Section: Surgical Gastroenterology

Original Research Article

CLINICAL STUDY OF THE LONG TERM QUALITY OF LIFE AFTER SURGERY IN PATIENTS WITH CHRONIC PANCREATITIS

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Received *: 17/02/2025*
Received in revised form *: 11/04/2025*
Accepted *: 27/04/2025*

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DOI: 10.70034/ijmedph.2025.2.155

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2025; 15 (2); 859-863

ABSTRACT

Background: Medical treatment and surgery remain the mainstay of the treatment of chronic pancreatitis. Also following surgery, it has been observed that in quiet a few cases the pain either persists or recurs after some duration of time. Present study was aimed to study of the long term quality of life after surgery in patients with chronic pancreatitis.

Materials and Methods: Present study was Single center, prospective analysis of retrospective data of patients who underwent surgery for chronic pancreatitis. Quality of life assessment was done using SF 36 questionnaire.

Results: Among 158 patients of chronic pancreatitis, male preponderance was noted. The most common procedure performed was lateral pancreaticojejunostomy (LPJ) (63.2%) followed by Frey's procedure in 33.5% patients and 3.1% patients underwent Whipple's procedure. The post-operative complication rate was 3.7% (6/158) [Clavien-Dindo grade IIIb-2, grade II-1, grade I- 3]. The median follow-up duration was 46 months (range 6 months to 120 months. There was statistically significant reduction in the median post-operative Izbicki score when compared to median pre-operative Izbicki score (41.25 vs 63.75, $p<0.001$) There was reduction in all components of Izbicki pain score. There was significant reduction in Izbicki score (preoperative Vs. postoperative) among the patients underwent LPJ and Frey's procedure too. Majority of the patients had improved Quality of life score in every domain of assessment on post-operative follow up of the patients. Most of the patients had improvement in physical functioning and pain and subsequently their social relationships improved significantly.

Conclusion: Lateral pancreaticojejunostomy (LPJ) and Frey's procedure significantly reduce the pain. These procedures are associated with improved quality of life.

Keywords: Chronic pancreatitis, lateral pancreaticojejunostomy (LPJ), Frey's procedure, quality of life.

INTRODUCTION

Chronic pancreatitis (CP) is a progressive inflammatory disorder characterized by irreversible destruction of pancreatic parenchyma which is associated with severe chronic pain and permanent loss of exocrine and endocrine function.[1] Chronic Pancreatitis overall has an adverse impact on all aspects of quality of life including physical, mental, social and economic.[2]

Alcohol remains the most common risk factor of chronic pancreatitis 60-70%.[3,4] The other causative factors are idiopathic (20-25%) and rare causes like autoimmune, genetic factors, hyperparathyroidism, trauma, hyper-triglyceridemia. In our country, chronic pancreatitis is more prevalent in in southern

India with 114-200 cases per 1 lakh population.5 Idiopathic pancreatitis is the most common cause among Indians as opposed to alcohol in Western population.[5,6]

Medical treatment and surgery remain the mainstay of the treatment of chronic pancreatitis. The common indications for surgery in patients of chronic pancreatitis are patients with dilated pancreatic duct with stone and or with Inflammatory pancreatic head mass, patients with intractable pain1 and complications of acute pancreatitis such as pancreatic pseudocysts.[7] Also following surgery, it has been observed that in quiet a few cases the pain either persists or recurs after some duration of time. Present study was aimed to study of the long term quality of life after surgery in patients with chronic pancreatitis.

MATERIALS AND METHODS

Present study was Single center, prospective analysis of retrospective data, conducted in department of Surgical Gastroenterology, Nizam's institute of medical sciences, Hyderabad, India. Study duration was from January 2011 to December 2019. Study was approved by institutional ethical committee.

Inclusion criteria

All patients who underwent surgery for chronic pancreatitis. This included the following group of patients:

- With inflammatory mass in the head of the pancreas
- Severe recurrent pain attacks.
- History of pain attacks for at least 1 year,
- Chronic pancreatitis with exocrine or endocrine insufficiency

Exclusion criteria

- Patients lost to follow up postoperatively
- Patients detected to have malignant pancreatic tumor
- Patients having coexisting malignancy of other organs.
- Patients managed conservatively.
- Patients who underwent surgery for complications related CP.

