ROLE OF MR ENTEROGRAPHY IN EVALUATION OF UNDIAGNOSED MELENA

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ABSTRACT

Gastrointestinal stromal tumors (GISTs) are frequently encountered in patients suffering from undiagnosed melena for prolonged duration. GISTs are the most common meshenchymal tumors to arise from the gastrointestinal tract.A case of undiagnosed melena for 3 years resulting from proximal jejunal GIST detected by MR Enterography is presented here.

Introduction

Gastrointestinal stromal tumors (GISTs) are the most common meshenchymal tumors to arise from the gastrointestinal tract.[1] GISTs frequently encountered in patients suffering from undiagnosed melena for prolonged duration. One must keep GIST as one of the rare but possible cause of melena in patients being investigated for localization of source of bleeding. We present a case of 65 years old male patient having recurrent episodes of melena who was referred to our Radiology Department for MR Enterography and a GIST in proximal jejunum was diagnosed.

Case Report

A severely anaemic 65 years old male patient came to our radiology department with complaint of recurrent episodes of melena for last 3 years. He was given multiple blood transfusions. His currant hemoglobin (Hb) level was 10 gm/dl after blood transfusion and serum ferritine level was 2.2 ng /ml (normal range 15 - 200 ng/ml for adult male). He had undergone multiple radiological examinations including upper GI endoscopy, contrast enhanced CT (CECT) of abdomen, ultrasound of whole abdomen, capsule endoscopy, barium meal follow through and enema but none of these imaging modalities were conclusive. We decided to perform MR enterography.

The patient was kept fasting for 6 hours. After reporting to our department 800 ml of mannitol is dissolved in water and the entire solution is made upto 2 liter. Patient was asked to drink the entire solution over a period of 45 minutes. Before inj of buscopan Coronal T2 Single Shot Fast Spin Echo, Coronal Fast Imaging Empoying Steady sTate Acquisition (FIESTA), Diffusion Weighted Imaging (DWI) were taken. After injection of buscopan COR T2 Single Shot Fast Spin Echo, Coronal FIESTA, COR pre contrast Liver Acquisition with Volume Accelaration, axial pre contrast Liver Acquisition with Volume Accleration are taken. Inj buscopan is repeated again followed

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by Coronal post contrast Liver Acquisition with Volume Accelaration, Axial post contrast Liver Acquisition with Volume Accleration. Axial Single Shot Fast Spin Echo showed a well-defined intraluminal polypodal space occupying lesion in the proximal jejunum which was hyperintense to abdominal muscles (Fig. 1). Axial Liver Acquisition with Volume Accleration pre-contrast showing the space occupying lesion with no suppression (Fig. 2). Axial Liver Acquisition with Volume Acceleration post-contrast showing enhancement of the space occupying lesion (Fig. 3). Coronal Liver Acquitision with Volume Acquitision post-contrast showing enhancement of the space occupying lesion (Fig. 4).Axial image showed true diffusion restriction of the space occupying lesion (Fig. 5). A diagnosis of an intraluminal GIST in the proximal jejunum was made which was confimed on histopathology as well.

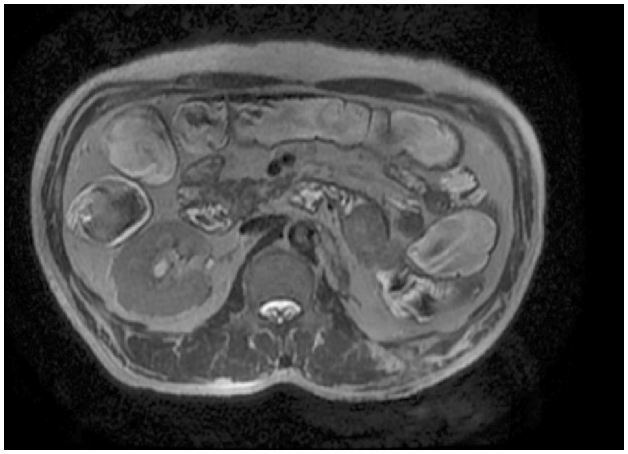

Figure 1: Axial Single Shot Fast Spin Echoshows a well defined intraluminal, polypodal space occupying lesion in the jejunum which is hyperintense to abdominal muscles.

