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Gastric GIST with liver metastasis – A case report and review of literature

General Surgery

KEYWORDS:

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ABSTRACT

Gastrointestinal stromal tumors (GISTs) are neoplasms of the gastrointestinal tract. Despite their less aggressive pathologic nature, GISTs can metastasize and recur after a long remission period. Metastatic GIST may produce serious morbidity and mortality. It leads to complex management issues for the treating physician. We hereby report the case of a patient who presented with a large Gastric GIST with a synchronous liver metastasis that was successfully treated with excision of Gastric GIST with hepatic metastatectomy. We also highlight the literature on Gastric GIST with liver metastasis, treatment options and prognosis of the disease.

Introduction:

Gastrointestinal stromal tumours (GISTs) are the most common mesenchymal tumour of the gastrointestinal tract[1]. It accounts for 1 - 3% of all gastrointestinal malignancies[2,3].

GISTs occur most frequently in the stomach (60%) and small intestine (30%), and are less frequently observed in the rectum (4%), colon and appendix (1-2%), and duodenum (4-5%). Rarely, GISTs may occur outside of the gastrointestinal tract, including in the greater omentum and mesentery [4,5]. All GISTs are currently considered to be potentially malignant. GISTs in the mesentery and the small intestine are more aggressive than those at other sites, and have a higher degree of malignancy and poorer prognosis than GISTs of the stomach [6].

Liver is the most common site of metastasis in GIST. Tateishi et al. reported the rate of liver metastases as 15.9% in 69 primary GISTs [7]. MD Anderson Cancer Center (MDACC) reports 33% patients presenting with metastatic disease (17% liver mets, 14% peritoneal implants, and 2% lung and bones)[8].

Surgical resection offers the chance for cure. Various treatment options for liver metastasis include Surgery, Radiofrequency ablation (RFA) and imatinib mesylate therapy. We, in the present study, describe a case of large Gastric GIST with synchronous liver metastasis treated successfully by resection of GIST with liver metastatectomy.

Case presentation:

A 60 yr old gentleman presented with a 3 months history of lump left upper abdomen. On examination, a nontender firm lump palpable in left upper abdomen. CECT abdomen showed a heterogeneously enhancing exophytic extraluminal mass lesion 18 x 15 x 12 cm seen to arise from body and greater curvature of stomach. Another lesion in left lobe of liver 3x3 cm suggestive of liver metastasis. FNA from mass lesion was suggestive of GIST or leiomyoma. He was planned for simultaneous resection of gastric GIST with metastatectomy. Excision of gastric GIST with sleeve resection of greater curvature of stomach and hepatic metastatectomy(non anatomical resection) was performed. Intraoperative findings were 21x18 x 12 cm mass lesion arising from greater curvature of stomach, 4x4cm nodule over left lateral liver. Postoperatively the patient recovered well. Histopathology report showed GIST- spindle cell subtype, Mitosis 5/50 hpf , resected margins free of tumor and both gastric GIST and liver nodule were CD117 positive suggesting metastatic gastric GIST. Patient is currently asymptomatic and is on adjuvant imatinib therapy.

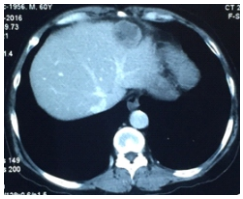

Figure 1- CECT abdomen showing left lobe liver SOL

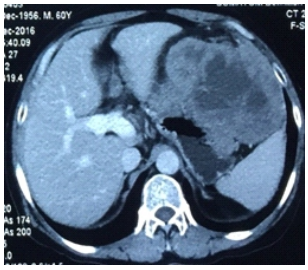

Figure 2- CECT abdomen showing large gastric GIST arising from greater curvature of stomach

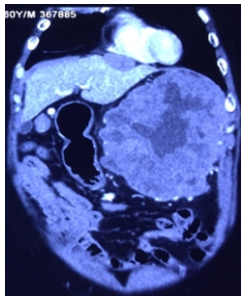

Figure 3- CECT abdomen showing both Gastric GIST and synchronous liver metastasis

