

Chapter 26

**Surgical management of tropical calcific
pancreatitis – observations from Orissa**

Mihir K Mohapatra

Summary

Surgery for tropical chronic pancreatitis (TCP) is essentially aimed at alleviating pain and improving the quality of life. At the same time, it must be done with a view to preserve the exocrine and endocrine function as well as to prevent local pancreatitis-related complications. This article reviews the experience with surgery as a management tool for TCP from Orissa, in the eastern part of India, and also puts forth a few key issues that future research must address.

Introduction

Chronic pancreatitis (CP) is a continuing inflammatory disease characterized by irreversible morphological changes that cause pain with or without permanent loss of function. Tropical chronic pancreatitis (TCP) is of unknown aetiology and is confined to tropical regions. It is calcific in nature and presents with pain (tropical calcific pancreatitis) or diabetes (fibrocalculous pancreatic diabetes, FCPD). Since the cause and natural course of this disease are unclear; the optimization of therapy has remained difficult. For the time being, as for chronic pancreatitis in general, management is aimed at either alleviating pain or other organ complications.

Any treatment planned should aim to remedy the cause, arrest the progression of the disease and relieve the symptoms. Management policy should take care to diagnose it early, establish the cause and plan therapy; which in turn should cease its progression and relieve the symptoms.

Non-operative treatment options such as endoscopic intervention, ESWL or both should be considered side by side with surgery. Apart from pain; involvement of other adjacent organs like distal bile duct and duodenal stenosis, segmental portal hypertension, pseudocyst and internal pancreatic fistula, unresponsive malnutrition and inability to exclude cancer; constitute indications for surgery.

The goals of surgery should be: pain relief, control of pancreatitis-associated complications of adjacent organs and preservation of exocrine and endocrine pancreatic function, as well as the improvement of quality of life

Evaluation of any surgical procedure should entail preoperative assessment of; exocrine and endocrine pancreatic functions, proper estimation of pain and quality of life. Indications of surgery in TCP include : severe, intractable pain, pancreatitis-associated complications of adjacent organs, distal common bile duct stenosis, duodenal stenosis, segmental portal hypertension, pancreatic pseudocyst with ductal pathology, internal pancreatic fistula and pancreatic ascites, exclusion of malignancy despite extensive workup, progressive destruction of the organ despite conservative treatment and, occasionally, progressive ill health and problems arising from malnutrition.

Rationale for surgical procedures

Pathogenesis of pain in chronic pancreatitis is either due to ductal and parenchymatous hypertension or perineural inflammation. Ductal ectasia, single or multiple strictures of the ductal system and obstruction of the ducts by stones are seen in the majority of these patients. Also, in a majority of patients with TCP, the problem lies in the head. Either it is an inflammatory mass, with or without adjacent organ involvement (bile duct, duodenum or the portal venous system), or stones or strictures in the ductal system. Surgical procedures have been developed to address the pathological changes and offer benefit to these patients. They are usually drainage or resectional procedures.

Drainage procedures: Caudal pancreaticojejunostomy (DuVal), lateral pancreaticojejunostomy following resection of the tail and the spleen (Puestow and Gillesby), and longitudinal pancreaticojejunostomy without these resections (Partington and Rochelle).

Resectional procedures: Classical pancreaticoduodenectomy (PD, Whipple's procedure), pylorus preserving pancreaticoduodenectomy (PPPD, Longmire- Traverso procedure), and the duodenum preserving pancreatic head resection (DPPHR, Beger's procedure).

Extended drainage procedures: Longitudinal pancreaticojejunostomy with local pancreatic head resection (LPJ- LPHE, Frey's procedure), longitudinal V-shaped excision of the ventral pancreas with pancreaticojejunostomy (Izbicki, for small duct disease).

Longitudinal drainage procedures such as Peustow, Gillesby; and Partington Rochelle without distal pancreatectomy and splenectomy gave no pain relief in 20 to 40 percent. Resectional procedures like Whipple's procedure, pylorus-preserving pancreaticoduodenectomy (Longmire-Traverso procedure), and duodenum-preserving resection of the head of the pancreas (DPRHP, Beger's procedure) gave pain relief in 80-90% patients. Extended drainage procedure such as longitudinal pancreaticoduodenectomy with local pancreatic head excision (LPJ-LPHE, Frey's procedure) combines drainage of Partington & Rochelle with excision of inflammatory head mass (the 'pace-maker') maintains the physiological gastroduodenal passage and the continuity of the CBD.

