Case study

Management Intricacies of an Extra Gastro Intestinal Tumor in a Mini Gastric Bypass Patient - a Rare Tumor in a Difficult Anatomical Terrain

ABSTRACT

We present an unusual case of pancreatic GIST in a patient with a previous history of mini gastric bypass. The main challenges were carrying out the resection and reconstruction in the previously operated and modified surgical field. The various surgical options were considered and a suitable procedure was completed.

Keywords: *biliopancreatic limb, gastrojejunostomy, whipple's procedure, mini gastric bypass, extragastrointestinal stromal tumor (EGIST)*

INTRODUCTION

We report a case of pancreatic Gastrointestinal Stromal Tumors (GIST) in a patient who had undergone a Mini Gastric Bypass (MGB). We felt the need to discuss this case for two important reasons. One reason was to share the technical challenges that were faced because of the already existing MGB. The other reason was to report a very rare finding of GIST arising from pancreas - an Extra Gastrointestinal Tumor (EGIST).

GISTs are most often located in the stomach (55.6%) and small intestine (31.8%)[1]. Duodenal GISTs account for around 3–5% cases among gastrointestinal GISTs [2]. Most common clinical symptoms of GIST are gastrointestinal intestinal bleeding and gastric discomfort or ulcer-like symptoms.

GISTs that originate from outside of the GIT are called extra-gastrointestinal stromal tumors (EGISTs) which are very rare and represent only 5% of all GISTs. Pancreatic EGISTs are even rarer and only a little over 30 cases have been reported in literature [3].

MGB is a bariatric operation which was initially developed as a modification of the Roux en Y Gastric Bypass (RYGB) for morbid obesity. Both the surgeries work by restrictive as well as malabsorptive

mechanisms to produce weight loss. Although RYGB is one of the most commonly performed bariatric surgeries, the performance of MGB is on the rise given the technical ease compared to RYGB. The resulting new anatomical configurations pose significant therapeutic and diagnostic challenges [4].

There is an increased risk of gastric cancer after gastric surgery, which is thought to be due to regurgitation of alkaline bile and pancreatic juice. The risk increases with longer duration of follow-up after the initial gastric surgery and if the initial surgery was done for a benign disease as opposed to a malignant one [5,6]. The Data on development of Gastric adenocarcinoma following bariatric surgeries is sparse and is limited to case reports, most of it developing in the remnant excluded stomach [7]. There is, however, data on reduction in risk of development of Esophageal and Gastric cancers following bariatric procedures mainly due to a decrease in the BMI and thus elimination of obesity as a risk factor for development of such cancers [8]. However, we could find no data on the risk of developing Pancreatic malignancies following bariatric surgery.

As the epidemic of obesity is on the rise, the number of patients undergoing bariatric surgeries are also increasing. Thus we believe that having to operate on a patient who has undergone a bariatric surgery will also become more common. These situations present unique technical challenges that must be managed on a case to case basis.

CASE PRESENTATION

A 51 year old hypertensive male patient with a previous history of bariatric surgery (laparoscopic MGB) done 6 years back, was evaluated for complaints of melena and weight loss. He was found to have a 6.8 x 5.2 x 5.8 cm lesion in D2 segment of duodenum with loss of fat planes with head of pancreas on Contrast Enhanced CT abdomen (Figure 1). Esophagogastroduodenoscopy biopsy was not possible because of the existing mini gastric bypass. Ultrasound guided biopsy was reported as GIST. The immunohistochemistry profile of the lesion revealed it to be DOG1 positive and CD117 positive. The case was discussed in the multidisciplinary tumor board and it was decided to start the patient on neoadjuvant Imatinib in view of large size and adjacent organ infiltration. He received the same for 1 month after which he had to be taken up for surgery in view of intractable bleeding which could not be controlled with conservative measures and blood transfusions. A repeat imaging revealed an unchanged tumor size. Angioembolization of the bleeding vessel was done prior to the surgery.

