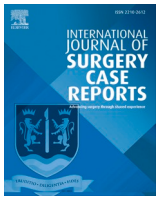
International Journal of Surgery Case Reports 101 (2022) 107759

Contents lists available at ScienceDirect

International Journal of Surgery Case Reports

journal homepage: www.elsevier.com/locate/ijscr



Case report

Laparoscopic partial gastrectomy for a giant bleeding GIST of the stomach: A case report

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ARTICLE INFO

Keywords:
GIST
Giant gastric
Bleeding
Laparoscopy
Case report

ABSTRACT

Introduction: Gastrointestinal stromal tumors (GIST) are rare neoplasms often located in the stomach. Elective laparoscopic surgery is the well-established treatment. Often these tumors have a presentation with acute gastrointestinal bleeding and/or as large masses that challenge mini invasive laparoscopic approach. This article describes the case of a patient with large gastric GIST with bleeding onset and discusses the feasibility and safety of emergency laparoscopy.

Presentation of case: A 36-year-old man presented with melena and severe anaemia. An upper endoscopy and abdominal CT scan showed a large gastric fundal submucosal mass of more than 10 cm of diameter close to the superior splenic pole. Because of relapsing bleeding he was submitted to emergency laparoscopy with complete resection of the gastric mass by partial gastrectomy.

Discussion: Laparoscopic approach to GIST larger than 10 cm is still a challenging surgical task and the feasibility depends on multiple factors including the location and size of the lesions. Few series of patients have been described in the literature. This case described a giant GIST with major and relapsing gastrointestinal bleeding that induced an emergency surgically approach with a minimally invasive laparoscopic partial gastric resection.

Conclusions: This report described a case of giant gastric GIST that presented with repeated and severe gastrointestinal bleeding and was treated by emergency laparoscopic gastric resection. The feasibility and advantages of the surgical technique are discussed. The best surgical approach in these rare cases has still to be evaluated on individual basis.

1. Introduction

Gastrointestinal stromal tumors are rare tumors, mainly located in the stomach [1]. Laparoscopic surgical resection has been the treatment of choice over the last two decades [2–5] but small experience has been reported in patients with tumors larger than 10 cm [6,7] that often require laparotomy [8]. A recent meta-analysis including seven studies and 440 patients with a gastric GIST larger than 5 cm [9] showed a decreased postoperative bleeding patients and a shorter hospital stay with laparoscopic approach. Lesser curve locations are more challenging for surgery [10,11]. GIST present frequently as a bleeding mass and require a prompt or even emergency surgical approach. The case described was admitted in a large community hospital of South Italy presenting with a giant GIST of the stomach massively bleeding and requiring an emergency surgery. Although in the emergency setting a laparoscopic minimally invasive partial gastrectomy was performed.

The work has been reported in line with the SCARE criteria [12].

2. Description of case

A white 36-year-old man was admitted as an emergency to Surgery 2 Unit of Naples AORN Cardarelli. He had no relevant past medical history. There was no history of smoking, alcohol abuse or drug intake. He presented melena and severe anaemia (5.6 g/dl). His blood pressure was 90/60 mm Hg and pulse rate was 115 bpm. The previous day he needed hospitalization for hemorrhagic shock in another centre. Four blood units were transfused. He was submitted to esophagogastroduodenoscopy (EGDS) that was not diagnostic because of a lot of blood present in the stomach. When stable he was referred to our hospital. A new EGDS was performed. A gastric fundus submucosal lesion with hematin-covered scar was found. Dark stools passage caused a new episode of hemodynamic instability which needed two blood units. After stabilization the patient underwent CT-scan because of the suspicion of an intramural mass to establish its size, relations with other organs, presence of metastases or lymphoadenomegalies.

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https://doi.org/10.1016/j.ijscr.2022.107759
Received 21 September 2022; Received in revised form 17 October 2022; Accepted 19 October 2022
Available online 22 October 2022

It showed a focal lesion of more than 10 cm of the gastric fundus with a mainly exophytic growth (Fig. 1). Metastases or lymphodenomegalies were not seen. Clots were present in the stomach but not active bleeding was present at the time of CT scan.

Because of major and repeated gastrointestinal bleeding from a giant mass of the stomach with the high suspicion to be a GIST and the elevate risk of relapse of bleeding s the decision for emergency surgery was taken.

2.1. Surgical technique

A laparoscopic approach was performed. A four-trocar technique was used. The first 12-mm trocar was placed at the upper abdomen 1–2 cm above the umbilicus with open-technique and pneumoperitoneum was induced. A 5-mm trocar was inserted at the sub-xiphoid area for the liver retractor. A 12-mm trocar was introduced at the right upper quadrant and another 12-mm trocar was inserted at the left upper quadrant. The abdominal cavity exploration showed a large mass of the gastric fundus developing mostly outside the gastric wall (Fig. 2). It presented a rich vascular network and was next to the spleen superior pole. The omentum was dissected and sealed from the greater gastric curve with the ultrasound device proximally to the left diaphragmatic pillar. A nasogastric probe (36F) was placed and a vertical partial gastric resection including the gastric fundus and the giant mass was performed (Fig. 3). A linear stapler was used. The dissection was feasible because the mass did not involve the gastroesophageal junction and was close the spleen pole but without adhesion.

The gastric specimen was extracted by an endobag (Fig. 4) without endoabdominal spill age. We implemented measures to prevent intra-abdominal spillage of the mass: explorative diagnostic laparoscopy to establish feasibility of the resection, the mass was resected intact with no-touch technique and an accurate hemostasis of gastric short vessels was achieved.

