

Longitudinal Pancreatico-gastrostomy, A Quest for a Better Salvage for Chronic Pancreatitis in Bangladesh: An Outcome Analysis of Our Early Cases

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Abstract

Background: Chronic pancreatitis being one of the most distressing medical condition, is often complicated by common bile duct obstruction, fibrosis and acute inflammation of the pancreas. Pain, weight loss and diabetes are common in these patients. Surgery is the ultimate option after medical treatment fails to solve the distress. Longitudinal Pancreatico-jejunostomy is widely practiced all over the world as the option of choice. Pancreatico-gastrostomy is also being practiced by a few surgeons in a few centers. Here we practice Longitudinal Pancreatico-gastrostomy (LPG) for chronic pancreatitis patients in our setup. This study was aimed to analyze the outcomes and privileges of LPG.

Method: This prospective study was monitored and guided by the Department of Hepato-biliary and Pancreatic Surgery, Shaheed Suhrawardy Medical College Hospital, Dhaka over a period of 18 months. A total of 36 patients with chronic pancreatitis were allocated for Longitudinal Pancreatico-gastrostomy (LPG) surgery. Study tools included pain gradation, body weight, investigation profiles- serum lipase, blood sugar, USG of abdomen, CT Scan and MRCP. Duration of surgery, blood loss, hospital stay, assessment of post-operative pain relief and surgical complications were the parameters of the study. For pain relief assessment patients were divided into three categories, complete (no complaint pain), satisfactory (mild tolerable pain with normal daily activities) and unsatisfactory (moderate to severe pain requiring medication and hampered daily activities).

Results: 36 patients in the group underwent LPG. Mean age in group was 22.94 ± 3.76 years. Majority of the patients had unknown etiology. The mean duration of illness in group was 4.27 ± 0.96 years. LPG was easier to perform, took less time, less blood loss and hospital stay was short with less post-operative complications. Pain relief was satisfactory with most patients showing complete pain relief. Diabetes patients got much better glycemic control after surgery. Weight gaining was also significant.

Conclusion: LPG is an easier and safer surgery which achieves good pain relief, glycemic control and nutritional improvements. Large volume studies should be done to establish its dominance against other surgical procedures.

Key Words:

Pancreatitis, MPD, Longitudinal Pancreatico-gastrostomy, LPG

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Introduction

Varied goal and outcomes have been observed in surgical intervention for treating acute pancreatitis.¹ On that point, treating pancreatitis with surgery is challenging but immensely essential. One of the most sophisticated organs of the whole abdomen, the pancreas was one of the last explored organs in the human body. Although surgical procedures have become safer and more efficient than ever, the overall post-operative morbidity after pancreatic surgery remains high and management of postoperative complications stagnates. Nowadays our surgeons focuses on the prevention of complications, optimizing the patient's general condition preoperatively and finding the appropriate timing for surgical treatment and this how we need to find out a better method of surgery that comprises of a drainage with stomach namely longitudinal Pancreatico-gastrostomy. Throughout the centuries, the surgical approach went from radical resections to minimal resections or only drainage of the gland in comparison to an adequate resection combined with drainage procedures. Today, the well-known and standardized procedures are considered as safe due to the high experience of operating surgeons, the centering of pancreatic surgery in specialized centers, and optimized post operative protocols.

We have come to understand the prime cause behind the severe pain in *Chronic Pancreatitis* and that is nothing but multiple areas of blockage of the pancreatic duct and obstruction to the flow of pancreatic secretions. Opening and decompressing the pancreatic duct through a large opening and directing the flow of pancreatic juice into the alimentary tract (we engaged the stomach) relieves the obstruction and leads to fruitful amount of pain relief. Traditional form of decompression is construction of a longitudinal pancreatico-jejunal anastomosis² or shortly called LPJ. Another alternative method we tried is a Longitudinal Pancreatico-gastrostomy or LPG.

LPG is definitely a less known procedure to combat the drainage. Anastomosis was made with the posterior wall of the stomach to establish continuous drainage of pancreatic juice to the alimentary system. Most of the patient got the desired benefit. This study was done to evaluate and analyze the effectiveness of the LPG procedures in relation to pain relief, hospital stay and complications.

Method

A prospective study was carried out at Shaheed Suhrawardy Medical College Hospital, Dhaka, Bangladesh

over a period of one and a half years starting from January 2018 to July 2019. A total of 36 patients were randomly allocated for LPG operation. Study tools included pain gradation, Serum lipase, blood sugar, USG of whole abdomen, Contrast CT Scan of Abdomen, MRCP. Parameters of this study were duration of surgery and hospital stay, assessment of post operative pain relief and complications. Patients above 12 years of age with diagnosis of chronic pancreatitis, with or without duct calculi with MPD diameter ≥ 7 mm and in whom pain could not be controlled by medical means were included in the study. The exclusion criteria were MPD diameter < 7 mm and pancreatic malignancy. For pain relief assessment patients were divided into three categories: complete (no pain), satisfactory (mild tolerable pain with normal daily activities) and unsatisfactory (moderate to severe pain requiring medication and hampered daily activities).

