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Clinical Outcome after Pancreatico Jejunostomy in Patients with Pancreatic Calculi

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Abstract **Original Research Article**

Background: Pancreatic calculi or chronic calcific pancreatitis is not uncommon in our country. The overall diagnosis and definitive management is very critical and costly. Every year, many patients from different parts of the country is referred to BSMMU for the definitive treatment. Lateral Pancreatico jejunostomy is commonly practiced in our country. The long term as well as short term outcomes of Lateral Pancreatico jejunostomy is not evaluated in our country previously. The short term outcome of pancreatico jejunostomy was evaluated. Here I mentioned lateral pancreatico jejunostomy procedure as pancreatico jejunostomy. ***Objective:*** To assess the clinical outcome after pancreatico jejunostomy in patients with pancreatic calculi. ***Methods:*** This was a descriptive type of prospective study. A total of 26 patients were included in the study between July 2011 to December 2011 in a BSMMU and other private hospitals of Dhaka who underwent lateral pancreatico jejunostomy for pancreatic calculi. Data were collected using a structured questionnaire and presented in tables by number, percentage, mean±SD, median. ***Results:*** The mean age of the respondents was 36.74 years. About 64% of the patients were male and 35% are female. 70.27% of the patients were poor and 27.02% patients were of middle class socioeconomic condition and only 2 patient was found in rich socioeconomic condition group. 62% of the patients were smoker and 29% of the patients were non-smoker. 2.7% of the patients were alcoholic and 97.3% of the patients were non-alcoholic. Upper abdominal pain was present in 100% patients. Steatorrhoea was present in 8.6% of the patients. Jaundice predominated in 5.7% of the patients. 32.43% of the duration of symptoms were within 18-24 months, 27.02% of the were in 12-18 months group, 24.32% of the patients were in 6-12 months group and 16.21% of the patients were in less than 6 months group. Mean duration of symptoms was 13.56 months. 27% of the patients developed post-operative morbidity, death occurred in 0%. 5.4% of the patients suffered with respiratory infection post operatively. 7.1%of the patients suffered with prolonged ileus. 5.4% of the patients suffered with wound infection and 2.7% of the patients suffered with intra-abdominal abscess. 5.4% of the patients suffered from anastomotic leakage. Oral feeding was resumed on less than 5th post-operative day in about 78% of the patients. Median is 4th post-operative day. The median for postoperative hospital stay was 12 days. 75% cases duration of hospital stay was within 10-15 days. Mean was 13.37 days and the median was 12 days. ***Conclusions:*** Lateral Pancreatico jejunostomy has fewer complications than other procedures and is the most widely used procedure for pancreatic calculi in patients with chronic pancreatitis in our country. Good decompression rather than complete clearance of all stones is the most important factor for postoperative outcome. Lateral pancreatico jejunostomy provides excellent results with acceptable early morbidity and mortality after which abdominal pain is reduced in most of patients.

Keywords: Clinical Outcome, Pancreatico Jejunostomy, Pancreatic Calculi.