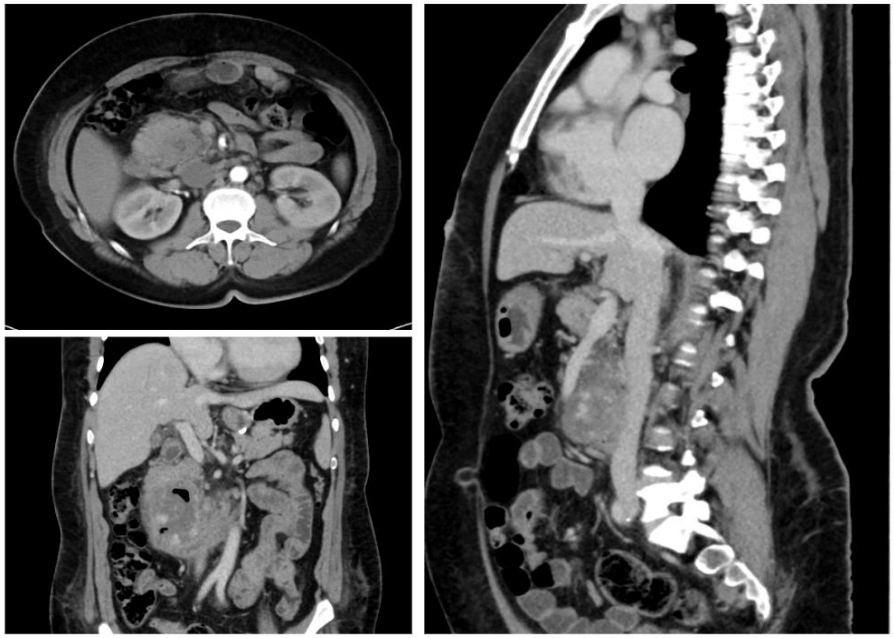

Fig. 1 - CT scan showing the tumor in relation to adjacent structures

Intra operatively, a mass of 10x10cm was identified in the head of the pancreas region with a lobulated surface (Figures 2, 3). The biliopancreatic limb of the MGB (shaded in green in Figure 4, 5) was approximately 150 cm in length. The initial 20-25cm of the biliopancreatic limb was involved by the tumor and had to be taken along with the specimen (shaded in blue in Figure 4, 5). A pancreaticoduodenectomy was done with the portion of the stomach which was already stapled off as part of the MGB (shaded in purple in Figure 4, 5) taken along with the specimen.