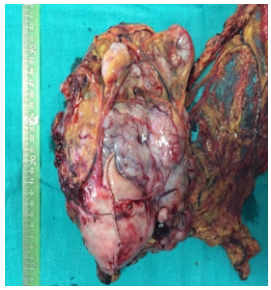

Figure 4- Resected specimen: Showing large Gastric GIST resected with sleeve of stomach

Discussion:

Liver metastasis is a major cause of mortality among GIST patients. Primary treatment for liver metastasis is surgical resection, and resection may be curative in many patients. Surgical resection has a 5-year survival rate of 34%, and a median survival time of 36 months after surgical resection of liver metastasis [9]. Recurrence rate after liver resection, in these cases, may exceed 70% [10]. After resection of the primary tumor, liver metastases typically occur in 55% of patients [11]. It is difficult to treat patients with repeated liver surgery in cases of recurrent liver metastasis. Alternative treatments like Radiofrequency ablation(RFA) and imatinib therapy should be considered in

such patients.

Radiofrequency ablation (RFA) has been widely studied for the treatment of liver tumors. The advantages are easy administration,that can be repeated with minimal trauma and a low rate of complication [12]. Few case reports of RFA treatment for GIST liver metastases have been published. Yamanaka et al reported the successful treatment of 21 liver metastases from seven cases of GIST using CT-guided RFA, with a GIST-related 5-year survival rate of 100% [13]. Jones et al reported 13 cases of RFA treatment of GIST liver metastases, and a post-RFA 2-year survival rate of 77% [14]. Results of these studies suggests that RFA is an effective and safe way to treat liver metastases from GIST. However, data for comparison of results of surgical resection and RFA in GIST liver metastasis is unavailable. At present, if liver metastasis is resectable, and patient is fit to undergo surgery, surgical resection is considered superior to RFA.

Imatinib mesylate, a tyrosine kinase inhibitor, is a molecular-targeted therapy for GIST. Majority of GIST express c-kit, the protein product of the c-kit proto-oncogene. Imatinib inhibits the enzymatic activity of c-kit, it suppresses cell proliferation and restores apoptosis. Imatinib is used to treat unresectable and metastatic GIST. Oral administration of imatinib produces satisfactory outcomes in the majority of c-kit-positive patients [15,16]. NCCN recommends imatinib as a first-line treatment for unresectable and metastatic GIST [17]. Patients having medium to high risk of metastasis are recommended to receive at least 1 year of imatinib therapy following surgery [17].

Bauer etal analyzed overall survival (OS) and progression-free survival (PFS) in 239 patients with metastatic GIST who underwent metastasectomy and received imatinib therapy. Complete resection (R0/R1) was achieved in 177 patients. Median OS was 8.7 y for R0/R1 and 5.3 y in pts with R2 resection (p = 0.0001). They suggested that, long-term survival is possible in patients in whom whom complete macroscopic resection of metastatic disease can be achieved. Incomplete resection, including debulking surgery does not seem to prolong survival[18].

Canazi etal suggests that R0 resection and clinical response to TKI are predictor of survival. In resectable metastatic liver disease, preoperative TKIs or upfront surgery followed by adjuvant therapy could be considered[19].

In the present case, we performed simultaneous resection of gastric GIST with hepatic metastatectomy followed by adjuvant imatinib treatment for a large Gastric GIST with simultaneous liver metastasis. Imatinib is recommended currently in unresectable and metastatic GIST. Whereas, role of imatinib therapy in preoperative period in cases of resectable metastatic GIST is unclear. Randomised controlled trials needed to be done to formulate a treatment protocol for such cases.

Conclusion:

Liver metastasis in GIST is common. Simultaneous resection is preferred in a resectable GIST tumor with synchronous resectable liver metastasis. Imatinib therapy is preferred in cases of unresectable metastatic disease and postoperatively, in cases of resectable metastatic disease. Role of preoperative imatinib in resectable metastatic disease is unknown and needs to be studied.

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