Data was collected from patient's records who underwent surgery for chronic pancreatitis from 2011 to 2019. The data included demographics of age, sex, comorbidities, diagnosis, exocrine and endocrine insufficiency, complications, operative details, pre-operative and post- operative follow up Izbicki pain score. The etiology in patients with no known cause of chronic pancreatitis even after the complete metabolic work up (hypertriglyceridemia or hypercalcemia), imaging (CECT, MRCP, ERCP, EUS) were considered to be idiopathic.

Overall morbidity according to the Clavien-Dindo (CD) classification. In-hospital, 30-day and 90-day mortality was recorded. Quality of life was assessed during follow up using Rand SF 36 questionnaire. All the operated patients in the study were followed up in OPD or telephonically if failed to come to follow up visits in OPD for any reason.

Any New onset of symptoms of Diabetes mellitus following surgery were checked (history/FBS/PPBS). All patients who came for follow up were given a health-related questionnaire (Rand SF 36 questionnaire). Pain assessment was done based on Izbicki pain score. Assessment was done preoperatively and post operatively during follow up.

Endocrine function assessment was done by assessing fasting blood sugar and reduction in dose of oral hypoglycemic agents (OHA) or insulin requirement. Quality of life assessment was done using SF 36 questionnaire.

Data was collected and compiled using Microsoft Excel, analysed using SPSS 23.0 version. Frequency, percentage, means and standard deviations (SD) was calculated for the continuous variables, while ratios and proportions were calculated for the categorical variables. Difference of proportions between qualitative variables were tested using chi- square test or Fisher exact test as applicable. P value less than 0.5 was considered as statistically significant.

RESULTS

A total of 158 patients of chronic pancreatitis underwent surgery at our center from 2011 to 2019. There was male preponderance with 60.1% males (95/158) and 39.8% females (63/158). The median age group was 34 years with mean of 33.1 years (range 8-70 yrs). The most common etiology of chronic pancreatitis was idiopathic 58.2% (92/158) followed by alcohol 39.2% (62/158) and four patients had biliary etiology. Pain abdomen was the most common presenting symptom which was present in 100% of our patients. The median duration of symptoms was 12 months (range 4 months to 120 months). Pre-operative exocrine insufficiency and endocrine insufficiency was present in 21.5% (34/158) patients and 20.8% (33/158) patients respectively.

Table 1: General characteristics.

Characteristics	No. of subjects	Percentage
Mean Age (in years)	33.2	
Gender		
Male	95	60.1 %
Female	63	39.8 %
Etiology		
Idiopathic	92	58.2 %
Alcohol	62	39.2 %

Biliary	4	
Hormonal status		
Pre-operative exocrine insufficiency	34	21.5%
Pre-operative endocrine insufficiency	33	20.8%

On CECT atrophic pancreas with dilated pancreatic duct (mean 9.9mm) and intraductal calcifications were the most common imaging findings. Intraparenchymal calcification was present in 21.5% of our patients. Thirty patients (18.9%) had bulky head of pancreas. Twenty-eight (17.7%) patients had associated pseudocysts.

Table 2: CECT findings

Imaging	No. of subjects	Percentage
bulky head of pancreas	30	18.9 %
Intraparenchymal calcification		21.5%
Pseudocysts	28	17.7 %

The most common procedure performed was lateral pancreaticojejunostomy (LPJ) (63.2%) followed by Frey's procedure in 33.5% patients and 3.1% patients underwent Whipple's procedure. All the procedures were done by open method. Twenty-three (14.5%) patients presented with symptomatic distal CBD stricture required biliary drainage in the form of hepaticojejunostomy in addition to the primary procedure. Amongst them, 12 patients had preoperative cholangitis which was managed with either endoscopic CBD stenting or percutaneous transhepatic biliary drainage (PTBD). Twenty patients had associated pseudocysts with four patients requiring cysto-jejunostomy. There were four patients of CP with symptomatic gastric outlet obstruction (GOO) who underwent gastrojejunostomy along with the primary procedure. The mean duration of hospital stay was 7.17 days.