INTRODUCTION

Chronic pancreatitis is a chronic inflammation of the pancreas, which causes irreversible morphological changes and exocrine and endocrine insufficiency. Initially, pancreas becomes hard and enlarged in size due to fibrosis. Alcoholic abuse is the most common cause of the chronic pancreatitis. However familial and idiopathic groups are also well recognized. In certain parts of the tropical areas, tropical calcific pancreatitis (TCP) is common [1, 2]. Tropical calcific pancreatitis, an inflammatory condition of the pancreas, is usually associated with the pancreatic duct stones for which lateral pancreatico jejunostomy provides excellent results with acceptable early morbidity and mortality [1]. Stone formation in the pancreatic duct system is common in chronic pancreatitis. However, the mechanism of the stone formation has not been fully elucidated. In a canine experimental model of pancreatolithiasis, persistent stasis of protein-rich pancreatic juice secondary to partial obstruction in the pancreatic duct leads to the calculus formation [3-5]. Tympner demonstrated increases of viscosity, trypsin activity, lactoferrin and total protein in pure pancreatic juice obtained from patients with chronic pancreatitis [3, 6]. The most common cause for chronic pancreatitis in the UK is alcohol. Other causes of chronic pancreatitis are tropical, hereditary or idiopathic. The prevalence of calculi cannot be separated from the prevalence of the etiological factors, the most common being alcohol [7-12]. Recurrent attacks of the pain, weight loss and development of the secondary Diabetes Mellitus are few of the presentation of the chronic pancreatitis [13]. Patients with pancreatic stone have unclear histories and long courses. Although the incidence of the disease is low, treatment in late stages is very difficult and the outcome is poor. These patients often have such complications as pancreatic carcinoma and diabetes mellitus, and their quality of life and life-span are severely affected [14]. Abdominal pain, one of the principal symptoms of chronic pancreatitis, is believed to be caused by obstruction of the pancreatic duct with increasing intraductal pressure and parenchymal ischemia either by stones or stricture [14]. It is generally believed that pancreatic calculi visible on radiography usually occur in the late stages of chronic pancreatitis [12]. To better understand its clinical characteristics, B-ultrasonography CT, MRCP and ERCP are helpful, in diagnosis and treatment of patients with pancreatic stone in the early stage [1]. The treatment principle is to remove all stones, relieve obstruction, ensure pancreatic fluid drainage, improve exo- and endocrine function of the pancreas and relieve symptoms. With the development of endoscopic techniques and combined application of the small-diameter endoscope, laser lithotripsy, extracorporeal shock wave lithotripsy (ESWL) and balloon stenting, the treatment of pancreatic stone has a good effect. The developing orientation of treating pancreatic stone is through micro traumatic surgery, which is well developed in other countries [15]. Medical management of this condition includes, control of pain and diabetes and prescription of the pancreatic enzyme supplementation [1]. The standard intervention for chronic pancreatitis with obstructing duct stones is stone retrieval and duct drainage by endoscopic, extracorporeal shockwave lithotripsy or surgery, depending upon the size and location of stone(s) [16-18]. Different surgical procedures can be chosen according to the location of the stones in the pancreatic duct [19]. When the stones are mainly located in the head of pancreas, endoscopic drainage and removal of the stones is usually the first choice of treatment. If it fails, surgical procedure should be applied. If the stones are mainly located in the body of the pancreas, they can be treated with Pusetow- Gillesby procedure (pancreaticojejunostomy), which is often used in patients with significant dilation of the pancreatic duct. Resection of the tail of the pancreas or combined resection with splenectomy is done if the stones are located in the tail of the pancreas. Sometimes the stones are found in the head or the tail of the main duct of the pancreas. The Pusetow- Gillesby procedure or dividing of the neck of the pancreas while removing stones from both ends of the pancreatic duct is the choice of management [20]. Ducts larger than 8 mm in diameter can be successfully decompressed by an internal surgical-drainage procedure, such as a lateral pancreaticojejunostomy (the modified Peustow procedure, but smaller ducts are not amenable to internal surgical drainage. The pain of “large duct” chronic pancreatitis can be relieved, in the short term, by pancreaticojejunostomy in 80 to 90 percent of patients, but five years after operation only 50 to 60 percent of patients remain painfree. Thus, although the operation is associated with very low morbidity and mortality, its long-term effect on pain control may be limited [21]. Pain relief was more common in patients with diabetes or in those patients with a pancreatic duct disruption. Death was more common in patients with diabetes. Weight maintenance was more common if preoperatively severe ductal changes were not present [22].

MATERIALS AND METHODS

This was a descriptive type of prospective study. A total of 26 patients were included in the study between July 2011 to December 2011 in a BSMMU and other private hospitals of Dhaka who underwent lateral pancreatico jejunostomy for pancreatic calculi. A total of 26 cases of pancreatic calculi were done pancreatico jejunostomy in the study period.

Inclusion Criteria

1. Diagnosed cases of pancreatic calculi by available investigations.

Exclusion Criteria

2. Patients with pancreatic duct diameter less than 10mm diagnosed by ultrasonogram.
3. Patients with hyperparathyroidism.

