Abstract: A 48 years old male underwent total gastrectomy with multivisceral resection with a curative intent for proximal gastric malignancy in the absence of peritoneal disease and metastasis. Adjuvant chemotherapy with six cycles of cisplatin and 5 FU regimen was administered. A symptomatic solitary recurrence has occurred thirty months following the primary operation involving the jejuno-jejunostomy forming a mass near the remnant pancreas causing a partial Roux and Y loop obstruction. A double surgical bypass was performed between duodenal limb to jejunum and roux limb to jejunum both beyond jejuno-jejunostomy site. FNAC from the mass confirmed local recurrence of gastric adenocarcinoma infiltrating pancreas and jejunum. Patient had symptomatic relief following surgery.

Keyword: total gastrectomy, solitary recurrence, multivisceral resection, roux en y loop obstruction, gastric cancer, double bypass

Introduction
In developing countries gastric cancer is a leading cause of morbidity and mortality. Unfortunately most patients present with advanced disease (gastric wall penetration and lymph node metastasis) at the time of diagnosis and loco-regional recurrence is especially high in those patients. Managing these recurrence are extremely difficult and therefore multidisciplinary therapeutic approach is necessary to achieve better results. We report an unusual presentation of both Roux and Y loop obstruction following a total gastrectomy with multivisceral resection for proximal gastric malignancy in which palliative surgical approach permitted a good symptom control.

Case report
A 48 year old male underwent total gastrectomy with distal pancreatectomy, splenectomy, segmental resection of transverse colon and lymph-node dissection (D2), thirty months back for an locally advanced well differentiated adenocarcinoma of the proximal half of the stomach. Roux-en-Y stapled esophago-jejunal anastomosis with closure of duodenal stump by stapler and an end to side jejunojejunostomy was done.

There was no anastomotic leak in the post operative period which was confirmed by oral gastrograftin contrast study under fluoroscopy on 7th post-operative day before resuming to oral feeds. He had left basal pneumonia associated with mild pleural effusion managed with antibiotics and chest physiotherapy which made hospital stay till 18th POD. Histological examination demonstrated an infiltrating adenocarcinoma extended to all layers of gastric wall with all resection margins were negative except in the peripancreatic fat plane showed infiltration; 28 lymph-nodes were retrieved and showed only reactive hyperplasia ; stage IIIA according to TNM classification (T4 N0 M0) [2]. Adjuvant chemotherapy was given (cisplatin and 5-fluorouracil, CFregimen) from May 2012 to October 2012. Follow-up was uneventful till October 2014. He presented with one month history of upper abdomen pain after taking food which relieved by vomiting and no radiation of pain. He had weight loss since one month and no history of hematemesis, melena or loss of appetite. Clinical examination revealed upper midline scar with visible peristalsis in right hypochondrium and epigastrum; Upper GI endoscopy showed no luminal recurrence or stricture in the esophago-jejunal anastomotic region and able to pass scope to afferent blind limb and to efferent jejunal limb which was grossly dilated. Blood examination results were normal; X-Ray abdomen showed dilated bowel loops in upper abdomen; USG abdomen showed dilated bowel in upper abdomen with to and fro peristalsis suggestive of obstruction; liver was normal no ascites or pelvic deposits.

Figure 1: CT scan demonstrating dilated Roux limb
The local recurrence are intraluminal and extraluminal; Intraluminal from gastric remnant, resection margin of bowel in multivisceral resection; Extraluminal from lymph node, retroperitoneum and adjacent organs like pancreas; Abdominal extraluminal recurrence of gastric cancer is a disarming condition because of less therapeutic options. In a multivariate analysis of risk factors involved in the recurrence of gastric cancer by Yoo et al [2] the order of frequency are lymph node metastasis, serosal invasion, infiltrative or diffuse type, larger tumour size (4cm or greater), undifferentiated tumour and proximally located tumour. Most of the risk factors suggested by Yoo and Colleagues were present in the initial specimen of our case: serosal invasion and nodal metastases, large tumour size (9 x 6 cm on the specimen) infiltrative type and proximally located tumour.