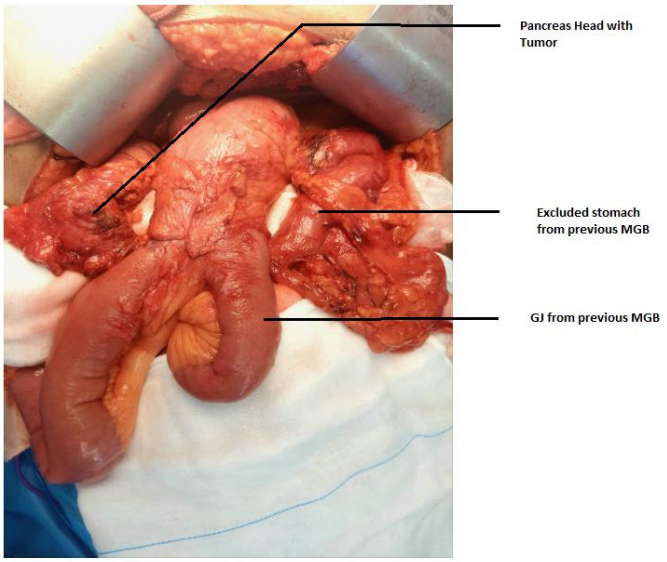

Fig. 2 - Operative photograph of tumor with stapled off portion of stomach

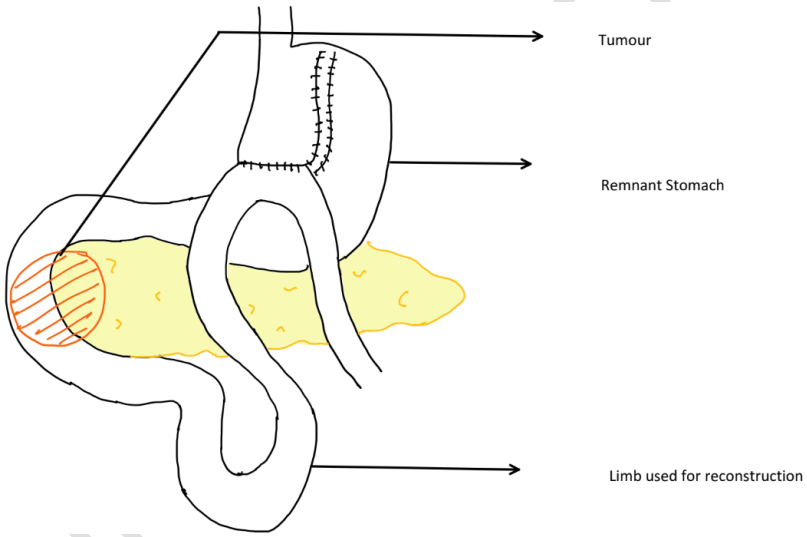

Fig. 3 - Representative picture showing tumor in situ with the stapled off portion of stomach

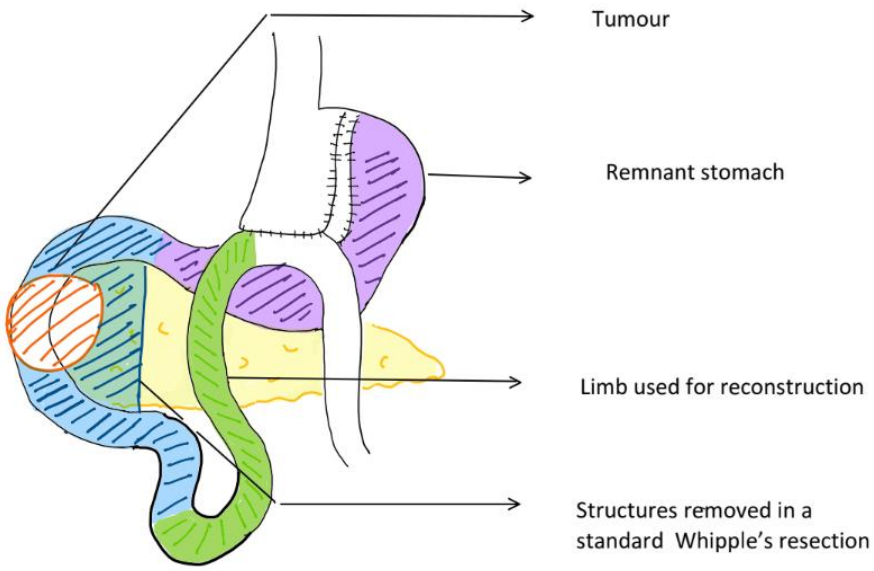

Fig. 4 - Representative picture with the shaded regions depicting the structures removed during surgery

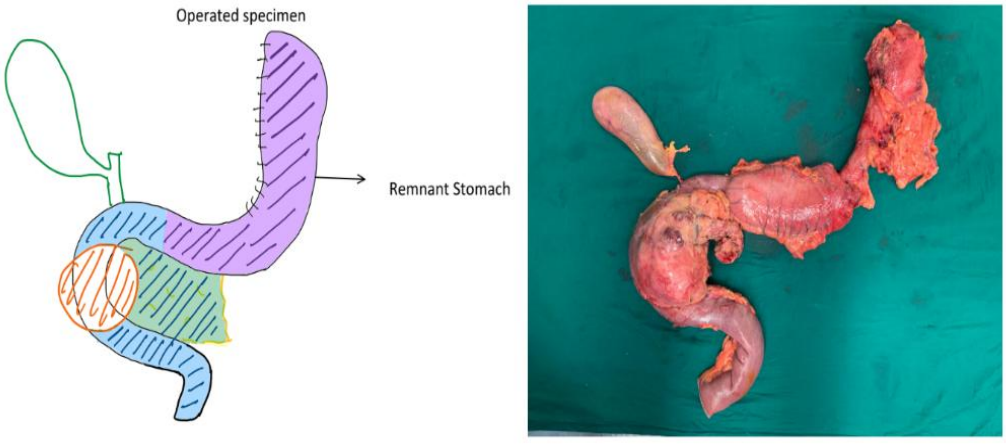

Fig. 5 - The specimen

Hepaticojejunostomy and pancreaticojejunostomy were done using the remnant biliopancreatic limb (shaded in green in the representative pictures). The gastro jejunostomy from the previous surgery was retained. The three anastomoses completing the reconstruction post resection (Figure 6).

