

Gastrointestinal stromal tumour leading to acute abdomen and hypovolemic shock in a trauma patient

 Aylin Hande Gökçe, M.D.

Department of General Surgery, İstanbul Medicine Hospital, İstanbul-Turkey

ABSTRACT

Gastrointestinal stromal tumors (GISTs) are among the rare tumours of gastrointestinal (GI) tract. GISTs occur respectively in the stomach, small intestines, colon and rectum, omentum and mesentery, oesophagus, retroperitoneal space and abdominal cavity. However, it may occur anywhere along the GI tract. Typically, these tumours generally do not cause symptoms, however symptomatic patients may show stomach pain, GI bleeding and palpable abdominal masses symptoms. These patients usually undergo surgery for obstruction symptoms or other diagnosis. Patient was admitted to the emergency department with acute abdomen and hypovolemic shock due to fall. The patient underwent emergency surgery which revealed active bleeding from a stomach tumour showing an exophytic pattern of growth. This patient was a 32-year-old male and blood tests revealed a WBC count of 23.500/mm³ and a haemoglobin level of 7.9 gr/dL. The heart rate was 110 beats/minute. The chest radiograph showed no subdiaphragmatic free air and abdominal ultrasound showed impression of a mass that cannot be distinguished from the liver, along with closed perforation or haemangioma. During the surgical procedure 1200 cc of blood was suctioned and the exophytic tumour was removed completely. Histological diagnosis of the tumour was GIST and it was considered ruptured tumour by the oncology consultant. The patient received imatinib for 3 years after the surgery and the disease did not re-occur during this period. Our purpose to present this patient is to emphasize that trauma may not be necessarily the cause of acute abdomen for emergency patients, but also may be caused by hypotension associated hypovolemic shock or other causes, bleeding from a GIST along with tumour torsion.

Keywords: Acute abdomen; gastrointestinal stromal tumor; hypovolemic shock.

INTRODUCTION

Gastrointestinal stromal tumors (GISTs) are among the rare tumours of gastrointestinal (GI) tract.^[1] GISTs occur respectively in the stomach, small intestines, colon and rectum, omentum and mesentery, esophagus, retroperitoneal space and abdominal cavity. However, it may occur anywhere along the GI tract.^[2,3] Typically, these tumours generally do not cause symptoms, however symptomatic patients may show stomach pain, GI bleeding, palpable abdominal masses symptoms.^[4,5] These patients usually undergo surgery for obstruction symptoms or other diagnosis.

Patient was admitted to the emergency department with acute abdomen and hypovolemic shock due to fall. We will

be presenting the case in which patient was taken into acute 'Gastrointestinal Stromal Tumours' surgery.

CASE REPORT

A 32-year-old male patient was seen in the Emergency Room after a fall. Physical examination of the patient revealed a blood pressure of 80/40 mmHg and a heart rate of 110 beats/ minute, diffuse abdominal tenderness to palpation and rebound tenderness. Blood tests at the Emergency laboratory revealed a WBC count of 23.500/mm³ and a haemoglobin level of 7.9 gr/dL and a haematocrit value of 22.8%. The chest radiograph did not show subdiaphragmatic free air and abdominal radiograph in standing position was unremarkable.

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Address for correspondence: Aylin Hande Gökçe, M.D.

Adres bilgisi: İstanbul Medicine Hastanesi, Genel Cerrahi Kliniği, İstanbul, Turkey

Tel: +90 212 - 489 08 00 E-mail: ahgokce79@hotmail.com

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Emergency ultrasound showed a 72-mm epigastric lesion undistinguishable from the left lobe of the liver and surrounded with fluid. Based on ultrasound findings suggesting a haemangioma or closed perforation, the patient was diagnosed with intraabdominal bleeding and acute abdomen and underwent emergency surgery. A mass arising from the body of the stomach was detected during the surgery. The mass was 9x7x6 cm in dimensions and showed an exophytic pattern of growth (Fig. 1a, b). Approximately 1200 cc of blood was suctioned from the abdominal cavity. The tumour was totally removed along with the part of the stomach where the tumour was connected with the body of the stomach. The body of the stomach was repaired as double layers. Other intra-abdominal organs were intact. During the post-operative period, the patient was stable and did not develop any complications until he was discharged from the hospital.

