Original Article

A comparative study between longitudinal pancreaticojejunostomy versus lateral pancreaticogastrstomy: A drainage procedure

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Abstract

Introduction: Chronic pancreatitis (CP) is a chronic inflammation of pancreas that leads to progressive fibrosis of pancreatic parenchyma. Commonest indication of surgery in chronic pancreatitis is intractable pain. Choice of procedure depends upon the main pancreatic duct (MPD) morphology. Decompression is useful in dilated and obstructed ducts. Traditional form of decompression is construction of a pancreatico-jejunal anastomosis (LPJ). Another method to achieve ductal decompression is by a pancreaticogastrostomy (LPG) and this study will try to evaluate its effectiveness against pancreaticojejunostomy. **Aims and Objective:** To study Effectiveness of Longitudinal Pancreaticojejunostomy over Lateral Pancreaticogastrstomy. **Methodology:** This was a prospective study was done over a period of 2 years from Jan 2012 to Dec 2014 at a tertiary care hospital to compare the effectiveness of LPG and LPJ in relieving intractable abdominal pain in patients with chronic pancreatitis and their respective post-operative complications. Patients with diagnosis of Chronic Pancreatitis with or without duct calculi and MPD diameter ≥7 mm with intractable pain were included into the study. 60 patients were randomly allocated for LPJ and LPG operation by computer generated random method Statistical tests used are unpaired t-test,X^2-test, Standard error of difference between two Proportions (z-test) was calculated by Software Graph pad Prism. **Result:** Pain pattern in LPJ and LPG group was Complete Pain relief was found in 4 (25%), 12 (75%), Satisfactory Pain relief was found in 11 (44%), 14(56%) and Unsatisfactory Pain relief was found in 15(78.47%) and 4(21.05%) respectively. It is clear that the majority of the LPG group has complete or satisfactory pain relief while majority of the LPJ group has unsatisfactory pain relief. This observed difference was statistically highly significant (χ^2= 10, df=2.p <0.005).It is clear that mean duration of surgery was120±10min and 95±8min which was more in the LPJ as compared to LPG group which is statistically significant(t=10.69,df=58,p<0.0001), Average Hospital Stay was 7±2days and 9±3days which was significantly higher in LPG group (t=3.03,df=58, p<0.005) but the complication in both the group was comparable to each other 4(16%) and 2(8%) was not statistically significant (Z=0.8607, p>0.05) **Conclusion:** It seems that LPG is superior to LPJ in the sense of shorter duration of hospital stay, Pain relief post operatively.

Keywords: Longitudinal Pancreaticojejunostomy (LPJ), Lateral Pancreaticogastrstomy (LPG).

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INTRODUCTION

Chronic pancreatitis (CP) is a chronic inflammation of pancreas that leads to progressive fibrosis of pancreatic parenchyma. Commonest indication of surgery in chronic pancreatitis is intractable pain. Choice of procedure depends upon the main pancreatic duct (MPD) morphology. Decompression is useful in dilated and obstructed ducts. Traditional form of decompression is construction of a pancreatico-jejunal anastomosis (LPJ). Another method to achieve ductal decompression is by a pancreaticogastrostomy (LPG) and this study will try to evaluate its effectiveness against pancreaticojejunostomy. Chronic pancreatitis (CP) is a challenging and frustrating

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clinical problem. Surgical treatment of CP is directed mainly towards the relief of intractable pain. Majority of the patients have already undergone a long period of unrewarding conservative treatment and are most likely to be those with the worst prognosis. Operative treatment falls into three categories: resection of the gland, ductal drainage and denervation (celiac ganglionectomy). The choice of the procedure is based on the main pancreatic duct (MPD) morphology. Ductal drainage is useful in dilated and obstructed ducts while pancreatic resection is suitable for small duct disease. Though pancreatic resection, especially near total (80-95%) pancreastectomy, is most effective in relieving pain, it is associated with unacceptably high postoperative morbidity, mortality, exocrine and endocrine insufficiency[1] Overall, best results are reported with ductal drainage procedures performed on patients with dilated MPD.[2]

MATERIAL AND METHODS

This was a prospective study was done over a period of 2 years from Jan 2012 to Dec 2014 at a tertiary care hospital to compare the effectiveness of LPG and LPJ in relieving intractable abdominal pain in patients with chronic pancreatitis and their respective post-operative complications. Patients with diagnosis of Chronic Pancreatitis with or without duct calculi and MPD diameter ≥7 mm with intractable pain were included into the study. 60 patients were randomly allocated for LPJ and LPG operation by computer generated random method. The patients were prospectively analyzed for duration of surgery and hospital stay, operative/postoperative complications and assessment of postoperative pain relief. Pain relief was assessed as complete (no analgesic requirement), satisfactory (tolerable pain with normal daily activities) and unsatisfactory (hospitalization, narcotics or hampered daily activities). Statistical tests used are unpaired t-test, X^2-test, Standard error of difference between two Proportions (z-test) was calculated by Software Graph pad Prism.