A total of 26 patients undergoing pancreaticojejunostomy (lateral pancreatico jejunostomy) for pancreatic calculi during the study period and, meeting inclusion and exclusion criteria were included in the study. The pancreatic calculi were diagnosed by proper history taking, clinical examination and ultrasonogram of Hepatobiliary and Pancreatic System, plain X-ray abdomen and in some cases MRCP and ERCP Patients included in the study were prepared for lateral pancreatico jejunostomy by correction of malnutrition, anaemia, dehydration, hypoalbuminaemia and caogulopathy and diabetes. Preoperative gut preparation was done appropriately. As post-operative antibiotic we use Ceftriaxone 1gm 12 hourly and Metronidazole 500mg 8 hourly. Cholecystectomy done in patients with gallstone disease. Lateral pancreatico jejunostomy was performed by a team of four. Two senior surgeons who were also experienced in Lateral pancreatico jejunostomy and two trainee surgeons who were also being trained in pancreatic surgery were the team members. The patients were subjected to general anaesthesia with muscle relaxants as per protocol followed in the institute. Intravenous prophylactic antibiotics were given on induction of anesthesia. The position of all the patients was supine. The operating surgeon positioned on the right side of the patient. The full length of the pancreas was approached via the lesser sac after division of the gastrocolic omentum. The bulging pancreatic duct was seen through the anterior surface of the pancreas, aspiration with a syringe and needle was frequently used to identify the dilated pancreatic duct. The duct is then incised using diathermy and opened along its length into the head of the gland. Stone was removed and flush irrigation given with normal saline. A Roux loop was fashioned and brought up into the lesser sac through the transverse mesocolon to the right of the middle colic vessels. The blind end of the Roux loop is laid on the tail of the pancreas. A side-to side pancreas to small-bowel anastomosis is fashioned using a single-layer technique with absorbable sutures (e.g. Vicryl). Roux loop may be parachuted into position. Intestinal continuity is restored with an enteroenterostomy 40 cm below the transverse mesocolon. At the end of the procedure, a drain was kept in situ in the subhepatic space and abdomen was closed in layers. Parameters evaluated post operatively included severity of wound pain, reappearance of bowel sound, post-operative morbidity like fever, pneumonia, wound infection, prolonged ileus, intraabdominal abscess, anastomotic leakage, length of hospital stay etc. After surgery, a standardized analgesic regimen was followed which comprised inj. Pethidine 1mg/Kg body wt 12 hourly and SOS, Tramadol HCl 100 mg in suppository form from the same manufacturer for 7 days as per requirement of the patients. Oral feeding was resumed when ileus subsided. Intravenous antibiotics and proton pump inhibitors were continued until the patient could take orally. Patients are discharged when they were ambulatory and able to tolerate an oral diet.

Data Collection and statistical analysis

The data were collected by the investigator himself who was also a part of the surgical team in all the cases. All preoperative and postoperative complications were noted. Wound infection was defined as the presence of pus or sanguinopurulent discharge at the surgical site. Chest infections were diagnosed by clinic radiographic evidence of pulmonary changes with or without a fever of more than 39°C. The length of postoperative stay was defined as the number of days in the hospital after surgery, inclusive of the day of surgery. All data were presented as the percentage of patients or mean ± SD and median.

RESULTS

This study was conducted to find out the efficacy and safety of lateral pancreatico jejunostomy in cases of pancreatic calculi. The results of the 26 patients are tabulated below.

Table-1: Demographic details, clinical profile of pancreatic calculi patients (N=26)

Age of the patients (in yrs)	Number	Percentage
20 – 30	2	7.69
30 – 40	13	50.00
40 – 50	8	30.76
>50	3	11.58
Mean ± SD	36.74 ± 9.53	
Sex		
Male	35	35.00
Female	09	65.00
Status		
Poor	16	61.53
Middle class	9	34.61
Rich	1	3.84
Smoking		

Age of the patients (in yrs)	Number	Percentage
Yes	15	57.69
No	11	42.30
Alcoholism		
Yes	1	3.84
No	25	96.15
Gallstone Disease		
Present	08	31.00
Absent	18	69.00
Symptoms & Signs		
Abdomina Pain	26	100.00
Steatorrhoea	4	15.38
Jaundice	1	3.85

Table 1 shows that the highest proportion of the patients (n=26) are in the age group of 30-40 years (13 out of 26 number of patients). The percentage is 50%. The mean age of the patients is 36.74 ± 9.53. 3 patients were found in over 50 groups. No patient was found in below 20 groups. There was no statistically significant difference between the groups. Standard deviation is 9.53. More than 64% of the patients were male. Female was found in 35% cases. 61.53% of the patients were poor and 34.61% patients were of middle class socioeconomic condition. Only 1 patient (3.84%) was found in rich socioeconomic condition group. More than 57.69% of the patients were smoker. 42.30% of the patients (11 out of 26 patients) were nonsmoker. Revealed that 3.84% of the patients were alcoholic. 96.15% of the patients (25 out of 26 patients) were non-alcoholic. Shows that, 30.76% is associated with gallstone disease and 69.23% is not associated with gallstone disease. In our study upper abdominal pain was present in 100% patients. Steatorrhoea was present in 15.38% of the patients (4 patients out of 26).Jaundice predominated in 3.85% of the patients (1 patient out of 26).