A low-grade GIST was reported based on the histological findings. Mitotic count was less than 5 per 50 high power fields. The tumour was positive for CD 117 (c-kit) and DOG-1 and focally positive for CD 34 while it was negative for S-100 and SMA. Ki-67 proliferation index was less than 5%. Histologic examination revealed torsion-related haemorrhagic necrosis and oedema which might explain large dimensions of the tumour. The tumour stage was reported as pT3.

The patient was referred to the Department of Oncology after the surgery. The tumour was accepted as ruptured in the department of Oncology and the patient received imatinib therapy for 3 years. The disease did not recur during this period of time.

DISCUSSION

GISTs are mesenchymal tumours arising from interstitial cells and may occur in the gastrointestinal canal anywhere from oesophagus to anus along with omentum, mesentery

and retroperitoneal space.^[6] GISTs usually occur after the 4th decade of life and the mean age of occurrence is around 60s.^[7] The patient presented in this paper was 32-year-old and considering the age range reported in the literature, he was relatively younger. Gastrointestinal stromal tumours are usually asymptomatic or may cause non-specific symptoms such as abdominal pain, anaemia, abdominal masses and dyspepsia. These tumours are usually detected incidentally during a surgical, radiological or endoscopic procedure that is done for any other reasons.^[8,9] With the patient presented here, GIST bleeding into the abdominal cavity led to symptoms of hypovolemic shock and tumour torsion led to acute abdomen. The patient was not haematologically stable and he needed an emergency laparotomy. Pre-operative differential diagnosis of gastrointestinal stromal tumours may present challenges. Based on emergency ultrasound scan, preliminary diagnoses in this patient include bleeding haemangioma and closed perforation.

Prognostic factors in GIST are mitotic activity, size, location of the tumour and the feasibility of performing optimum surgery.^[10] Gastrointestinal Stromal Tumours are divided into risk groups based on tumour size: tumours less than 2 cm in diameter are classified as low-risk group and tumours larger than 5 cm in diameter are classified as high-risk group. Higher Ki-67 proliferation index values further increase the risk for metastasis and recurrences. In the case of GIST presented here, the Ki-67 proliferation index value was less than 5%, although the tumour was 9x7x6 cm in dimensions. Even though the tumour was larger than 2 cm in diameter, its tumour was considered as a low-grade tumour by pathologists. Torsion-related haemorrhagic necrosis and edema were the reported underlying causes of the increase in tumour size. It was concluded that hypovolemic shock was the result of bleeding from the stomach tumour with exophytic extension and subsequently tumour torsion caused symptoms of acute abdomen.

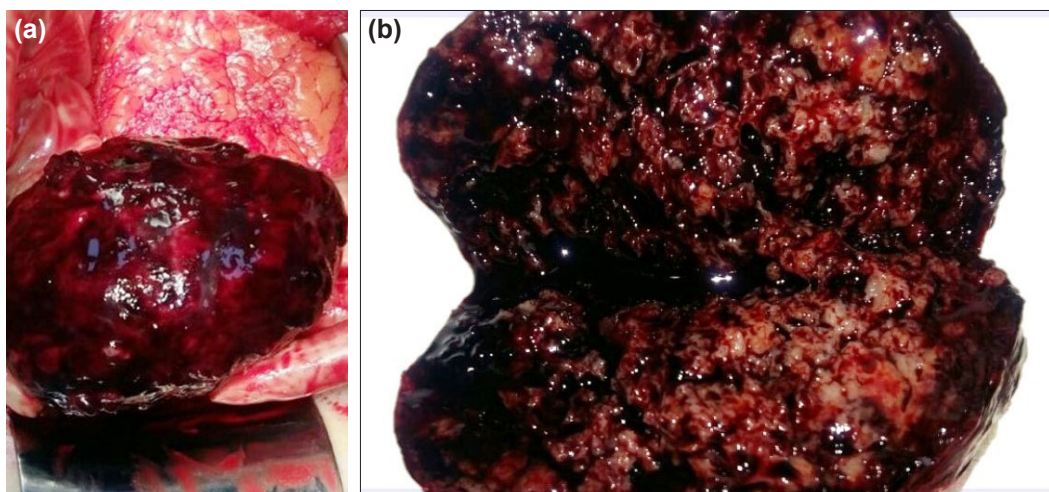


Figure 1. (a) Gastrointestinal stromal tumours showing an exophytic pattern of growth, from the corpus of stomach. (b) The piece of the gastrointestinal stromal tumours.