The results of surgery in chronic pancreatitis should take the following parameters into consideration. They are: relief of pain, morbidity rate, mortality rate, endocrine insufficiency, exocrine insufficiency, increase in body weight and occupational rehabilitation. The morbidity and functional impairment is definitely less with extended drainage procedures when compared with resectional procedures.

TCP/FCPD in Orissa

Review of case records revealed that 160 patients attended our department between April 1997 and October 2004, with the final diagnosis of chronic pancreatitis. All of them had calcification of the pancreas on ultrasonography. History of upper abdominal pain with or without diabetes had initiated the investigation leading to the diagnosis. More than 90% (n= 153) of them with chronic pancreatitis are nonalcoholic. Only 6 of them had a history of alcoholism. All these patients with idiopathic disease were classified as TCP/FCPD with the intention of having a preliminary estimate of the type and extent of this problem in our state. Males are affected about 3-4 times more often than females (table 1).

Table 1: Gender distribution of the study subjects

Gender	No.	Percentage
Male	117	76.5
Female	36	23.5
Total	153	100

Half of these patients are in the third and fourth decade of life. The disease never presented before the age of 10 and rarely remained silent until the age of 60 years (table 2).

Table 2: Age distribution of the study subjects

Age group	No.	Percentage
1-10	1	1
11-20	27	18
21-30	43	28
31-40	36	23
41-50	26	17
51-60	15	10
61-70	2	1
71-80	3	2
Total	153	100

Socioeconomically, our patients belonged to poor or lower middle class. Pain was present in about 97% of our patients. Severity and frequency of pain is relatively less in comparison to alcoholic chronic pancreatitis. Severe pain, meaning that which requires injectable potent analgesics like ketorolac, diclofenac or pentazocine, used to be infrequent, but when it occurred, lasted for short episodes like hours to few days only. Clinical steatorrhoea is rare and history of oily stools following fatty diet was elicited in a few patients on repeated questioning. Lab test of faecal fat estimation was not routinely done. Diabetes was present in only 12 (8%) of these patients. It used to be less severe and manageable in all of them. Surgical obstructive jaundice occurs in patients where the head is involved more (8%). Pancreatic head cancer and chronic pancreatitis do overlap (6%). In a case of pancreatic head mass, it is often difficult to exclude malignancy. Some kind of a cytological or histological evidence is necessary to make any surgical intervention. Duodenal stenosis and segmental portal hypertension are rare complications. Pseudocyst and pancreatic ascites are seen in some patients (table 3).

Table 3: Common presenting symptoms

Symptom	No.	Percentage
Pain	148	96.7
DM	12	7.8
Steatorrhoea (clinical)	0	-
Jaundice	7	4.5
Nutrition	-	
Ascites	1	0.6
Pseudocyst	11	7.1
Associated problems	7	4.6
Malignancy	5	3.2

Type of surgery and their results in TCP: Thirtyeight of our patients had surgical intervention. Pancreaticoduodenectomy was done in one patient with a limited and localized head mass. Cystogastrostomy and cystoduodenostomy were done in 8 patients. Cholecystojejunostomy was offered to 4 patients with obstructive jaundice and ill health. Twentyfive patients had pancreaticojejunostomy; out of which 13 had longitudinal pancreaticojejunostomy (Partington & Rochelle) and 12 had extended drainage (table 4).

Table 4: Surgical procedures

Procedure	No.	Percentage
Long PJ (Partington, Rochelle)	12	23
Frey's	16	31
Whipple's	2	4
Cystogastro/Cysto. Du	11	21
Cholecysto-J	4	8
Others	7	13
Total	52	100

Pain had recurred in 2 patients with longitudinal pancreaticojejunostomy. None of the patients with extended drainage procedure; which we are practicing since 1998, has developed pain yet. Endocrine insufficiency present in those before surgery has not worsened in the follow up period. Weight gain is common in these patients following drainage procedure (table 5).

Table 5: Results of surgery

Result	P-R	Frey's	Whipple's
Pain relief	10/12	15/16	-
Morbidity	1/12	0/16	-
Mortality	0/12	1/16	1/2
Exo-insufy status	0/12	0/16	-
Endo-insufy status	0/12	0/16	-
Rehabilitation	Good	Good	

Future research pointers

In conclusion, future work on surgical management of cases with tropical calcific pancreatitis/fibrocalculous pancreatic diabetes should try to find out answers for:

1. Can we tailor operation according to mechanism\origin of pain?
2. If surgery delays functional impairment, should it be performed routinely?
3. Is failure to thrive despite replacement in patients with FCPD a valid indication for surgery?
4. What is the role of endoscopic intervention and ESWL, alone or in combination?