Table 2: Distribution of the Patients by Duration of symptoms (N=26)

Duration of symptoms (in months)	Number	Percentage
<6	3	11.54
12-Jun	4	15.38
18-Dec	7	26.92
18-24	12	46.15
Total	26	100
Mean ± SD	13.56 ± 6.31	

SD: Standard deviation

Table 2 Shows that in 46.15% of the patients (12 patients out of 26), duration of symptoms were within 18-24 months. 26.92% of the patients (7 patients out of 26) were in 12-18 months group. 15.38% of the patients (4 patients out of 26) were in 6-12 months group and 11.54% of the patients (3 patients out of 26) were in less than 6 months group. Mean duration of symptoms was 13.56 months. Standard Deviation was 6.31.

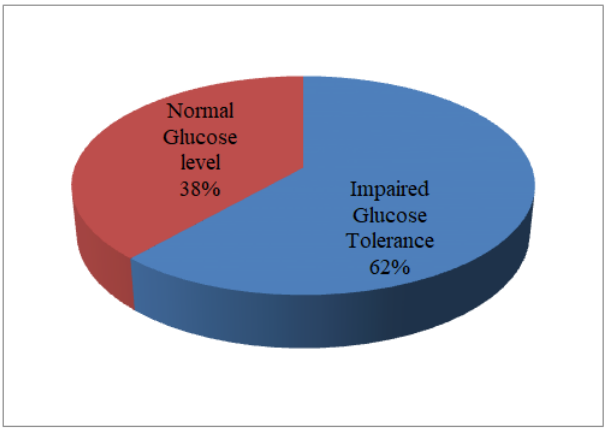

Figure 1: Distribution of the Patients by Glucose Tolerance.

Figure 1 Shows that, 61.53% cases (16 patients out of 26) shows Impaired Glucose Tolerance. 38.46% cases (10 patients out of 26) shows normal blood glucose level.

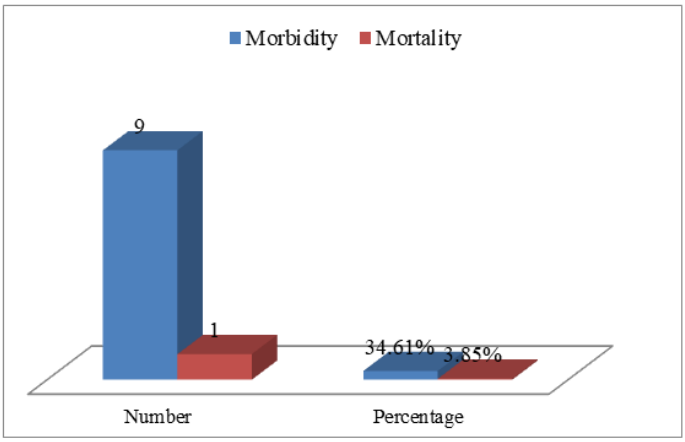

Figure 2: Distribution of the Patients by Morbidity and Mortality.

Figure 2 shows that 34.61% of the patients (9 patients out of 26) developed post-operative morbidity, death occurred in 3.85% (1 patient out of 26).

Table 3: Distribution of the Patients by types of Morbidity (N=9)

Morbidity	Number	Percentage
Wound Infection	3	11.54
Intra-abdominal abscess	1	3.84
Respiratory tract infection	2	7.69
Prolonged ileus	1	3.84
Anastomotic leakage	2	7.69

Table 3 Shows that 11.54% of the patients (3 patients out of 26) suffered with wound infection post operatively. 3.84%of the patients (1 patients out of 26) suffered with Intra-abdominal abscess. 7.69% of the patients (2 patients out of 26) suffered with respiratory tract infection and 3.84% of the patients (1 patient out of 26) suffered with prolonged ileus. 7.69% of the patients (2 patients out of 26) suffered from anastomotic leakage.