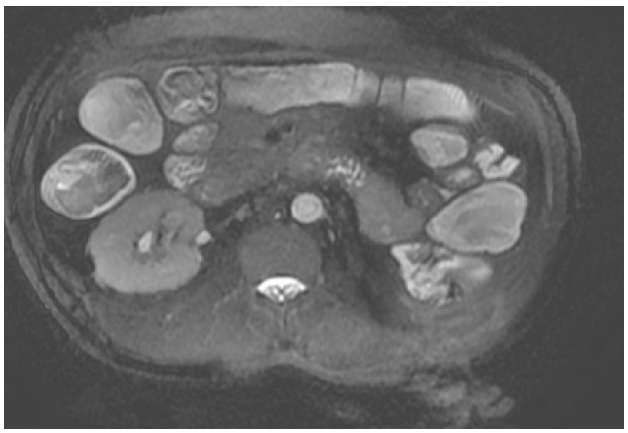

Figure 2: Axial Liver Acquisition with Volume Accleration pre contrast showing the space occupying lesion which does not suppress.

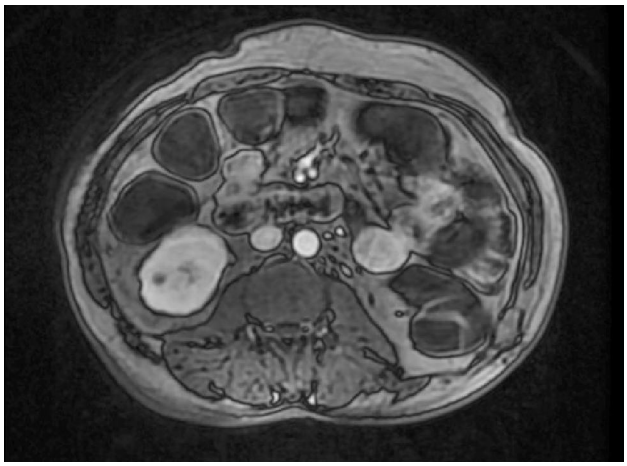

Figure 3: Axial Liver Acquisition with Volume Acceleration post contrast showing enhancement of the space occupying lesion.

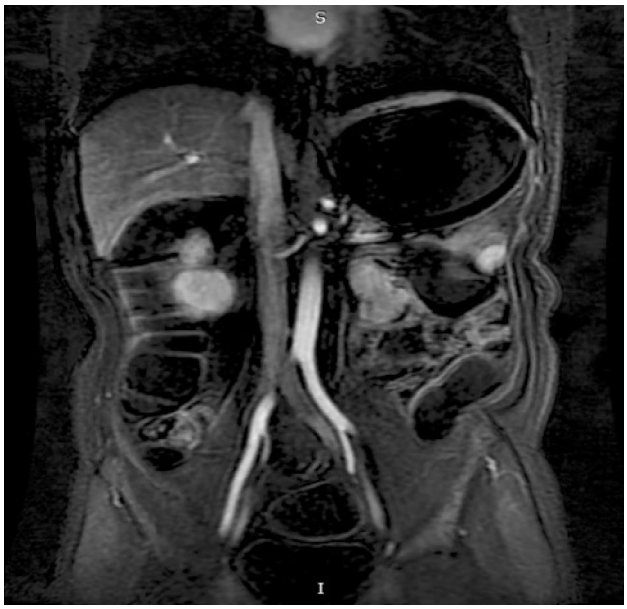

Figure 4: Coronal Liver Acquitision with Volume Acquitision post contrast showing enhancement of the space occupying lesion.