Table 3: Operative details

Operative details	No. of subjects	Percentage
lateral pancreaticojejunostomy (LPJ)		63.2 %
Frey's procedure		33.5 %
Whipple's procedure		3.1 %
hepaticojejunostomy in addition to the primary procedure	23	14.5 %
gastrojejunostomy along with the primary procedure	4	
cysto-jejunostomy	4	

The post-operative complication rate was 3.7% (6/158) [Clavien-Dindo grade IIIb-2, grade II-1, grade I- 3]. Two patients had early post-operative hemorrhage with intra luminal bleeding with significant decrease in hemoglobin and hemodynamic instability, requiring emergency re exploration and ligation of gastro duodenal artery (GDA). One patient grade 2 post-operative pancreatic fistula requiring pigtail insertion. All patients recovered well. There was no post-operative mortality in our study.

Table 4: post-operative complication

Post-operative complication (Clavien-Dindo grade)	No. of subjects	Percentage
Grade IIIb	2	
Grade II	1	
Grade I	3	

The median follow-up duration was 46 months (range 6 months to 120 months). Pain was quantified preoperatively and during follow up using the Izbicki pain score while the quality of life was recorded using Rand SF 36 questionnaire. There was statistically significant reduction in the median post-operative Izbicki score when compared to median pre-operative Izbicki score (41.25 vs 63.75, $p<0.001$) There was reduction in all components of Izbicki pain score. There was significant reduction in Izbicki score (preoperative Vs. postoperative) among the patients underwent LPJ and Frey's procedure too.

Table 5: pre-operative and post-operative Izbicki score

Surgery (n)	Pre op Izbicki score median, (IQR)	Post op Izbicki score median, (IQR)	P value
LPJ (53)	42.5 (38.7-46.2)	0.0 (0.0-5.6)	<0.001
Frey's (32)	40 (39.0-46.2)	0.0 (0.0-0.0)	<0.001

Majority of the patients had improved Quality of life score in every domain of assessment on post-operative follow up of the patients. Most of the patients had improvement in physical functioning and pain and subsequently their social relationships improved significantly.

Table 6: SF 36 scores of the health domains post-surgery in patients with CP.

Sf 36 health domain	Surgery(n)	Mean rank	Mode	P value
PF (Physical functioning)	Frey's (26) LPJ (50)	39.21 38.32	75 75	0.818
PH (Physical health)	Frey's (26) LPJ (50)	42.50 36.42	75 75	0.165
EP (emotion and physical functioning)	Frey's (26) LPJ (50)	40.52 37.42	66.66 66.66	0.530
EF(Energy and fatigue)	Frey's (26) LPJ (50)	37.62 38.96	75 75	0.789
EW (emotional well-being)	Frey's (26) LPJ (50)	37.25 39.15	75 76	0.709
SF (social functioning)	Frey's (26) LPJ (50)	39.7 37.8	100 100	0.517
PAIN	Frey's (26) LPJ (50)	41.8 37.4	100 100	0.263
GH (general health)	Frey's (26) LPJ (50)	39.42 38.02	65 65	0.784

There were nine (10.1%) mortalities on long term follow up. Four deaths due to medical reasons, three patients expired due to non-abstinence of alcohol intake post-surgery leading to acute liver failure. One patient expired secondary to severe cholangitis secondary to CBD stricture and one patient committed suicide, reasons not related chronic pancreatitis.

There was no remission of endocrine or exocrine insufficiency post-surgery. Three patients developed de novo endocrine insufficiency 3 years, 4 years and 5 years following primary surgery. Two patients had worsening of diabetes with uncontrolled blood sugar levels requiring escalation in the insulin dosage. Two patients each, post LPJ and Frey's procedure showed no improvement in pain score with poor quality of life due to intractable pain secondary to recurrent acute pancreatitis post-surgery requiring hospital admissions leading to poor quality of life and loss of work. One patient required re exploration and adhesiolysis three years after the primary procedure due to adhesive intestinal obstruction.

DISCUSSION

Chronic pancreatitis is a progressive inflammatory disease characterized by debilitating pain and pancreatic insufficiency leading to malabsorption, nutritional deficiencies and diabetes.[7,8] This leads to significant impairment in the quality of life, loss of working days with loss of income and decreased life expectancy. Current therapeutic options are aimed at alleviation of pain and improvement in quality of life. Pain is the most common symptom for which patients usually seek medical help. It is reported to be present in about 90% of the patients.[7,9] Almost all the patients in the present study presented with pain. Apart from pain patients also had symptoms pertaining to exocrine and endocrine insufficiency. While the former is manifested in form of malabsorption and passage of fatty stools which float, the later manifests as diabetes. The incidence of exocrine and endocrine insufficiency in our present study was 21.5% and 20.8%.

