ORIGINAL ARTICLE

A PROSPECTIVE STUDY OF COMPARISON BETWEEN OPEN GASTROJEJUNOSTOMY AND LAPAROSCOPIC ASSISTED GASTROJEJUNOSTOMY IN PATIENTS OF POST CORROSIVE INGESTION PYLORIC STENOSIS

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ABSTRACT

Background: It is important to understand and study the trends in the incidence of various factors responsible for gastric outlet obstruction in the present scenario and outline the rationale behind treatment of gastric outlet obstruction by open and laparoscopic method.

Method: This is a prospective study of 70 patients diagnosed as GOO .We observed all case of GOO, but to minimize the bias in comparison of Open Gastrojejunostomy and Lap Assisted Gastrojejunostomy due to disease condition, we included those 30 patients of post corrosive ingestion pyloric stenosis for comparison between two operations. We also observed the nature of corrosive injury to stomach. Intra operative findings and postoperative complications were noted.

Results: We observed that benign etiology was more common for GOO (58%) compared to malignant cause (42%) and post corrosive ingestion pyloric stenosis was most common benign cause(42%) of GOO, Pancreatic cancer was most common malignant cause(18.5%) of GOO. Corrosive ingestion was more common in younger age group (66% in 15 -30yr age) and female gender(63.34%) and mostly as a suicidal attempt(86.66%) and most common corrosive agent was sanitary cleansing agent(hydrochloric acid) (70%).Post prandial non-billious vomiting and weight loss were consistent symptom and appeared after 6-8 week of corrosive ingestion and 50% of patient of post corrosive ingestion pyloric stenosis had concomitant esophageal stricture. In present study those patient operated with Lap Assisted Gastrojejunostomy had smaller size of incision, reduce intra operative need of blood transfusion, less post-operative pain and less chance of wound infection, early drain and suture removal and early discharged from hospital with minimal post-operative morbidity and without significant increase in total duration and cost of operation.

Conclusion: As compared to Open Gastrojejunostomy, Lap Assisted Gastrojejunostomy is better alternative operative method for pyloric stenosis.

INTRODUCTION

Gastric outlet obstruction (GOO, also known as pyloric obstruction) is not a single entity; it is the clinical and pathophysiological consequence of any disease process that produces a mechanical impediment to gastric emptying. Clinical entities that can result in GOO generally are categorized into 2 well-defined groups of causes—benign and malignant. It is important to understand and study the trends in the incidence of various factors responsible for gastric outlet obstruction in the present scenario and outline the rationale behind treatment of each patient with different etiology for gastric outlet obstruction by open and laparoscopic method. Corrosive injuries of the stomach are not uncommon in developing countries. The spectrum of gastric injury due to corrosives can vary from acute partial or total gastric mucosal or transmural necrosis to chronic gastric injuries of different types. We report our experience in different etiology of GOO, and post corrosive ingestion pyloric stenosis, and comparison between open and laparoscopic assisted Gastrojejunostomy.

METHODOLOGY

This is a prospective study of patient admitted with clinical feature suggestive of pyloric obstruction in surgery department of Sir T. Hospital Bhavnagar from April 2013 to April 2015. Data of all the patients with pyloric obstruction were collected. All the patients underwent upper gastrointestinal tract contrast studies and esophagogastroduodenoscopy to assess the site and extent of pyloric stenosis, also CT scan and USG and other hematological investiga-

tions for diagnosis of other etiological factor of GOO. We observed all 70 patients of pyloric obstruction, but to minimize the bias in comparison of Open Gastrojejunostomy and Lap Assisted Gastrojejunostomy due to disease condition, we included only those patients of post corrosive ingestion pyloric stenosis for comparison. For randomization odd numbers of patients were operated with Lap Assisted Gastrojejunostomy and even numbers of patients were operated with Open Gastrojejunostomy.

Information collected with attention to age, gender, presenting complaints, cause of pyloric stenosis , interval between time of corrosive ingestion and presentation as pyloric stenosis in hospital, nature of corrosive agent, mode of ingestion, definitive procedure performed is Gastrojejunostomy ,intraoperative data (length of incision, need of intraoperative blood transfusion, duration of operation) and post operative data(post operative pain, wound infection, suture removal, drain removal, total hospitalized days, weight gain). Patients were followed up at 2 week and 3 month.. Definitive surgery (Gastrojejunostomy) was performed in 30 patients of post corrosive ingestion pyloric stenosis. Feeding jejunostomy were kept in those patients had concomitant esophageal stricture and significant weight loss. Operations were performed in presence of senior surgeons. Permission to carrying out study was taken from ethical committee of institute and funding was taken from institute.

Inclusion criteria: Patients admitted to the surgery wards with a clinical diagnosis of GOO, Endoscopic and radiological evidence of gastric outlet obstruction, age 18 -80 year, willing for operative intervention.

Procedure: Open Gastrojejunostomy performed as a conventional anterior loop side by side Gastrojejunostomy. In Lap Assisted Gastrojejunostomy initially stomach and jejunal loop mobilised by laparoscopy, then small upper midline vertical incision kept over epigastrium. Part of stomach and jejunal loop taken outside of peritoneal cavity under laparoscopic guidance and side to side gastrojejunal anastomosis performed by hand sewn method.

