

Gastrointestinal Stromal Tumor of the Stomach Infiltrating the Hilum of Spleen: Case Report

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Abstract

Gastrointestinal stromal tumors (GISTs) are rare tumors of the GI tract. Nowadays is a diagnostic challenge as only 0.1% - 3% represents as GI malignancy. Lesions are frequently located in stomach and proximal small intestine but rarely elsewhere in the abdomen. We report the case of a 51-year-old male presented to our hospital pain abdomen, findings in diagnostic image studies suggested a gastric GIST without evidence of metastatic disease; therefore totally tumor excision was performed. Cytologic and immunohistochemistry analysis confirm diagnosis of GISTs.

Keywords: *Gastrointestinal stromal tumors; GI malignancy; Metastatic disease*

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Introduction

Stromal or mesenchymal tumors that affect the gastrointestinal tract typically appear as sub epithelial neoplasms and they are classified in two groups. The most common is Gastrointestinal Stromal Tumors Group (GIST), which arise from mesenchymal stem cells programmed to differentiate into interstitial cells of Cajal in the myenteric plexus [1]. The cells of Cajal form a complex cell network within the gastrointestinal tract wall where they function as a pacemaker system. The GIST can arise from anywhere into the gastrointestinal tract and are frequently located in stomach (66%) and small intestine (30%) particularly in duodenum, as well as in esophagus, colon, anus and rectum (<10%) [2]. They can even occur out of the digestive tube, by example in omentum, mesentery or peritoneum [3-6].

Case Report

A 51-year-old male presented to our hospital chronic pain abdomen, USG abdomen was done which was non-conclusive hence CECT abdomen was done which showed the some mass over the greater curvature of the stomach, hence patient was taken for surgery.

During surgery tumour was identified (Figure 1) and was seen involving stomach and spleen, therefore partial gastrectomy with complete evacuation of tumour with splenectomy was performed. Tumour was sent to histopathological evaluation and

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diagnostic confirmation, which later turned out to be positive (Figure 2).

Patient was later shifted to ICU and then discharged to home on day 5 since admission and is on regular follow up since then without any evidence of disease recurrence.



Figure 1: Shows the identification of tumour.

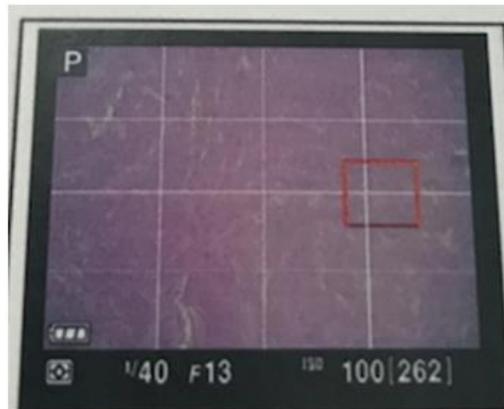


Figure 2: Tumour was sent to histopathological evaluation and diagnostic confirmation.

Discussion

Gastrointestinal stromal tumors are neoplasms with a genetic origin. They are very similar to other family oncologic syndromes like NEM 1 and 2, VHL, and Carney complex (e.g. gastric leiomyosarcoma, pulmonary, and functioning extra adrenal paraganglioma). Consequently, GIST pathophysiology follows a common pathway with other mesenchymal neoplasms of the gastrointestinal tract and so, this may lead to obscure the diagnosis or to being confused with leiomyoma or leiomyosarcoma. Immunohistochemical resources (i.e. KIT, CD117, CD34, S-100 protein, Actin, Desmin, etc.), and imaging studies are crucial for getting a right diagnosis [1]. Despite that the GIST is the most common benign not epithelial neoplasm of the gastrointestinal tract, it just represents 1% of all gastrointestinal primary tumors [2]. With a worldwide incidence of 11-19.6 per million populations, we do not know incidence and prevalence in Mexico. However, in USA, recent studies estimate an annual incidence of 4000 to 6000 new cases (7-20/1,000,000 per year). Typically, GIST affects the population over 50-

years old, rarely those under 40s, and the average age of diagnosis is around 63-year old [7, 8-11].

The case under study corresponds to a male patient in his fifth decade of life with a gastric GIST in a habitual localization, notwithstanding the unusual age of the patient. Clinically, this type of GIST usually begin with symptoms like upper gastrointestinal bleeding, followed by abdominal chronic pain, and when the tumor size is considerably big it could be detected during abdominal manual exploration [12,13-15].

GIST is characterized by staining positive by KIT and some of them by PDGFR-alpha. In 1998, Hirota et al. showed the existence of mutations in these kinds of tumors, by proving that the KIT mutation stains positive on 60-80% of GISTs cases [2,12,13]. In normal cells, the activity of KIT tyrosine kinase receptor is regulated by ligand dependent activation. On the other hand, on GIST a gain of function mutation in the exon 11 in the juxtamembrane domain of the c-Kit gene leads to the consecutive ligand-independent activation of KIT receptor kinase, which may cause tumor genesis [2,16,17].

Nowadays, we have imaging diagnosis methods as endoscopy, endoscopic ultrasound, computed tomography scan, and magnetic resonance tomography. These methods have become crucial for the diagnosis of sub epithelial neoplasms, such as the case of GIST [18-22]. When the imaging studies reveal suggestive features of GIST, and the tumor is considered resectable by size, localization or any other parameter, biopsy should not be performed due to the imminent risk of rupture and intra-abdominal spread. Tumor size >4 cm, irregular borders, echogenicity foci and presence of cysts are suggestive features of malignancy [23-25].

In absence of metastatic disease, the GIST curative treatment is the complete surgical resection [2,5,26]. The first symptom of patient was the pain abdomen. Then, CT scan revealed the tumor. Moreover, the metastatic activity was discarded and in accordance with the imaging study, the biopsy was not required. Histopathology features were compatible with GIST and Immuno-histochemical analysis of the tumor stained positive for KIT (DC117) in an intense way. Furthermore, the tumor stained positive for Ki-67 at 8% - 10%, this molecule is a nuclear protein present in all active phases of cell cycle (G1, S, G2 and mitosis), but is absent in cells on latent phase and undetectable during the DNA repairing process. The activity percentage of Ki-67 point out the presence of tumor proliferation (activity $\geq 15\%$ is related to malignancy) [26,27].

Due to the physiopathology and Immuno-histochemical tumor features, the patient was diagnosed with gastric GIST, in accordance with the National Comprehensive Cancer Network. Surgical resection was the best treatment option for him and could be considered curative for this particular case, by having a very low risk for progressive disease (i.e. 1.9%). The patient remains well after six months following surgery. Imatinib mesylate was not indicated as neoadjuvant treatment in the case under study. This work reveals the necessity of early recognition and appropriate investigation of gastrointestinal symptoms at all age groups for excluding potential malignant causes.

Right to Privacy and Informed Consent

The authors declare that no patient data appear in this article.

Conflict of Interest

We do not have any financial or personal relationship, which can cause a conflict of interest regarding this article.

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