Persistence of pain also results in loss of appetite and this along with malabsorption leads to inability to gain weight. Persistence of pain leads to deterioration of physical functioning and mental health as well as social relationships and overall general health which results in poor quality of life. Further, prolonged absenteeism from work, prolonged stay at home and loss of working hours, impacts the socio-economic status of the patient as well.

Though until recently, all patients were given a conservative trial with medical management, with surgery being resorted to as a last resort if there was no response to medical management. However, of late a consensus has evolved recommending early surgery in order to prevent further deterioration of pancreatic function and also to ensure better outcome.[10] Abdominal pain as a parameter for surgical success in post-operative follow up needs to be taken with great precaution as many of the patients tend to develop alcohol and opioid dependence over the course of time in the natural history of disease. Therefore, it is required that these patients should discontinue alcohol consumption and narcotic use for better assessment of their pain score post operatively. The present study included 89 subjects who were followed up. Majority of the patients belonged to the age group of 20–40 years. Various studies showed pain relief between 36.5 and 93 % post LPJ. Isaji in a review article reported the pain relief between 66 and 91 % after LPJ.[11] In comparison, our study had statistically significant reduction in pain in >95% of the patients as measured by Izbicki score in population who underwent LPJ procedure during a median follow up period of 48 months. Two patients showed no improvement in pain score with poor quality of life due to intractable pain secondary to recurrent acute pancreatitis post-surgery requiring hospital admissions leading to poor quality of life and loss of work. Two patients had Clavein Dindo grade I complication rest there were no post-operative morbidity or mortality in the LPJ group.

Partington-Rochelle,[12,13] longitudinal latero-lateral pancreatojejunostomy (modified Puestow-Gillesby procedure) is a very safe drainage procedure for patient with dilated pancreatic duct (≥8 mm) resulting

in a satisfactory pain relief in patients without involvement of the pancreatic head. The procedure is associated to rapid symptom improvement, low incidence of exocrine or endocrine pancreatic insufficiency, acceptable long-term pain control, low morbidity, and low mortality. Treatment failure occurs when pancreatic head is affected, short involvement of the main pancreatic duct or irreversible tissue damage.[13]

Lateral pancreaticojejunostomy has limited applicability in patients in main duct dilatation who also have an inflammatory head mass (> 4 cm).[3] Multiple studies showed that isolated drainage procedures in patients with inflammatory changes of the head, body or tail result in poor long-term pain control and progression to exocrine insufficiency.[14,15]

In our study, 53/158 cases underwent Frey' procedure. Follow up data was available for Thirty-five patients. Majority of patients had improved quality of life with improved Izbicki score. Three patients had no improvement in pain and quality of life after Frey's procedure. One of them had adhesive intestinal obstruction requiring re exploration and adhesiolysis. Two other patients had recurrent episodes of acute pancreatitis and steatorrhea leading to poor quality of life. Overall complication rate was 3.7% in our study (6/158) patients.

When patient with chronic pancreatitis present with mass in the head of the pancreas and is not possible to rule out patients with pancreatic neoplasm, pancreatoduodenectomy is the procedure of choice. In our study, 5 patients with pancreatic head mass with high suspicion of malignancy underwent Whipple's procedure. Post-operative histopathology was negative for malignancy. One patient loss to follow up, while all others had significant reduction in pain score and improved quality of life.

There was no remission of exocrine or endocrine insufficiency post-surgery in our study. All patients with endocrine insufficiency were on fixed dose insulin preparation before and after the surgery. Diabetes and exocrine insufficiency-related symptoms (diarrhoea and steatorrhea) impact poorly on quality of life and the patients should receive pancreatic enzyme substitution.[16-18]

CONCLUSION

The commonly performed procedures in chronic pancreatitis, namely, lateral pancreaticojejunostomy (LPJ) and Frey's procedure significantly reduce the pain. These procedures are associated with improved quality of life. Patients who underwent LPJ and Frey's procedure had similar improvement in quality of life.