RESULTS

Table 1: Distribution of the LPJ and LPG patients as per the post-operative PainRelief Pattern

Pain pattern	LPJ	LPG	Total
Complete	4 (25%)	12 (75%)	16 (100%)
Satisfactory	11 (44%)	14(56%)	25(100%)
Unsatisfactory	15(78.47%)	4(21.05%)	19(100%)
Total	**30 (50%)**	**30 (50%)**	**60 (100%)**

χ^2= 10, df=2.p <0.005.

From Table 1: Pain pattern in LPJ and LPG group was Complete Pain relief was found in 4 (25%), 12 (75%), Satisfactory Pain relief was found in 11 (44%), 14(56%) and Unsatisfactory Pain relief was found in 15(78.47%) and 4(21.05%) respectively. It is clear that the majority of the LPG group has complete or satisfactory pain relief while majority of the LPJ group has unsatisfactory pain relief. This observed difference was statistically highly significant (χ^2= 10, df=2.p <0.005).

Table 2: Distribution of the patients as per the various post-operative outcomes

Post-operative outcomes	LPJ	LPG	p-value
Duration of Surgery	120±10min	95±8min	t=10.69,df=58,p<0.0001
Average Hospital Stay	7±2days	9±3days	t=3.03,df=58,p<0.005
Complications	4(16%)	2(8%)	Z=0.8607, p>0.05

From the Table 2: It is clear that mean duration of surgery was120±10min and 95±8min which was more in the LPJ as compared to LPG group which is statistically significant(t=10.69,df=58,p<0.0001), Average Hospital Stay was 7±2 days and 9±3 days which was significantly higher in LPG group (t=3.03, df=58, p<0.005) but the complication in both the group was comparable to each other 4(16%) and 2(8%) was not statistically significant (Z=0.8607, p>0.05)

DISCUSSION

The gastric derivation shows several theoretical advantages. A favorable factor from the technical point of view is the presence of a thicker gastric than jejunum wall. The blood supply is excellent that favors better wound healing. On the other hand there seems to be an increases risk of postoperative gastrointestinal hemorrhage the site of origin being the cut pancreatic surface. This might be due to the larger gastric than the jejunal lumen. This factor does not favor spontaneous clotting; a perfect hemostasis, with stitches rather than electrocoagulation, is essential.[3] Bleeding, if present, can be controlled endoscopic ally. In pancreaticogastrotomy the presence of a long jejunual blind loop is eliminated. Because the preparation of a jejunual Roux loop is unnecessary the operative time is shortened. Finally with the easily controllable naso-gastric-pancreatic stent the juice is derived from the anastomotic site. From the physiological point of view the lack of enterokinase in the gastric mucosa prevent protease activation[4] and then acute pancreatitis and late duct stenosis; moreover, the alkalization avoids marginal ulceration. Pain and Knight.[5] noted a higher incidence of steatorrheainpancreaticogastrostomy for chronic pancreatitis and Johnson[6] demonstrated, many years after

operation, the presence of pancreatic enzymes secretion in response to hormonal stimulation. Statistical evaluation of the 24 hours gastric pH monitoring before and after operation in humans did not show alterations in gastric pH levels.[7] In most common problematic postoperative complication reported in prospective[3] or randomized[9] studies is the delayed gastric emptying: the rate is 22% in both trials (independently of pylorus-preserving or classic Whipple procedure or the type of pancreatic anastomosis). The cause is unknown and clinical findings do not correlate with the presence of a gastric filling defect during upper gastrointestinal radiographic series [10]. Some technical details must be underlined[3,11]: the pancreatic remnant should be freed from the splenic vein and artery to allow it to lie upright without strain against the gastric wall. This is not always easy in chronic pancreatitis. The gastrostomy through which the pancreas is inserted should be tight and secured with one layer of absorbable interrupted stitches. In order to prevent the Wirsung duct from closure during the anastomosis the main pancreatic duct should be stented with a catheter. Following these recommendations (together with the already stressed need of a careful hemostasis) the edge of the gland protrudes in the lumen by 1-2 cm. In conclusion, the analysis of the literature and the comparison between the results of our two institutions do not show a clear superiority of one or the other technique the pancreaticojejunostomy being the more popular generally it seems important to underline that it did not prove to be safer and more effective either. In our study we found that Pain pattern in LPJ and LPG group was Complete Pain relief was found in 4 (25%), 12 (75%), Satisfactory Pain relief was found in 11 (44%), 14(56%) and Unsatisfactory Pain relief was found in 15(78.47%) and 4 (21.05%) respectively. It is clear that the majority of the LPG group has complete or satisfactory pain relief while majority of the LPJ group has unsatisfactory pain relief. This observed difference was statistically highly significant (χ^2= 10, df=2.p <0.005). Findings are in similar Ebbehoj[12] *et al* to as regards to the side-to-side pancreatic gastrostomy for chronic pancreatitis the most numerous experiences reported in the literature comes from Denmark and Hungary. Treating 45 patients reported a high mortality rate (4.5%) and good results in the pain control at a median follow-up period of 3.8 years in only 56% of cases. Fair and poor results were achieved in 23% and 21% respectively.

CONCLUSION

It seems that LPG is superior to LPJ in the sense of shorter duration of hospital stay, Pain relief post operatively.

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