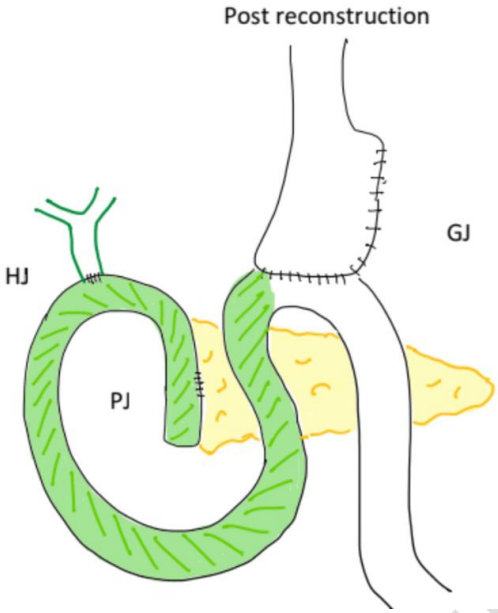

Fig. 6 - Representative picture showing the post reconstruction arrangement

The Patient had an uneventful recovery. The final histopathology report was a GIST arising from the head of pancreas with extension into D2. The size of the tumor was 12x9x7cm, and the resection margins were free. All regional lymph nodes were negative. The case was discussed again in the Multidisciplinary Tumor Board and in view of high risk features and the patient was started on adjuvant Imatinib for 3 years.

The patient is currently on our follow up at 18 months with no evidence of recurrence

DISCUSSION

The technical challenges that we were anticipating in this patient were extensively discussed in the preoperative planning. We had reviewed the literature on the performance of a Whipple's resection in a patient post bariatric surgery and could find only reports of patients undergoing a Whipple's resection

following an RYGB. Most of the case reports supported the use of the already existing gastro jejunostomy [4,9,10].

The other question was the length of the biliopancreatic limb and whether to use the same for the reconstruction. The inability to use the biliopancreatic limb would have resulted in extensive resection of the small bowel as the initially created MGB already would have taken a significant length of jejunum and such an extensive small bowel resection would have resulted in post operative morbidity. Our patient had a biliopancreatic limb of sufficient length for use in the reconstructive phase. Moreover, it would have meant taking down the previous GJ and construction of a new GJ which would have further added to the morbidity and complexity of the surgery.

Another caveat of the case was the residual stomach. A classical whipple or a pylorus preserving whipple would have left behind a blind stomach which was already cut off from the drainage path a part of the initial MGB. So it was mandatory that we had to take out the entire residual stomach, necessitating mobilisation of the residual stomach with ligation of all short gastric vessels.

As mentioned previously, the literature on cases where a complex surgery such as whipple's resection is performed in a patient who has undergone a bariatric surgery is very little at present. The number of such cases is expected to rise in the coming years.

The other interesting finding in our patient was the fact that he had a pancreatic GIST. The EGISTs are frequently located in the omentum, mesentery or retroperitoneum [11]. Those arising in the pancreas are extremely rare, constituting only about 5% of EGISTs [12]. Surgical resection with clear margins is the primary preferred line of treatment [13].The optimal type of surgical resection depends on the location within the pancreas. Routine lymph node dissection is not indicated in pancreatic EGIST cases because of rare regional lymph node metastases. Imatinib can be used as neoadjuvant therapy, for large size GISTs to reduce tumor size, increase the rate of complete resection of the tumor, and help to improve prognosis [14].

Despite all advances in treatment, the prognosis of EGISTs continue to remain poor compared to GISTs, with larger tumor size having worse survival outcomes. The 5 year survival rate reaching just 48.9% [15]

CONCLUSION

This case report serves to highlight the intricacies in operating on a patient with complex preexisting arrangements. Pancreatic surgeons must familiarize themselves with the various reconstructions following Bariatric surgeries which they are expected to encounter with increasing frequency in the

coming years. The rarity of a pancreatic EGISTs added to the uniqueness of this particular case and further data is needed to standardize the treatment regimes for these tumors. This report also reiterates the importance of meticulous preoperative planning and exhaustive research needed before every surgery to be able to rise to the challenge on the operating table.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

CONSENT

As per international standard or university standard, patient(s) written consent has been collected and preserved by the author(s).

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