REFERENCES

1. Gestic MA, Callejas-Neto F, Chaim EA, Utrini MP, Cazzo E, Pareja JC. Surgical treatment of chronic pancreatitis using Frey's procedure: A Brazilian 16-year single-centre experience. HPB. 2011;13(4):263–71.
2. Negi S, Singh A, Chaudhary A. Pain relief after Frey's procedure for chronic pancreatitis. Br J Surg 2010 Jul [cited 2020 Apr 13];97(7):1087–95.
3. Olsen RS. The incidence and clinical relevance of chronic inflammation in the pancreas in autopsy material. Acta Pathol Microbiol Scand - Sect A Pathol. 1978;86 A(5):361–5.
4. Sarles H, Cros RC, Bidart JM. A multicenter inquiry into the etiology of pancreatic diseases. Digestion 1979 [cited 2020 Apr 13];19(2):110–25.
5. Balakrishnan V, Unnikrishnan AG, Thomas V, Choudhuri G, Veeraraju P, Singh SP, et al. Chronic pancreatitis. A prospective nationwide study of 1,086 subjects from India. J Pancreas. 2008;9(5):593–600.
6. Amudhan A, Balachandar TG, Kannan DG, Rajarathinam G, Vimalraj V, Rajendran S, et al. Factors affecting outcome after Frey procedure for chronic pancreatitis. HPB. 2008;10(6):477–82.
7. Lankisch PG, Löhr-Happe A, Otto J, Creutzfeldt W. Natural course in chronic pancreatitis: Pain, exocrine and endocrine pancreatic insufficiency and prognosis of the disease. Digestion 1993 [cited 2020 Apr 13];54(3):148–55.
8. Mayerle J, Lerch MM. Is it necessary to distinguish between alcoholic and nonalcoholic chronic pancreatitis? J Gastroenterol. 2007 Jan 19 [cited 2020 Jul 26];42(SUPPL.17):127–30.
9. Ammann R, Akovbiantz A, … FL-, 1984 undefined. Course and outcome of chronic pancreatitis. Longitudinal study of a mixed medical-surgical series of 245 patients. europepmc.org. [cited 2020 Jul 26];
10. Ahmed Ali U, Pahlplatz JM, Nealon WH, van Goor H, Gooszen HG, Boermeester MA. Endoscopic or surgical intervention for painful obstructive chronic pancreatitis. Vol. 2015, Cochrane Database of Systematic Reviews. John Wiley and Sons Ltd; 2015.
11. Gullo L, Ventrucci M, Tomassetti P, Migliori M, Pezzilli R. Fecal elastase 1 determination in chronic pancreatitis. Dig Dis Sci 1999 Jan [cited 2020 Apr 13];44(1):210–3.
12. Pasricha PJ. Unraveling the mystery of pain in chronic pancreatitis Vol. 9, Nature Reviews Gastroenterology and Hepatology. 2012 [cited 2020 Apr 13]. p. 140–51.
13. Gupte AR, Forsmark CE. Chronic pancreatitis Vol. 30, Current Opinion in Gastroenterology. Lippincott Williams and Wilkins; 2014 [cited 2020 Apr 13]. p. 500–5.
14. Hart PA, Bellin MD, Andersen DK, Bradley D, Cruz-Monserrate Z, Forsmark CE, et al. Type 3c (pancreatogenic) diabetes mellitus secondary to chronic pancreatitis and pancreatic cancer. Vol. 1, The Lancet Gastroenterology and Hepatology. Elsevier Ltd; 2016. p. 226–37.
15. Ewald N, Kaufmann C, Raspe A, Kloer HU, Bretzel RG, Hardt PD. Prevalence of diabetes mellitus secondary to pancreatic diseases (type 3c). Diabetes Metab Res Rev. 2012 May [cited 2020 Apr 13];28(4):338–42.
16. Brunicardi FC, Chaiken RL, Ryan AS, Seymour NE, Hoffmann JA, Lebovitz HE, et al. Pancreatic polypeptide administration improves abnormal glucose metabolism in patients with chronic pancreatitis. J Clin Endocrinol Metab. 1996 Oct;81(10):3566–72.
17. Hart PA, Conwell DL. Diagnosis of Exocrine Pancreatic Insufficiency. Curr Treat Options Gastroenterol. 2015 Sep [cited 2020 Apr 13];13(3):347–53.
18. Frulloni L, Falconi M, Gabbrielli A, Gaia E, Graziani R, Pezzilli R, et al. Italian consensus guidelines for chronic pancreatitis. Dig Liver Dis. 2010 Nov [cited 2020 Apr 13];42(SUPPL. 6):S381-406.