Table 4: Distribution of the Patients by resumal of oral feeding (N=26)

Day on which oral feeding was resumed post operatively	Number	Percentage
≤5	22	84.61
>5	4	15.38
Median	4	

Table 4 Shows that oral feeding was resumed on less than 5th post-operative day in about 84.61% of the patients (22 patients out of 26). 4 patients out of 26 (15.38%) were resumed oral feeding after 5 days of operation. Median is 4th post-operative day.

Table 5: Distribution of the Patients by Duration of Hospital Stay (N=26)

Duration of Hospital Stay	Number	Percentage
15-Oct	15	57.69
15-20	8	30.77
20-25	2	7.69
Mean±SD	13.37±2.98	
Median	12	

SD: Standard deviation

Table 5 Shows that 57.69% cases (15 patients out of 26) duration of hospital stay was within 10-15 days. 30.77% Patients (8 patients out of 26) stayed 15-20 days. 7.69% patients (2 patients out of 26) were

stayed 20-25 days. Mean was 13.37 days and the median was 12 days.

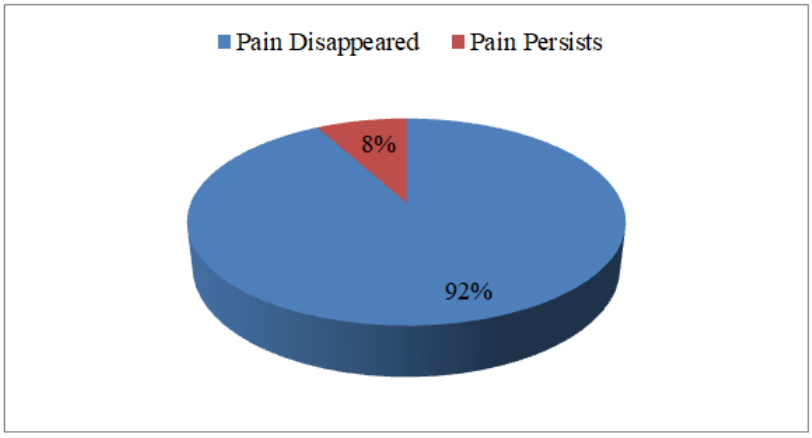

Figure 3: Effect of Abdominal Pain after Operation.

Figure 3 revealed that 92% (23 patients out of 25) are found abdominal pain free during follow up time. 8% (2 patients out of 25) found persisting abdominal pain after operation. All patients (25 survivors) were followed up after six months of the operation.

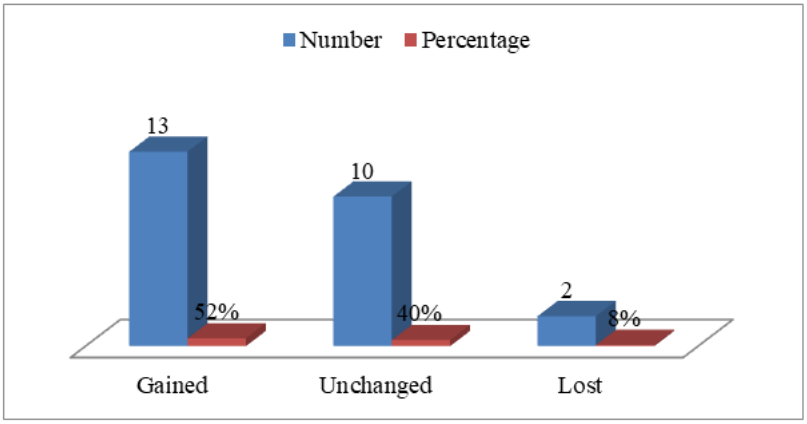

Figure 4: Postoperative Changes in Body Weight.

Figure 4 shows changes in body weights after operation. The follow-up was made in 25 survivors after 6 months of the operation. Gain of more than the preoperative body weight at the time of follow-up was obtained in 52%. Loss of more than preoperative body weight was noted in 8% of the patients. 40% of the patients remained unchanged.

