ORIGINAL RESEARCH PAPER

General Surgery

AN INTERESTING CASE OF ZOLLINGER ELLISON SYNDROME PRESENTING AS PERFORATION PERITONITIS DUE TO JEJUNAL PERFORATION – A CASE REPORT

KEY WORDS: Perforative peritonitis, Jejunal perforation, laparotomy, gastrinoma

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ABSTRACT

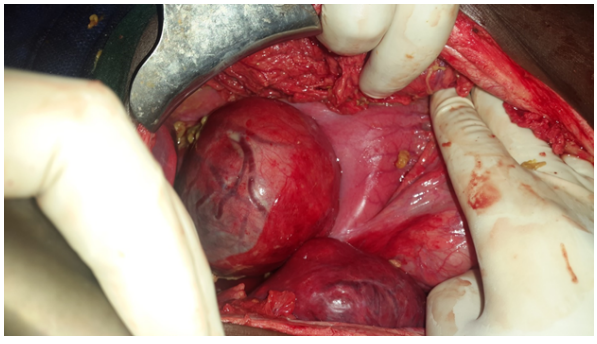
Zollinger Ellison syndrome or Strom-Zollinger Ellison syndrome is a rare disorder which is triad of gastric acid hypersecretion , severe peptic ulceration , and non –beta islet cell tumor of pancreas (gastrinoma). A 25 year old male patient presented with complaints of abdominal pain and vomiting revealed perforative peritonitis on examination. Emergency laparotomy was done. Intraoperatively a huge mass lesion of size 10 x 5 x 3 cm was found within the space between left lobe of the liver and lesser curvature of the stomach. The right lobe of the liver had undergone a tumorous transformation with a mass of size 8 x 5 cm. Also multiple target lesions were present in the right lobe of the liver. A 0.5 x 0.5 cm perforation in the jejunum , 5 cms from the duodeno-jejunal flexure was observed. Perforation closure and biopsy from the lesion was done. Post operative period was uneventful.

BACKGROUND

Zollinger Ellison syndrome or strom-zollinger Ellison syndrome is a rare disorder which is triad of gastric acid hypersecretion , severe peptic ulceration , and non –beta islet cell tumor of pancreas (gastrinoma). The syndrome is often caused due to the tumor of duodenum or pancreas producing increased levels of gastrin which produces increased levels of hydrochloric acid in the stomach leading to ulceration in almost 95% of patients . The annual incidence of gastrinomas is 0.5 to 2 per million population (1,2,3). Most patients are diagnosed between the ages of 20 and 50 , with a higher incidence in men compared with the women . Approximately 80 % of gastrinomas are sporadic , but 20% to 30 % occur in association with multiple endocrine neoplasia type 1 (MEN1) (5).

CASE PRESENTATION

A 25 year old male patient presented to the emergency room with complaints of abdominal pain and vomiting for past 2 days. On further questioning patients gives history of recurrent upper abdominal pain in the past, for which he was treated now and then. Later he was diagnosed to have antral gastritis for which he was on treatment. Patient also gives history of recurrent diarrhea . On examination patient was dehydrated, with tachycardia (PR-110/min), BP – 110/70 mm Hg . On abdomen examination patient had diffuse guarding and rigidity, with diffuse tenderness and rebound tenderness. Liver dullness was obliterated. Patient's chest x ray showed air under right dome of diaphragm , abdomen x ray erect view showed no multiple at fluid levels , USG abdomen showed free fluid in the morrissons pouch .so with clinical diagnosis of perforation peritonitis (?DU perforation), patient was taken up for laparotomy.



Intraoperatively a huge mass lesion of size 10 x 5 x 3 cm was found within the space between left lobe of the liver and lesser curvature of the stomach. The right lobe of the liver had undergone a tumorous transformation with a mass of size 8 x 5 cm. Also multiple target lesions were present in the right lobe of the liver. A 0.5 x 0.5 cm perforation in the jejunum, 5 cms from the duodeno-jejunal flexure, patient also had wide mouthed meckels diverticulum . As the tumor was huge and very vascular and also the origin of the tumor could not be visualised , resection of the tumor was impossible in that setting, also patient had multiple liver secondaries, so proceeded with primary closure of the jejunal perforation, after examining both the surfaces of the stomach for any growth. Biopsy from one of the target lesions of the liver and from mesenteric node was taken. Abdomen closed with a drain in the morrisson's pouch .