Same operative procedure (LPG) was followed for all. Pancreas was approached through the gastrocolic ligament after an upper midline incision over the anterior abdominal wall. MPD identified by finger palpation, syringing and USG guided. MPD opened by diathermy incision. Intra-ductal calculi were removed (if there) as far as possible from the entire length of the duct. Duct clearance achieved by palpation, saline irrigation and USG. Posterior surface of stomach was opened by diathermy incision adequate to the MPD opening. Single layer interrupted sutures by 2-0 vicryl were made to anastomosis. Single silicon drain tube placed in lesser sac. Nasogastric suction maintained 2 days, patients allowed oral diet from 3rd postoperative days. Patients discharged on 5th POD. Parameters of this study were duration of surgery and hospital stay, assessment of post-operative pain relief, glycemic control, weight gain and surgical complications. Octreotide or any other anti-secretory agent was never used post operatively. Follow up was done monthly for the first 3 months, then three monthly afterwards.

Results

36 patients in the study underwent LPG. There were 20 female patients and 16 male patients. Mean age in group was 22.94 ± 3.76 years. The commonest age range was between 15 to 35 years. Majority of the patients had unknown etiology with gall stone as second etiology (Table I).

The duration of illness lasted from 3 years to more than 6 years. The mean duration of illness was 4.27 ± 0.96 years. It was seen that LPG was easier to perform, took less time

than other conventional anastomosis methods and the duration of hospital stay was less (Table II). 26 (72.22%) patients were discharged on 5th post-operative day, and maximum hospital stay was 10 day with superficial wound infection. Lowest operative time was 42 minutes, and maximum operative time was 96 minutes. One patient suffered bleeding from anastomotic site in the second post-operative day. This was managed by medical management in 2 days. No intervention required. 3 (8.33%) patients suffered superficial wound infection, managed by antibiotics and regular dressing. Pain relief was much

better with more patients showing complete or satisfactory results (Table IV). 28 patients had no pain complaints in 6 months after surgery. 8 patients suffered short duration of moderate pain (less than preoperative period) in 6 months follow up. 22 (61.11%) patients had diabetes, 10 were on insulin and 12 patients were on oral hypoglycemic drug. On third month follow up, 6 patients were on insulin and 13 patients on oral hypoglycemic and 3 patients were well without any support. 32 patients (88.88%) improved their body weight by 3-8 kg in 3 month follow up. There were no mortality in our series.

Table I

Comprising the etiology the pancreatitis who underwent LPG

Aetiology	Number of Patient	Total number of Patient	Percentage
Idiopathic	21	36(n=36)	58.33 %
Gall stone	08		22.22 %
Alcohol consumption history	02		5.55 %
Tropical pancreatitis	05		13.88 %