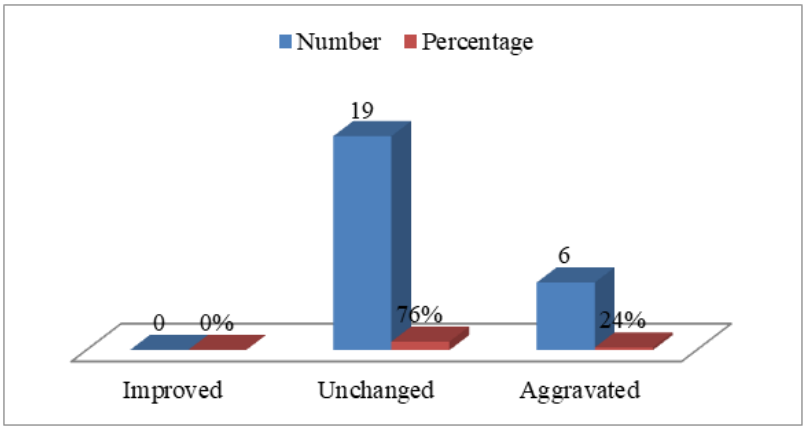

Figure 5: Postoperative Change of Glucose Tolerance.

Figure 5 shows Oral glucose tolerance test, which was performed in 26 patients before the operation and in 25 patients after operation. 1 patient died in postoperative complication on 14th postoperative day. It shows there is no improvement of glucose tolerance, unchanged result in 19 patients (76%) and worse result in 6 patients (24%) at the time of follow-up. All patients were followed up six months after operation.

DISCUSSION

This study was designed as a cross sectional study on 26 indoor patients of surgery department of BSMMU and other Private Hospitals of Dhaka with a view to assess the post-operative outcome following pancreatico jejunostomy in patients with pancreatic calculi in terms of post-surgical status, complication rate, prognosis and survival with the following results. This study suggests that the highest proportion of the patients (n=26) are in the age group of 30-40 years (13 out of 26 number of patients). The percentage is 50%. The mean age of the patients is 36.74. 3 patients were found in over 50 groups. No patient was found in below 20 groups. More than 64% of the patients were male. Female was found in 35% cases. 61.53% of the study population (16 patients out of 26) was poor and 34.61% patients were of middle class socioeconomic condition, whereas, only 1 patient (3.84%) was found in rich socioeconomic condition group. About 57.69% of the patients were smoker (Table 3) and 3.84% of the patients were alcoholic (Table 4). 30.76% (8 patients out of 26) is associated with gallstone disease. 69.23% (18 patients out of 26) is not associated with gallstone disease. In another study, between 1954 and 1980, 98 men and two women with chronic pancreatitis were treated for pain with ductal drainage. All patients had a history of chronic alcoholism [23]. The most common cause for pancreatic calculi in the UK is alcohol. Other causes of chronic pancreatitis are tropical, hereditary or idiopathic. The prevalence of calculi cannot be separated from the prevalence of the etiological factors, the most common being alcohol [7-12]. Sarles suggested that all forms of chronic pancreatitis are calculous disease irrespective of radiological studies showing presence or absence of calculi [8]. Between 30 and 40 percent of patients with chronic pancreatitis have no apparent underlying cause of their disease. They are considered to have “idiopathic” chronic pancreatitis. Patients with idiopathic chronic pancreatitis have been noted to cluster in a younger group (peak incidence, 15 to 30 years of age) and an older group (peak incidence, 50 to 70 years of age). Patients in the younger group usually present with severe pain and subsequently have calcifications, exocrine insufficiency, and diabetes, whereas those in the older group frequently do not have pain [21]. In another study, in 88 patients, 68 men and 20 women (3.4:1), aged from 12 to 76 years (median 45.44±6.72), 4 were children (4.55%), (3 girls aged 12, 13 and 15, and one 13-year-old boy) and 6 (6.82%) were over 70 years. Thirty-one patients with a history of alcohol intake were men, accounting for 45.59% of male patient. No patients had a family history of this disease. Chronic pancreatitis was revealed radiologically in all patients. Thirty-one patients with a history of alcohol intake were men, of whom 9 (10.23%) drank about 500 g daily for over 5 years. Three patients (3.41%) had acute pancreatitis, 19 (21.59%) had biliary tract diseases, and 2 (2.27%) had hyperparathyroidism. The 4 children had malnutrition, and 4 (4.55%) asymptomatic patients were discovered by physical examination [15]. In this study all patients (100%) were presented with upper abdominal pain, steatorrhoea was present in 15.38% (4 patients out of 26) and jaundice in 3.85% of the patients (1 patients out of 26) (Figure 2). 46.15% of the patients (12 patients out of 26), duration of symptoms were within 18-24 months. 26.92% of the patients (7 patients out of 26) were in 12-18 months group. 15.38% of the patients (4 patients out of 26) were in 6-12 months group and 11.54% of the patients (3 patients out of 26) were in less than 6 months group. Mean duration of symptoms was 13.56 months. Recurrent attacks of the pain, weight loss and development of the secondary Diabetes Mellitus are few of the presentation of the chronic pancreatitis [1]. In another study, the histories of the disease in the patients were various and typical. Intermittent epigastric pain was observed in 76 patients, dyspepsia in 14, type 2 diabetes mellitus in 10, nausea and vomiting in 7, jaundice in 6, and cachexia in 5, 4 of which were discovered by physical examination [15]. Pancreatic duct stone lacks specific anifestations in the early stage, so it is difficult to diagnose just by taking a history, physical examination and laboratory test. A patient should be suspected when he or she has chronic intermittent epigastric pain, anorexia, fatigue, nausea, vomiting, steatorrhoea and jaundice, especially with a history of chronic pancreatitis [15]. In this study, among the 26 of the study population, 34.61% of the patients (9 patients out of 26) developed post-operative morbidity, death occurred in 3.85% (1 patient out of 26) (Figure 3). 11.54% of the patients (3 patients out of 26) suffered with wound infection post operatively. 3.84% of the patients (1 patients out of 26) suffered with Intra-abdominal abscess. 7.69% of the patients (2 patients out of 26) suffered with respiratory tract infection and 3.84% of the patients (1 patient out of 26) suffered with prolonged ileus. 7.69% of the patients (2 patients out of 26) suffered from anastomotic leakage. In a research study from the Departments of General Surgery and Gastroenterology, Virginia Mason Medical Center, Seattle, Washington, it is found to be observed that operative mortality was zero. In 57 patients with a mean follow-up of 42 months, the 5- year outcome event for survival was 93% and the onset of diabetes was 32%. All new cases of diabetes occurred more than 1 year after resection. In 43 cases, 1 year postoperative with a mean follow-up of 55 months, all patients indicated significant pain relief and 76% were pain free. Pain