Histological examination showed gross and microscopically free margins. The mass (11 × 4 cm) consisted of a mesenchymal neoplasia composed by fusate cells with a large eosinophylic cytoplasm and thickened chromatin in the nuclei. Growth pattern was fasciculate and numerous areas of necrosis and hemorrhage were present. Mitotic index was less than 5 × 50 HPF. The cells resulted positive for CKIT and DOG1. The tumor was staged as GIST at intermediate risk (group 3b) according to Miettinen [13].

The patient had an uneventfully postoperative course and was discharged on the seventh postoperative day and referred to the Oncology Unit.

Fig. 1. CT scan showed a gastric mass with exophytic growth.

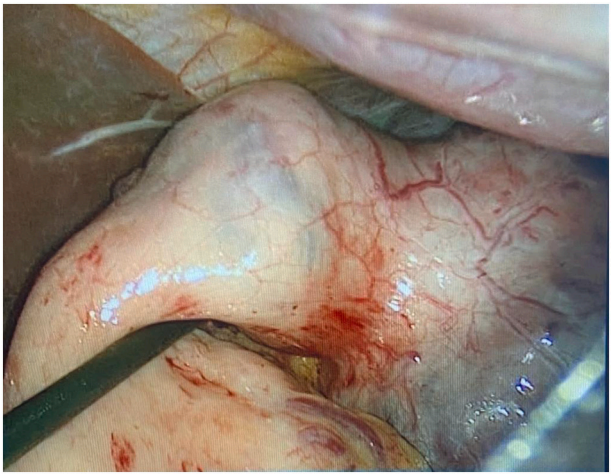

Fig. 2. Laparoscopic view of the gastric mass before the dissections.

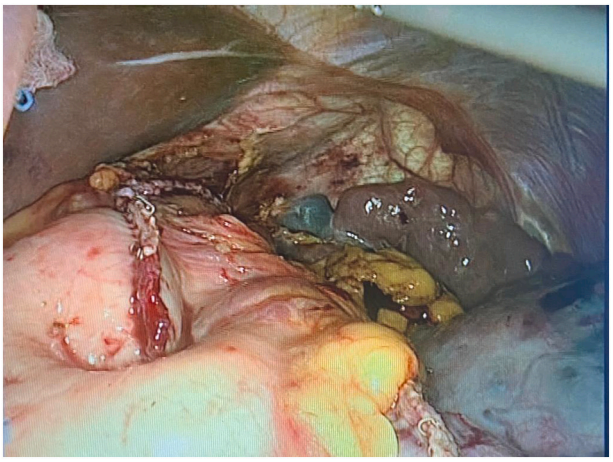

Fig. 3. Complete laparoscopic resection of the mass.

Fig. 4. The resected specimen showed areas of necrosis and hemorrhage.

3. Discussion

Laparoscopic resection of gastric GISTs is a safe and effective treatment and is well established as elective surgery [14,15]. Different surgical approaches are described in relation to the location and size of the

lesions [5,7,10,11].

Experience on the treatment of tumors larger than 10 cm is still limited to few series [3,7,16–20] and laparoscopic treatment in emergency is even more anecdotal [6,8,21–23].

In a meta-analysis of 440 patients elective laparoscopic approach of tumors exceeding 5 cm showed many advantages as less bleeding during the operative time, shorter postoperative hospital stay, and a better 5-year disease-free survival with no differences in the operation time, complications and relapse rate [9]. These results have been confirmed in further studies [3,7,15–18]. Moreover laparoscopic approach allows better overall vision and this together with the advantages described above persuaded us to start with a laparoscopic approach in this case. The lack of endoabdominal uncontrolled bleeding, that can be considered the only disadvantage of a laparoscopic surgery and a reason to switch to laparotomy [24], allows to continue and perform laparoscopic gastric resection. Other reasons of feasibility of laparoscopic resection were the site of the mass that was located in the fundus of the stomach and close to spleen pole but the gastroesophageal junction was preserved by the mass that did not adhere to the surrounding organs.

As in the case described often these tumors present with acute gastrointestinal bleeding [6,8,21–23]. Sokolivich et al. described 4 cases of GIST with a mean diameter of 10 cm (2.5–25) located in the greater curvature and antrum that underwent elective laparoscopy after a frequent presentation with gastrointestinal bleeding. Chetta et al. performed emergency sleeve gastrectomy in two bleeding patients with GIST of 3 cm of diameter [21].

Emergency surgery was necessary in the case described since acute major gastrointestinal bleeding leading to shock relapsed many times in a short period of time.

4. Conclusion

The case described is worth of note because the patient had a giant gastric GIST that presented with hemorrhagic shock. He was submitted to minimally invasive laparoscopic treatment in the emergency setting of major gastrointestinal bleeding just after stabilization of hemodynamic parameters. Given the rarity of giant GIST as the case described the choice of the best surgical procedure and the laparoscopic or laparotomic approach have to be done on individual basis. In the case described, despite the emergency setting and the size of the lesion a laparoscopic minimally invasive approach was feasible and a partial gastrectomy was safely performed.

Provenance and peer review

Not commissioned, external peer-reviewed.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Funding

No funding.

Guarantor

Dr. N. Sangiuliano.

CRediT authorship contribution statement

Sangiuliano Nicola: study concept, data analysis

Del Giudice Santolo: study concept, data collection

Costigliola Luciana: writing the paper.

Declaration of competing interest

None.

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