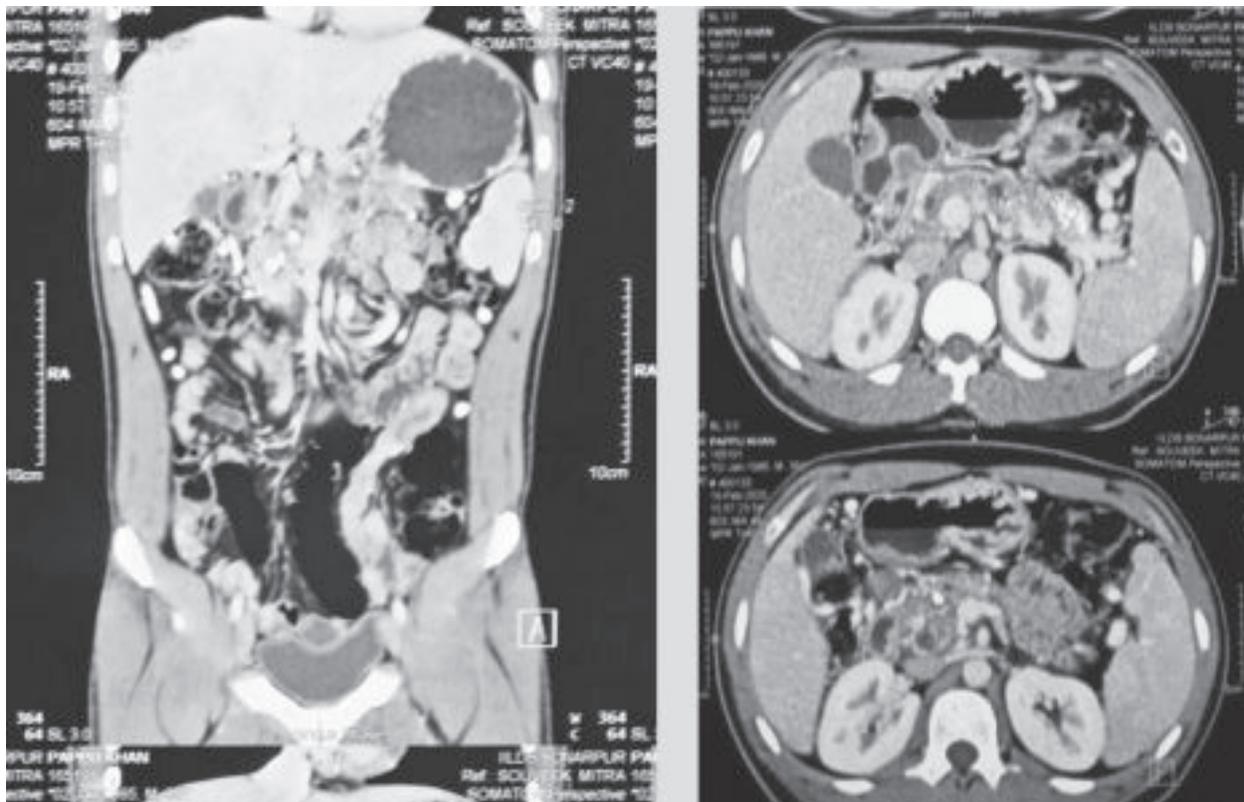


Figure: CT Scan images of Chronic calculus pancreatitis of patient who underwent LPG
(Image courtesy: **Dr. Rajib Dey Sarker**, Bangladesh 2019, rajibdeysarker@gmail.com)

Table I*Comprising the gross outcomes after LPG*

	Total Patient = 36 (n = 36)
Duration of Surgery	50.44 ± 3.79 minutes
Average hospital stay of each patient	5.94 ± 1.11 Days
Surgical Complications	04 (11.11 %), n = 36

Table II*Comprising the chronicles of Complication after LPG*

Name of Complication	Total Patient = 36 (n = 36)
Anastomotic site bleeding	01 (2.78 %)
Superficial wound infection	03 (8.33 %)
Prolonged ileus	0
Anastomotic Leakage	0
Abdominal distension	0
Intestinal fistula	0

Table IV*Comprising the gradation of pain relief after LPG*

Pain relief gradation	Total Patient = 36 (n = 36)
Complete	28 (77.77 %)
Satisfactory	8 (22.22 %)
Unsatisfactory	0

Discussion

Any surgery for chronic pancreatitis should be aimed at relieve pain and preserve exocrine and endocrine functions.^{3,4,5} Our experience reveals along with other surgeons worldwide that that LPG is better as a drainage procedure.^{2,3,6} LPG also has several advantages over the conventionally practiced LPJ. The stomach lies in close proximity to the pancreas, is thick walled and more vascular and hence ensures better anastomosis³. In LPG the presence of a long jejunal blind tube is eliminated². Other methods involves the fashioning of two anastomoses hence takes more time, has a higher probability of leakage and results in longer duration of hospital stay postoperatively. If stone remains in the main pancreatic duct after operation, it gets dissolved with the direct contact of gastric juice and orally administered citrate solution.³

In LPG, bleeding if present can be controlled endoscopically.² From the physiological point of view, the lack of enterokinase in the gastric mucosa prevent protease activation.^{2,7} Protease activation leads to acute pancreatitis and later duct stenosis. The alkalization in turn avoids marginal ulceration that is undoubtedly an extra mechanical benefit.

In our study majority of the patients had unknown etiology, with gall stone as second etiology, in sharp contrast to other studies^{4,8} which showed that chronic alcohol consumption as the main cause. One of the reasons for this difference of etiology may be due to the fact that there were more female patients than male patients in our study in comparison to other studies where majority of the patients were male.

As with other studies⁸, pain was the most common presentation in our series. In this study we found that LPG was easier to perform, took less time and the duration of hospital stay was less. Post-operative complications were less in the LPG group. Pain relief was much better with more patients showing complete or satisfactory results. There was no mortality in our series.

To conclude the discussion, we may say in brief that chronic pancreatitis is a painful distressing pathology which seeks better remedy options. And without any exaggeration it can be stated that LPG offers the best possible outcomes post operatively for these patient with intractable pain sufferings.

No conflict of interest

The author has declared no competing interest.

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