those greater than 10 cm with greater than 10 mitoses per HPF are generally malignant.

Bleeding and anemia are common presentations (42%), and the development of symptoms is related to the size of the tumor. Larger tumors may also present with pain and obstruction.^[5] Asymptomatic GISTs are usually found incidentally by endoscopy or laparotomy. The symptoms and signs are not disease-specific and as a consequence, about 50% of GISTs have already metastasized at the time of diagnosis, usually to the liver

or the peritoneum.^[6]

Gastrointestinal bleeding begins with fistulization of the tumor into the lumen of the adjacent bowel or stomach. Once the tumor outgrows its blood supply, it necroses, and hemorrhage results within the lumen of the intestine. Hemoperitoneum is thought to be caused by hematoma formation within the tumor, and free hemorrhage is caused by rupture of hematoma from the margins of the mass. In our case we do not know the precise reason for spontaneous rupture of the GIST. However we believe that rupture may occur in a weakened area in the wall of the tumor; this may be due to extensive necroses within the tumor. The normal activity of the patient or a physical blow may trigger the rupture of the weakened area.

Several radiological techniques are used to image primer GISTs and metastatic lesions. These techniques include double-contrast GI X-ray series with barium, endoscopic ultrasonography, computed tomography, and magnetic resonance imaging (MRI).

Surgery is the mainstay of therapy for GIST when the primary lesion is deemed resectable. If possible, all tumors must be completely resected (R0 resection), including the tissues infiltrated, but systemic lymph node dissection is not recommended.^[7] Complete resection is associated with a five-year survival rate of 48%–65%. Partial resection must be performed in case of large tumors or for palliative purposes or the control of symptoms or complications such as compression of other organs, hemorrhage or pain.^[8] The tumor must be handled with care to prevent intraabdominal rupture and dissemination. Tumor rupture before or during resection is a predictor of poor outcome.^[9]

Hence, intraabdominal bleeding is a very rare presentation of gastrointestinal stromal tumors; preoperative diagnosis is always difficult by the absence of pathognomonic signs or symptoms. The diagnosis should be suspected if there is a presentation of sudden abdominal pain in patients with an

intraabdominal mass.

Funding: None.

Ethical approval: Not needed.

Conflicts of interest: There is no conflict of interest related to this study.

Contributors: All authors proposed the study and wrote the paper.

REFERENCES

- 1 Crosby JA, Catton CN, Davis A, Couture J, O'Sullivan B, Kandel R, et al. Malignant gastrointestinal stromal tumors of the small intestine: a review of 50 cases from a prospective database. *Ann Surg Oncol* 2001; 8: 50–59.
- 2 Miettinen M, El-Rifai W, HL Sobin L, Lasota J. Evaluation of malignancy and prognosis of gastrointestinal stromal tumors: a review. *Hum Pathol* 2002; 33: 478–483.
- 3 Yildirim M, Yakan S, Doganavsargil B, Akalin T. A rare cause of intestinal hemorrhage: stromal tumor of duodenum. *Turk J Cancer* 2004; 34: 163–165.
- 4 Pithorecky I, Cheney RT, Kraybill WG, Gibbs JF. Gastrointestinal stromal tumors: current diagnosis biologic behavior and management. *Ann Surg Oncol* 2000; 7: 705–712.
- 5 Fletcher CD, Berman JJ, Corless C, Gorstein F, Lasota J, Longley BJ, et al. Diagnosis of gastrointestinal stromal tumors: A consensus approach. *Hum Pathol* 2002; 33: 459–465.
- 6 DeMatteo RP, Lewis JJ, Leung D, Mudan SS, Woodruff JM, Brennan MF. Two hundred gastrointestinal stromal tumors: recurrence patterns and prognostic factors for survival. *Ann Surg* 2000; 231: 51–58.
- 7 Aparicio T, Boige V, Sabourin JC, Creen P, Ducreux M, Le Cesne A, et al. Prognostic factors after surgery of primary resectable gastrointestinal stromal tumours. *Eur J Surg Oncol* 2004; 30: 1098–1103.
- 8 Connolly EM, Gaffney E, Reynolds JV. Gastrointestinal stromal tumours. *Br J Surg* 2003; 90: 1178–1186.
- 9 Matthews BD, Joels CS, Kercher KW, Heniford BT. Gastrointestinal stromal tumors of the stomach. *Minerva Chir* 2004; 59: 219–231.

Received March 15, 2012

Accepted after revision July 10, 2012