A carefully obtained medical history and a meticulous physical examination are of paramount importance in trauma patients admitted to Emergency Services. We believe that trauma patients are best managed by adequate pre-operative preparations to the extent of haematological stability and optimum surgery. Post-operative diagnosis may differ from pre-operative diagnosis in some of the emergency patients as with our patient. In such cases, a rapid planning of the management is essential to perform the optimum goal-oriented surgery. In addition, next to common causes of acute abdomen, there are also rare causes of acute abdomen as with our patient and one should be prepared for such circumstances.

Conclusion

In this case we aimed to emphasize findings of acute abdomen exposure to torsion of Gastrointestinal Stromal Tumours and bleeding shock. Trauma may not be necessarily the cause of acute abdomen for an emergency patient, but may also be caused by hypotension associated hypovolemic shock or other causes, bleeding from a GIST along with tumour torsion.

Conflict of interest: None declared.

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OLGU SUNUMU - ÖZET

Travmalı hastada akut batın ve hipovolemik şok yapan gastrointestinal stromal tümör

Dr. Aylin Hande Gökçe

Istanbul Medicine Hastanesi, Genel Cerrahi Kliniği, İstanbul

Gastrointestinal Stromal Tümör (GİST), gastrointestinal sistemin nadir görülen tümörlerinden biridir. Gastrointestinal sistemin her yerinde olabilir ama en sık sırasıyla görüldüğü yerler mide, ince barsaklar, kolorektal, omentum/mezenter, özefagus ve nadiren gastrointestinal sistem ile bağlantısız olarak retroperiton veya abdomendir. Genelde asemptomatik seyredir. Semptomatik olursa karın ağrısı, gastrointestinal sistem kanaması, palpasyonda ele gelen kitle gibi bulgular verebilir. Hastalar genellikle obstrüksiyon bulguları ve başka tanılarla ameliyata alınmaktadır. Sunacağımız olgu acil kliniğe düşme sonrası akut batın ve hipovolemik şok bulgularıyla getirilen, acil şartlarda operasyona alınan ve operasyonda mideden kaynaklı eksoftik büyümüş tümör kanaması olduğu saptanan vakadır. Olgu 32 yaşında, erkek hasta ve yapılan kan tetkiklerinde lökosit sayısı 23.500/mm³, hemoglobin değeri 7.9 gr/dL, nabız 110/dk idi. Akciğer grafisinde diafragma altı serbest hava saptanmayan, ultrasonografisinde karaciğerden ayırt edilemeyen kitlesel görünüm arzeden ve kapalı perforasyon – herniyasyon ayrımı yapılamayan hasta operasyona alındı. Operasyonda yaklaşık 1200 cc kan aspire edildi ve mideden eksoftik uzanım gösteren kitle total olarak çıkarıldı. Patoloji sonucu GİST olarak gelen hasta onkoloji bölümü tarafından rupture kabul edildi. Postoperatif 3 yıl imatinib tedavisi verildi ve bu süre içinde nüks saptanmadı. Travma sonucu acile başvuran hastalarda akut batın nedeninin her zaman travmayla ilgili olmayabileceği, hipovolemik şok veya başka nedenlerden dolayı tansiyon düşmesi sonucu travmanın gerçekleşebileceğini vurgulamak ve GİST'in kanayıp hipovolemik şoka ve torsiyo uğrayıp akut batın bulgularına yol açabileceğini sunmak istedik..

Anahtar sözcükler: Akut karın; gastrointestinal stromal tümör; hipovolemik şok.

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