relief was more common in patients with diabetes or in those patients with a pancreatic duct disruption. Death was more common in patients with diabetes. Weight maintenance was more common if preoperatively severe ductal changes were not present. In another study, many patients indicated the pain for which they sought medical attention was improved or absent early in the recovery period. Five patients developed postoperative omplications (Table 2), for a morbidity rate of 5.9%. One required reoperation and adhesiolysis to relieve a jejunal obstruction. Nonoperative management was used for an episode of upper gastrointestinal hemorrhage, a pancreatic fistula, and a drain track infection. One patient required intubation for pulmonary edema secondary to congestive heart failure. No patient died in the 30 days immediately after operation [24]. From January 1960 to March 1985, a total of 145 patients with chronic pancreatitis with pancreatic calculus were admitted studied in a research where operative procedures included side-to-side pancreaticojejunostomy in 47 patients, 40%-80% caudal pancreatectomy in 28 patients, pancreaticoduodenectomy in 16 patients and operative death was encountered in five patients (3.7%) [25], and nine patients required reoperation. In six out of the nine patients, the first operation was performed only for the correction of complications such as pancreatic pseudocyst and pancreatic abscess. One of the two patients who had undergone side-to-side pancreaticojejunostomy as the first operative procedure developed severe jaundice 5.8 years after the first operation. Both endoscopic and surgical drainage are treatment options. Surgical drainage is accomplished by longitudinal pancreaticojejunostomy and has a rate of complications of 6 to 30%, a mortality rate of 0 to 2%, and a success rate in achieving long-term pain relief of 65 to 85% [2-9]. Endoscopic drainage involves sphincterotomy, dilation of strictures, and removal of stones and has a success rate of 30 to 100% [26]. Lateral pancreaticojejunostomy provided pain relief, had a low morbidity rate, and no early postoperative deaths, long-term outcome was poor based on the patient's health status, continued alcohol and narcotic use, employment status, subsequent hospitalization to treat recurrent pancreatitis or its complications, subsequent operations required for complications of chronic pancreatitis, and postoperative deaths related to comorbid medical conditions or complications of chronic pancreatitis [27]. In this study oral feeding was resumed on less than 5th post-operative day in about 84.61% of the patients (22 patients out of 26). 4 patients out of 26 (15.38%) were resumed oral feeding after 5 days of operation. Median is 4th post-operative day. 57.69% cases (15 patients out of 26) duration of hospital stay was within 10-15 days. 30.77% Patients (8 patients out of 26) stayed 15-20 days. 7.69% patients (2 patients out of 26) were stayed 20-25 days. Mean was 13.37 days and the median was 12 days. Using a prospective randomized study to assess postoperative morbidity and pancreatic function after pancreaticoduodenectomy with pancreaticojejunostomy and duct occlusion without pancreaticojejunostomy, it has been found that there were no differences in median blood loss, duration of operation, and hospital stay. No significant difference was noted in postoperative complications, mortality, and exocrine insufficiency. The incidence of diabetes mellitus was significantly higher in patients with duct occlusion. Duct occlusion without pancreaticojejunostomy does not reduce postoperative complications but significantly increases the risk of endocrine pancreatic insufficiency after duct occlusion [28]. In this study 92% (23 patients out of 25) are found abdominal pain free during follow up time. 8% (2 patient out of 25) found persisting abdominal pain after operation. All patients (25 survivors) were followed up after six months of the operation. In this study body weight Gain of more than the preoperative body weight at the time of follow-up was obtained in 52% (13 patients out of 25). Loss of more than preoperative body weight was noted in 8% (2 patients out of 25). 40% of the patients remained unchanged (10 patients out of 25). The follow-up was made in 25 survivors after 6 months of the operation. Oral glucose tolerance test was performed in 26 patients before the operation and in 25 patients after operation. 61.53% cases (16 patients out of 26) shows Impaired Glucose Tolerance. 38.46% cases (10 patients out of 26) show normal blood glucose level. 1 patient died in postoperative complication on 14th postoperative day. It shows there is no improvement of glucose tolerance, unchanged result in 19 patients (76%) and worse result in 6 patients (24%) at the time of follow-up. All patients were followed up six months after operation. When the health status of the patient was analyzed in greater detail, our results were less impressive. Overall health status was considered good in 15 (24%), fair in 19 (31%), and poor in 28 (45%) of 62 patients who were alive at the review. Furthermore, 22 patients were known to have died during the study period; 13 of these deaths were considered to be attributed directly to continued alcohol abuse, progression of chronic pancreatitis, or late complications of the operation. Of the 62 survivors, 26 (42%) continued to consume alcohol. Most of these patients fell into fair or poor health categories (21 patients); however, 5 of 15 patients classified as in good health also continued to consume alcohol. Several studies have noted that abstinence is associated with a better outcome after LPJ [24]. Another study in Canada suggests that Of 62 patients who were alive at follow-up, health status was characterized as good in 24%, fair in 31%, and poor in 45%. Alcohol abuse continued in 42% of patients, whereas narcotic use continued in 35%, insulin use continued in 23%, and pancreatic enzyme supplementation continued in 34% [24].