Figure 2: CT scan demonstrating dilated Y limb
CT scan demonstrated a dilated contrast filled small bowel loop in upper abdomen (Roux loop) and contrast noticed in distal small bowel and colon in delayed film suggestive of partial obstruction (Figure 1). There is also a significant dilatation of duodenal limb (Y loop) identified by a dilated small bowel without any filling of contrast in upper abdomen (Figure 2). Clinical and radiological examination did not reveal any metastasis. He was submitted to explorative laparotomy by previous midline incision that confirmed both dilated Roux limb and duodenal-Y limb which correlated with CT scan.

Figure 3: Dilated Y limb seen proximal to Duodeno-Jejunal flexure
In addition there was a solitary extraluminal recurrence near the pancreas with involvement of jejuno-jejunostomy site conglomerated forming a mass of 6x5 cms causing partial obstruction of both Roux and Y loop (Figure 5). The colo-colic anastomosis of previous multivisceral resection was normal. Accurate inspection of abdominal cavity excluded any other localization of the disease. The mass was unresectable as it was densely adherent and also involving the complex anastomotic site an FNAC was taken and bowel continuity was restored with double surgical bypass between duodenal-Y limb to jejunum and Roux limb to jejunum both beyond involved jejuno-jejunostomy site (Figure 6,7). FNAC from the mass confirmed local recurrence of gastric adenocarcinoma. Patient had an uneventful post operative period and was discharged on seventh post operative day.

Figure 4: Grossly dilated Roux limb

Figure 5: Diagrammatic representation of Roux and Y limb before anastomosis
Recurrence after surgery for gastric adenocarcinoma is common and usually occurs within 2 yrs in 20-50% of cases after surgical resection[1]. Intestinal obstruction is not uncommon after gastrectomy they are early and late. Early obstruction may be due to anastomotic site edema or adhesions and rarely due to Roux loop involvement and jejuno-jejunal obstruction or intussusception. The causes of Roux loop obstruction are adhesions, internal herniations and recurrence.

Figure 6: Diagrammatic representation of Roux and Y limb after double bypass

Figure 7: Double surgical bypass with anastomosis of Roux and Y limb to jejunum
First, pathological serosal involvement is the determinant and independent factor for prediction of site-specific recurrence and they are at high-risk for peritoneal spread, whereas patients without serosal disease are at risk for hematogenous recurrence[3]. Second, the risk for recurrence after standard gastrectomy with extended (D2) lymph node dissection is strongly determined by the tumor stage; it is low risk for both without serosal and nodal disease (10%), moderate among those with either serosa or nodal disease (53%) and very high among those with both serosa and nodal involvement of cancer (83%). The Shiraishi’s et al [4] demonstrated that timing of recurrence is not based on depth of tumor involvement i.e subserosa or serosa as it is involved in both early (92%) and late (80%) recurrence group without significant difference. Our patient did not had any anastomotic recurrence in the esophago-jejunostomy site or the colocolic anastomotic site as the margins are negative in histopathology report. The recurrent is extraluminal and probably from the pancreatic remnant as the histology shows tumor infiltration in the peripancreatic tissue in the specimen. Buzzoni [5] emphasised the role of radical than conservative surgery to reduce the rate of loco-regional recurrence as pT stage was related to loco-regional recurrence whereas pN stage had importance on distant metastases. Post operative adhesion with adhesive colic are common cause for intestinal obstruction and obstruction especially after surgical resection for a malignancy can due to infiltration to neighbouring structures by recurrent tumor or peritoneal disease causing adhesions, kinking or stenosis as in our case. Obstruction with internal herniation can also occur and Several studies have reported that the antecolic placement of the Roux-limb is associated with a lower incidence of internal hernias, although the inverse has also been reported and the Petersen.

