OPEN ACCESS

Saudi Journal of Medical and Pharmaceutical Sciences

Abbreviated Key Title: Saudi J Med Pharm Sci
ISSN 2413-4929 (Print) | ISSN 2413-4910 (Online)
Scholars Middle East Publishers, Dubai, United Arab Emirates
Journal homepage: https://saudijournals.com

Review Article **Pharmacy**

A Case Report on Recurrent Gastro Intestinal Stromal Tumor (GIST)

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DOI: 10.36348/sjmps.2023.v09i08.017 | **Received:** 09.07.2023 | **Accepted:** 12.08.2023 | **Published:** 26.08.2023

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Abstract

Gastrointestinal stromal tumor (GIST) is a rare sarcoma, typically starts in the cells that line the gastrointestinal tract's (GIT) wall. While certain GISTs may develop slowly over time, others might spread drastically. However, it will indicate recurrence for certain people. Patients with locally resectable gastro intestinal stromal tumours continue to be treated primarily with radical surgery, which, in more than 50% of instances, results in a long-term remission of this disease. The first targeted medication for the GISTs treatment was the tyrosine kinase inhibitor imatinib, and is now the preferred option for treating advanced gastro intestinal stromal tumours. This case highlights recurrence of GIST for two times even after laparotomy which provides an information, that the hazards associated with this type of tumour must be reduced by receiving appropriate therapy because it can recur.

Keywords: Gastro intestinal stromal tumour, Imatinib, Tyrosine Kinase Inhibitor, CD117, SMA, KIT mutation.

INTRODUCTION

Gastrointestinal stromal tumor (GIST) is a rare sarcoma, typically starts in the cells that line the gastrointestinal tract's (GIT) wall. While certain GISTs may develop slowly over time, others might spread drastically [1]. GIST incidence is roughly 1.5 out of every 100,000 people worldwide and is more likely common in men [2, 3]. The discovery of c-kit proto-oncogene gain-of-function mutations in these tumours by Hirota *et al*., (1998) from Japan was the most important event that established GIST as a distinct clinical entity [4]. Due to these developments, tyrosine kinase inhibitors like imatinib were used to provide molecular targeted therapy for adjuvant and neoadjuvant procedures [5].

We report a case of GIST in a 52 year old female patient, she had recurrence of this tumour for two times even after laparotomy.

BACKGROUND

A 52-year-old female patient came presented with complaints of pain and abdominal distension for 6 months. She gives history of hypothyroidism and was taking medication for same. No relevant past surgical or medical history till then. Investigations including complete blood count renal function test liver function test, Ultra Sound Sonography (USG) and Computerised Tomography with IV oral contrast of abdomen were ordered.

Blood investigations showed lowered haemoglobin (8.6g/dl) and high Erythrocyte Sedimentation Rate (93mm/1st hour).

USG (24/12/2018) reports showed an abdomino -pelvic mass extended upto hypochondrium till the pelvis arising from retroperitoneum. It measured approximately 15 cm(ml), nearly well defined with lobulated margins and appears heterogenous predominantly hypoechoic. Suspicious connection with the right adnexa is noted. In addition, bilateral grade 1 renal parenchymal changes, minimal to moderate ascites, grade 1 fatty infiltration of liver is also noted.

CECT of whole abdomen reports showed a single enhancing nodular lesion arising from the small bowel. Upper Gastrointestinal scopy and colonoscopy was performed found not to have any other lesions.

She was worked up for surgery since she had no visible metastastic lesions on CT contrast. The patient underwent exploratory laparotomy and found to have a large lesion arising from small bowel, hence bowel

resection resection of jejunum (5 cm) and its anastomosis was done. On post op HPE evaluation, features were suggestive of malignant spindle cell GIST. Immunohistochemical markers CD 117 and SMA were immunoreactive with score 2+, KIT mutation in exon 9(wild type) but CD 34 and DOG -1 were found to be non immunoreactive with score 0. Patients final report and diagnosis was confirmed to be GIST (low grade, less than 5 mitosis/50 HPF). High risk GIST due to small bowel and size. MDT was done and planned for TKI as adjuvant as R0 resection was achieved

A multi tyrosine kinase inhibitor, Imatinib 400mg once daily (OD) was given for 2.5 years. Subsequent physical and laboratory examinations were taken to examine whether patient is developing new lesions during these periods. Since, no new lesions was found after completing 2.5 year or complaints were reported by the patient, the drug Imatinib was stopped for the next 1 year.