CONCLUSION

Chronic pancreatitis pain remains difficult to treat. An approach utilizing conservative medical

therapies is not appropriate. More invasive therapies reserved for failure of this conservative approach. Treatment options will continue to improve with new and novel therapies on the horizon. This study confirms the effectiveness of draining a dilated pancreatic duct to relieve pain in pancreatic calculi of chronic pancreatitis. The lateral pancreatico jejunostomy is the optimal method of achieving drainage. This procedure has fewer complications with acceptable early morbidity and mortality and is the most widely used procedure in patients with pancreatic calculi. Relief of symptoms found in satisfactory number of patients in short term follow up. This study shows that surgical treatment for chronic pancreatitis can bring relief of abdominal pain in most of the patients, but it cannot help improve impaired function of the pancreas. But it needs expertise and skilled personnel. By producing expert surgeons and skilled personnel we can treat the patients in a large scale. How many surgeons can perform lateral pancreatico jejunostomy successfully, is a question. Future studies should aimed answering this question. Further studies are needed to establish the long-term outcome of the procedure when done specifically for this condition.

RECOMMENDATIONS

Treatment of pancreatic calculi by lateral pancreatico jejunostomy is associated with less morbidity and fewer work days lost. As lateral pancreatico jejunostomy is a highly specialized operation, it should be practiced more frequently. Trainee surgeons should be allowed to assist more lateral pancreatico jejunostomy. More study should be conducted on lateral pancreatico jejunostomy with large number of subjects and a longer period of study time in Bangladesh.

Limitations of the study

1. This was a non-randomized clinical study.
2. The study was conducted on a small size of population.
3. Study period was short.

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