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space hernia seems to be the most common. In our case the roux and Y loop is antecolic and there was no internal herniation. Jejuno-jejunostomy site obstruction may be due to edema, stricture or luminal or extraluminal recurrence. The jejunoo-jejunostomy will be usually lying in infracolic compartment and the cause of obstruction, if extraluminal is usually due to a peritoneal disease. In our case the jejunoo-jejunal anastomosis was lying and involved in the extraluminal recurrence in supracolic compartment may be because of a long jejunal segment from duodeno-jejunal flexure to jejunoo-jejunos site. Therefore from this observation it is desirable to keep a short jejunal limb from duodeno-jejunal flexure to jejunoo-jejunos site to prevent such incidences.

Abdominal multi-slice CT scan is the most accurate diagnostic imaging in such presentations and the most frequent findings are dilated bowel loops in the upper abdomen, intestinal loop herniation above the gastric level, rotation of the mesenteric vessels mesenteric fat haziness, anterior and right displacement of the ligament of Treitz. CT with oral and iv constrast accurately correlated with the intraoperative findings of Roux loop and Y loop obstruction but could not be able to detect the site of recurrence. It is important to predict the recurrence before the patient is symptomatic and there is a diagnostic system based on systematic analysis of gene expression profiling by Motoori et al [6] which gives high accuracy especially in small tumours with stage I and II. Marrelli [7] obtained a scoring system with a regression model based on follow-up data to define subgroups of patients at risk for recurrence after radical surgery for gastric cancer. On the other hand, Bennett [8] affirmed that followup did not identify asymptomatic recurrence earlier than symptomatic one. In stage III and stage IV disease where the chance of recurrence is common and to detect recurrence at early stage in asymptomatic patient is very difficult even with multiple imaging modalities. Our patient also had a symptomatic presentation which lead to early detection of recurrence which was diagnosed intraoperatively and found to be not suitable for surgical resection. The result after the palliative entero-enteric double by pass was satisfactory.

Therefore it is more important to prevent or reduce the frequency of recurrence than early detection of recurrence [9]. The delay in the clinical presentation of recurrence was probably due to response to chemotherapy. Recently developed drugs such as irinotecan, capetcitabin and taxanes provide more promising results also new molecular targeting agents in metastatic gastric cancer [10]. Once the diagnosis of loco-regional recurrence has been made, curative surgical resection is only rarely possible. Palliative Chemotherapy has been the mainstay in the treatment of recurrent gastric cancer as majority are not amenable for surgical resection. Standard treatment regimens for palliative chemotherapy in stage IV and recurrence gastric cancer are the following: Fluorouracil (5-FU), [11-13] Epirubicin, cisplatin, and 5-FU (ECF).[14,15] Epirubicin, oxaliplatin, and capetcitabin (EOX).[16]Cisplatin and 5-FU (CF).[13]Docetaxel, cisplatin, and 5-FU. Etoposide, leucovorin, and 5-FU (ELF). 5-FU, doxorubicin, and methotrexate (FAMTX). Palliative resection should be reserved for patients with continued bleeding or obstruction.

Approximately 20% of patients undergo surgical resection but in only 2-6% it may be considered curative and if performed in patients with low perioperative risk can achieve a mean survival upto 2 years (3). Therefore, for the case of resectable lesions, aggressive surgical approaches are strongly recommended. [17] According to Takeyoshi’s study, surgical resection for non-hepatic intra-abdominal recurrence of gastric cancer is the treatment of choice for selected patients. Loco-regional recurrence in the absence of peritoneal chemotherapy and a palliative double entero-enteric bypass can be done in selective cases who present with intestinal obstruction where the recurrence is unresectable.

Palliative irradiation may be used to alleviate bleeding, pain and obstruction when other options are not feasible. In our case report intestinal obstruction has occurred because of jejunoo-jejunal involvement by extraluminal recurrence after total gastrectomy, a palliative double entero-enteric bypass has provided better symptomatic relief at recent follow up at 4th month.

Conclusion

Surgical palliation can be done in selected cases of gastric recurrence following radical resection of gastric malignancy with better symptom free survival. A short jejunal Y limb distal to DJ flexure can prevent small bowel obstruction.

References


