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PANCREATICO JEJUNOSTOMY OF POST-OPERATIVE COMPLICATIONS IN PATIENTS WITH PANCREATIC CALCULI



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**Abstract**

Background: Pancreatic calculi is a condition characterised by irreversible destruction and fibrosis of the exocrine parenchyma, leading to exocrine pancreatic insufficiency and progressive endocrine failure leading to diabetes. 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. Objective: To assess the pancreatico jejunostomy of post-operative complications 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: This study was conducted to find out the efficacy and safety of lateral pancreatico jejunostomy in cases of pancreatic calculi. Highest proportion of the patients (n=26) are in the age group of 30-40 years (13 out of 26 number of patients. The mean age of the patients is 36.74. More than 64% of the patients were male. Female was found in 35% cases. Revealed that 3.84% of the patients were alcoholic. 96.15% of the patients (25 out of 26 patients) were non alcoholic. 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. 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). 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). In our study 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. 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.

Introduction

Pancreatic calculi or chronic calcific pancreatitis is not uncommon in our country. 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 mortality¹. 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 countries³. Medical management of this condition includes, control of pain and diabetes and prescription of the pancreatic enzyme supplementation¹. 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%)⁴ 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 and underwent pancreaticoduodenectomy because of the suspicion of pancreatic cancer. In patients with chronic pancreatitis, pain is the predominant symptom and remains a therapeutic challenge. Pancreatic-duct obstruction with calculi is considered an important etiologic factor; therefore, ductal decompression is advocated for patients with pain and a markedly dilated duct. 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, 5-11} Endoscopic drainage involves sphincterotomy, dilation of strictures, and removal of stones and has a success rate of 30 to 100%. We conducted a randomized trial to compare endoscopic and surgical drainage with respect to the

outcomes of pain relief, physical and mental health, morbidity, mortality, length of hospital stay, number of procedures undergone, and changes in pancreatic function¹². This progression of exocrine or endocrine pancreatic insufficiency indicates that decompression of the dilated pancreatic duct, although an effective means for relief of pain in chronic pancreatitis, does not prevent continuing destruction of pancreatic glandular tissue¹³. 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 pancreatitis¹⁴.

Materials and Methods

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 pancreaticojejunostomy for pancreatic calculi. Diagnosed cases of pancreatic calculi by available investigations in inclusion criteria. Exclusion criteria of the subjects of patients with pancreatic duct diameter less than 10mm diagnosed by ultrasonogram and Patients with hyperparathyroidism.

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 pancreaticojejunostomy by correction of malnutrition, anaemia, dehydration, hypoalbuminaemia and caagulopathy 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 pancreaticojejunostomy was performed by a team of four. Two senior surgeons who were also experienced in Lateral pancreaticojejunostomy 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 anaesthesia. The position of all the patients was supine. The operating surgeon positioned on the right side of the patient. 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 clinicoradiographic 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 \pm SD and median.

Results

This study was conducted to find out the efficacy and safety of lateral pancreaticojejunostomy in cases of pancreatic calculi. Highest proportion of the patients (n=26) are in the age group of 30-40 years (13 out of 26 number of patients). The mean age of the patients is 36.74. More than 64% of the patients were male. Female was found in 35% cases. Revealed that 3.84% of the patients were alcoholic. 96.15% of the patients (25 out of 26 patients) were non alcoholic. 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. 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). 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). In our study 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-1: Clinical status and post-operative complications of In Patients with Pancreatic Calculi (N=26)

| Alcoholism | Number | Percentage |
|-----------------------------|--------|------------|
| Yes | 1 | 3.84 |
| No | 25 | 96.15 |
| Symptoms & Signs | | |
| Abdomina pain | 26 | 100 |
| Steator rhoea | 4 | 15.38 |
| Jaundice | 1 | 3.85 |
| Morbidity and Mortality | | |
| Morbidity | 9 | 34.61 |
| Mortality | 1 | 3.85 |
| Types of Morbidity | | |
| 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 |

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 pancreaticojejunostomy 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 mean age of the patients is 36.74. 3 patients were found in over 50 groups. More than 64% of the patients were male. Female was found in 35% cases. 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 alcoholism¹⁵. 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^{10,11,16-19}.

Sarles suggested that all forms of chronic pancreatitis are calculous disease irrespective of radiological studies showing presence or absence of calculi¹¹. 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 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.²⁰ In another study, in 88 patients, 68 men and 20 women (3.4:1), aged from 12 to 76 years (median 45.44 \pm 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 examination³. 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 examination³. 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, steatorrhea and jaundice, especially with a history of chronic pancreatitis³. 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. 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 pancreatitis¹⁴.

Conclusion

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 pancreaticojejunostomy 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.

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