With a differential diagnoses of LEUKEMIA / LYMPHOMA with coeliac node enlargement (or) CARCINOMA STOMACH WITH NODAL METASTASIS (OR) PANCREATIC NEUROENDOCRINE TUMOR (probably GASTRINOMA), proceeded with further investigations . Blood counts were totally normal ruling leukemia / lymphoma out. OGDscopy was done and ruled carcinoma stomach out. MRI of the abdomen was done and report came back as mass lesion in the UNCINATE PROCESS OF PANCREAS with multiple hepatic multifocal mass lesions .So with strong suspicion of GASTRINOMA , a serum GASTRIN level estimation was done , which was grossly elevated (serum gastrin levels – 4925 pg/ml). Meanwhile HPE report from the liver secondary came back as CHROMOGRANIN A + and SYNAPTOPHYSIN - probably GASTRINOMA. So to confirm the diagnosis of ZOLLINGER ELLISON SYNDROME and also to rule out other causes of hypergastrinemia , a pH study of the patients gastric aspirate was done and was found to be 1 (gasticph – 1). So with a tumor in the UNCINATE PROCESS of the pancreas, with serum GASTRIN levels grossly elevated , and GASTRIC PH less than 2, the diagnosis of zollinger Ellison syndrome is certainly made . As the patient has multiple liver seconadries already no further surgical resection / intervention planned, patient sent for chemotherapy .

DISCUSSION

Zollinger Ellison syndrome is caused by gastric acid hypersecretion characteristically resulting in severe gastroesophageal peptic ulcer disease, which is due to the ectopic secretion of gastrin , by a neuroendocrine tumor (gastrinoma) , usually present in the duodenum or pancreas , (6-9). Zollinger Ellison syndrome is named after two surgeons at the Ohio State University, Robert M . Zollinger and Edwin H. Ellison .The syndrome as described in 1955 , is characterized by peptic ulcers of the upper gastrointestinal tract refractory to medical therapy , diarrhea and severe gastric acid hypersecretion associated with non-beta islet cell tumors of the pancreas (10).In the 1960s gastrin was discovered as the key hormone in the pathogenesis of the gastric acid hypersecretion. The most common initial symptom of ZES is abdominal pain and 90-95% of patients develop peptic ulcers in the upper gastrointestinal tract. The incidence is approximately 0.1 – 3 persons per million population. Patients represent all socioeconomic groups and no particular racial, ethnic, religious or cultural associations have been reported.

The gastrinoma is a gastrin cell or G cell adenoma or adenocarcinoma .it is histologically characteristic of islet cell tumors in general , with a uniform cuboidal pattern of cells with prominent nucleoli , modest cytoplasm and few mitotic figures in either benign or malignant tumors . These tumors are usually malignant (60%), multifocal (60%) , and may reside in the pancreas (70% to 90 %) , duodenal (15 to 20 %), or in extraintestinal tissues like lymphatic tissues of liver (5 to 15 %) (11,12). More than 90 % of gastrinomas occur in the gastrinoma triangle or passaro's triangle which is bounded by the third portion of the duodenum , the neck of the pancreas , and the portahepatis (13). The vast majority of gastrinoma are found isolated , sporadic cases without other genetic associations . Between 10-25% of gastrinoma appear part of the Multiple Endocrine Neoplasia type 1 (MEN-1)syndrome and are associated with parathyroid , pituitary, and other pancreatic neoplasms (14). Basal gastrin levels between 100 – 1000pg /ml are considered intermediate, and fasting gastrin levels greater than 1000pg/ml are virtually diagnostic of ZES . If pH is <2 and the serum gastrin levels are higher than 1000 pg/ml , the diagnosis of ZES is certain while gastrin is between 100 – 1000pg/ml , a secretin stimulation test is done .At present the most important study should be somatostatin receptor scintigraphy (SRS) using In111 – penetetreotide with single photon emission tomography (SPECT) ultrasonography can detect gastrinomas in 30% cases and the detection rates are better for lesions greater than 3 cm in diameter and are poor for lesions smaller than 1 cm .using Endoscopic ultrasound (EUS) as high as 79-82% sensitivity can be obtained . Both CT and MRI are very sensitive and specific methods for demonstrating hepatic metastases and pancreatic tumors, and they show specific advantages in routine tumor staging and monitoring of therapy.

The immediate and sustained control of gastric acid hypersecretion and surgical resection of tumors are the most important aspects of disease management in patients with Zollinger Ellison syndrome. The PPIs commonly used are omeprazole , lansoprazole , pantaprazole , rabeprazole , esomeprazole .In addition to immediate release subcutaneous octreotide , other long acting somatostatin analogues such as lanreotide , which can be administered every 10-14 days , and octreotide – LAR, which can be administered every 28 days are currently available .surgery plays a key role in the treatment of Zollinger Ellison syndrome because the ZES related deaths were due to the tumor spread rather than hypersecretory complications. Patients with ZES who do not have associated MEN type 1 or metastatic disease should be offered surgical exploration for possible cure. The indications for surgery in patients with ZES are controversial, since previous experience has shown that surgery rarely cures these patients .Chemotherapy with classical anti-tumors agents like 5-fluorouracil , in controlling metastatic endocrine tumors .

CONCLUSION

Hereby we report a rare case of Zollinger Ellison syndrome presented as jejuna perforation. This patient who is on chemotherapy now is on regular follow up .This syndrome should be suspected in patients with chronic abdominal pain, diarrhea, and ulcers in unusual locations like jejunum. Strong suspicion and a battery of radiologic and serologic tests are necessary for timely diagnosis.

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