RESULTS AND DISCUSSION

As mentioned in table :1 ,We observed that ,out of 70 patients of gastric outlet obstruction, 41(58%) having benign etiology (most common post corrosive ingestion pyloric stenosis,42%) and 29 patient(42%) having malignant cause(most common pancreatic cancer,18.5%). As compared to Vivek sukumar et al study [1] reported, 38.60% having benign etiology and 61.40% having malignant etiology.

As mentioned in table 2, out of 30 patients, Corrosive ingestion was more common in younger age group (66% in 15 -30yr age) and Similar findings were observed in Sharma et al[2] in which mean age group of post corrosive ingestion was 31 year with male predominant but in our study we observed that female gender (63.34%) were more predominant and mostly as suicidal attempt (86.66%) most probably due to familial and marital conflicts and more suicidal tendency in female gender[3].

Table 1: Etiology of Gastric Outlet Obstruction

Etiology	Cases (n=70)(%)
Benign etiology	**41(58.0)**
Peptic ulcer disease	5(7.0)
Corrosive ingestion	30(42.0)
Hypertrophic pyloric stenosis	5(7.0)
Prepyloric web	1(1.0)
Malignant etiology	**29(42)**
Gastric cancer	10(14.28)
Gastric polyp	1(1.42)
Pancreatic cancer	13(18.5)
Cholangiocarcinoma	5(7.14)

Table 2: Natural History of Disease and Clinical Feature

Factor	Most common Groups (%)
Age	15-30 yr#(66)
Gender	Female (63.34)
Mode of corrosive ingestion	Suicidal (86.66)
Corrosive agent of ingestion	Sanitary cleansing agent, HCl* (70.0)
Duration of a presentation of patients as a pyloric stenosis	6-8 weeks (63.34)
Presenting clinical feature	
Nonbillious Vomiting	100
Weight loss	73.34
Dysphasia	46.67
Concomitant esophageal stricture	14 (46.66)

year,* Hydrochloric acid

Other similar findings were observed like most common corrosive agent was sanitary cleansing agent (70%) , because of easy availability at home and working place, post prandial nonbillious vomiting and weight loss were consistent symptom and appear after 6-8 week of corrosive ingestion because gradual narrowing of pyloric part of stomach .But we observed that those patients had concomitant esophageal stricture had initial complain of dysphasia and pyloric stenosis become evident after esophageal dilatation and oral feeding. In present study 50% of patients of post corrosive ingestion pyloric stenosis had concomitant esophageal stricture as study conducted by N.ananthkrishnan was reported two third of patients had concomitant esophageal stricture along with gastric corrosive injury.[4]

Table 3: Camparision of Open Gastrojejunostomy and Laproscopic Assisted Gastrojejunostomy

Factors	Laparoscopic Assisted Gastrojejunostomy (n=15)	Open Gastro-jejunostomy (n=15)
Length of incision(mean)	4-5 cm	9-10 cm
Need of intraoperative blood transfusion	2 patients	8 patients
Total duration of operation (mean)	133.33 min	127 min
Post op abdominal pain (no of patients)		
Mild	3	4
Moderat	0	4
Severe	0	1
Post op drain removal (mean)	4.3 day	5.96 day
Wound infection	0 (0 %)	4(26.66%)
Post op suture removal (mean)	7th POD	10.06th POD*
Duration of hospitalization after operation (mean)	4.5 day	7.65 day
Outcome		
Cured	100%	100%
Morbidity in form of wound infection	0%	26.66%
Anastomotic leak	0%	0%
Reflux gastritis	0%	0%
Dumping syndrome	0%	0%
Weight gain after operation within 3 month(mean)	10.3 kg	11.2kg

*POD: post operative day

Out of 30 patients, 6 patients required feeding jejunostomy up to definitive surgery for nutritional support. We observed that even after placement of feeding jejunostomy there was no significant increase in weight gain, so we planned for early definitive procedure (Gastrojejunostomy) within 6-8 weeks of post corrosive ingestion.

As mentioned in table: 3,We observed that Gastrojejunostomy is definitive operative procedure for pyloric stenosis to relieve obstructive symptom of pyloric stenosis but as mention in table 3, those 15 patients of post corrosive ingestion pyloric stenosis operated by Lap Assisted Gastrojejunostomy had smaller size of incision because mobilization of stomach and jejunum done by laparoscopic method, it reduced post-operative pain and chance of wound infection, it lead to early suture removal. In Laparoscopic Assisted Gastrojejunostomy, there was minimal intra operative dissection so reduced intra operative need of blood transfusion and early drain and suture removal and early discharge from hospital with minimal post-operative morbidity and without significant increase in total duration in Lap Assisted Gastrojejunostomy in which time was utilized for laparoscopic asses. In Lap Assisted Gastrojejunostomy, we were done hand sewn anastomosis between stomach and jejunum which reduced the cost of operation compared to total Laparoscopic Gastrojejunostomy in which staper is used for anastomosis between stomach and jejunum.

CONCLUSION

Compared to Open Gastrojejunostomy, Lap Assisted Gastrojejunostomy operation is better alternative for pyloric stenosis with advantage of smaller size of incision, reduce intra operative need of blood transfusion, less post-operative pain and less chance of wound infection, early drain and suture removal and decrease duration of hospitalization and decrease morbidity without significant increase in total duration and cost of operation.

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