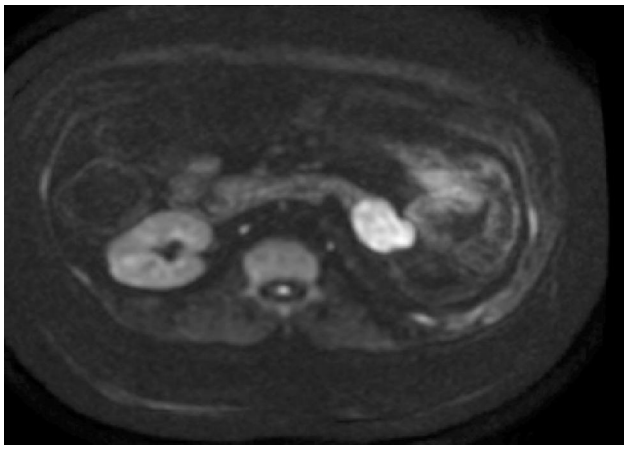

Figure 5: Axial image showing true diffusion restriction of the space occupying lesion.

Discussion

The term GIST (gastrointestinal stromal tumor) defines a unique group of mesenchymal neoplasms that are distinct from smooth muscle and neural tumors.[1] GISTs can occur any where in the gastrointestinal tract from the esophagus to the rectum as well as the omentum, mesentry and retroperitoneum. Most common locations are stomach (50-60%) and small intestine (20-30%).[2] GISTs are usually solitary tumors involving usually over people 50 years of age and it rarely presents before 40 years. Most cases are sporadic although some cases of familial with hereditary Gastrointestinal Stromal Tumors have been described. All GISTs should be considered as having malignant potential although they display varying degrees of aggressiveness.[2,3] GISTs occur in 10-20 per million people although the true incidence might be higher[4] as many tumors previously diagnosed as leiomyomass, leiomyoblastomas or leiomyosarcomas have been found to be positive for CD-117 and are now considered GISTs.

CT and MRI are considered to be the imaging modalities of choice for the detection, staging, surgical planning and follow up of patients with Gastrointestinal Stromal Tumors. Majority of GISTs appear to be well defined,extraluminal or intraluminal masses with varying attenuation on CT based on size and enhancement depending on presence of central hemorrhage or necrosis which is often seen in large tumors (> 6 cm). However the most common appearance of GIST is that of a mass arising from the wall of the gastrointestinal tract and projecting into the abdominal cavity because it usually involve the outer muscular layer. Mucosal ulceration is seen in upto 50% cases.[5] On MRI solid portion of the tumor typically show low signal intensity T1-weighted images, intermediate to high signal intensity on T2-weighted images, and enhancement after administration of gadolinium. The marked high signal seen on T2-weighted image should be considered as a feature strongly indicating diagnosis of Gastrointestinal Stromal Tumors.[6]

Small lesions, which are usually benign, tend to be well defined and relatively homogenous where as signs of high grade GISTs include live metastasis, GI wall infiltration, large volume, irregular surface, ill-defined margins, inhomogeneous enhancement and peritoneal spread. Central mural calcification and ascites are uncommon findings. Small intestinal GISTs may present with sign and symptoms of intestinal obstruction or hemorrhage and extension into adjacent mesentery with or without encasement of noncontiguous segments of small intestine, colon, bladder, ureter may be seen. The differential diagnosis for small intestinal GISTs include adenocarcinoma and lymphoma. Adenocarcinoma typically manifests as an annular lesion in the proximal small intestine and lymphoma can be differentiated radiologically from the presence of associated lymphadenopathy.

The primary treatment goal for localized primary GIST is complete resection,without the need for lymphadenectomy or wide resection margins. Tyrosine kinase receptor inhibitor, Imatinib (Gleevac, Novartis) is frequently used in cases of unresectable and widely metastatic GISTs.

Conclusion

We concludethat to diagnose an endoluminal small intestinal Gastrointestinal Stromal Tumors (GISTs) MR enterography should be considered as the investigation of choice.

References

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