On 10/09/2022 patient again came with complaints of abdominal pain and gaseous distension. On CECT examination, GIST recurrence was found on retroperitoneum (hypoechoic lesions within ileocolic mesentery of size 5.5cm), as the patient may be partially resistant to Imatinib 400mg. Therefore, the dose of Imatinib was increased to 800mg OD.

USG reports showed residual disease in paraumbilical region. So, re- surgery was planned and Imatinib was stopped for 5-10 days prior to surgery. Post surgery she developed anstomotic leak and infection from surgical site and non healing fistula. She was managed with colostomy bag placement in fistula and supportive medications and antibiotics, following which she improved and wound healed.

Histopathology post surgery reported as only necrotic tissue. She was restarted with imatinib at 400 mg in view of good response to it and is now doing well on imatinib.

OUTCOME

Now, patient is currently being followed up by oncologist and is being treated with TKI. The drug being used is Imatinib 400mg OD. Hence, in a view of high risk of malignant transformation, she is being followed up with annual imaging.

DISCUSSION

Gastro intestinal stromal tumours are mesenchymal tumours that usually develop in the digestive system and is more prevalent in adults, peaking in the fifth and sixth decades of life. These are rarely identified in people under the age of 40 [6]. Interstitial cells of Cajal (ICCs), specialised cells present in the gastro intestinal tract, are assumed to be the source of this type of tumour as well as its progenitors [7]. Gastro intestinal stromal tumours can form everywhere in the GIT, from the oesophagus to the rectum, however the small intestine and stomach account for 30% and 60%, respectively, in most of the gastro intestinal stromal tumours cases [8]. Using CT imaging, tumours were categorised as small (5 cm), intermediate (5–10 cm), or large (>10 cm). Small gastro intestinal stromal tumours had well defined symmetric masses with crisp boundaries and intraluminal development patterns on CT [9].

Gastrointestinal (GI) bleeding is the most common symptom of GIST, may be chronic or acute(hematemesis/melena) that can result in anemia. Other symptoms include GI obstruction, fatigue, pain similar to appendicitis, satiety, dysphagia [10].

Gastro intestinal stromal tumours are confirmed with the help of protein KIT (also called CD117) and immunohistochemistry [11]. Due to the undetermined malignant potential of many gastro intestinal stromal tumours, the likelihood of recurrence is a crucial consideration. Adjuvant therapy is commonly used in the treatment of these cancers, and can be used to predict the likelihood of recurrence [12].

Patients with locally resectable gastro intestinal stromal tumours continue to be treated primarily with radical surgery, which, in more than 50% of instances, results in a long-term remission of this disease [13].

The first targeted medication for the gastro intestinal stromal tumours treatment was the tyrosine kinase inhibitor imatinib, and is now the preferred option for treating advanced gastro intestinal stromal tumours [14]. Imatinib prevents substrate phosphorylation by occupying the ATP-binding pocket of KIT. This will prevent downstream signalling, cellular proliferation, and cell survival [15]. Imatinib, 400mg OD is used as an adjuvant treatment for 2 years [16].

CONCLUSION

In order to effectively manage these uncommon and frequently aggressive tumours, which exhibit a significant tendency for recurrence and behave as a malignant lesion given the risk variables now known, it is crucial to recognise gastro intestinal stromal tumours as a separate gastro intestinal tract lesion. In our case, the key to our patient's effective therapy was an early multidisciplinary approach that included the surgical team and adjuvant chemotherapy.

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