

A Study of 50 Cases in Different Modalities of Treatment of Chronic Pancreatitis

Apurva G.Shah*, Jayesh B.Gohel**, Dinesh Sharma***, Nainesh B.Patel***, Avadh Patel***

Abstract :

Introduction : Chronic pancreatitis (CP) is a long-standing inflammation of the pancreas that alters the organ's normal structure and functions. It can present as episodes of acute inflammation in a previously injured pancreas or as chronic damage with persistent pain or malabsorption. The goals of therapy are palliative and to delay progression of the disease. The aims of palliative therapy are to alleviate pain, prevent attacks of pancreatitis, reduce pancreatic exocrine insufficiency and to improve endocrine insufficiency. **Objective :** The objective was to review and compare different modalities of treatment of chronic pancreatitis in terms of medical, surgical and minimal invasive approach with respect to their outcome in the form of symptomatic relief and complications. **Materials & Methods:** This article summarizes the profile of 50 patients with chronic pancreatitis seen in the General Surgery and Gastro surgery Department of Civil Hospital Ahmedabad and "Ansh Clinic", Siddhi Vinayak Hospital at Ahmedabad from May 2007 to September 2009. The diagnosis of chronic pancreatitis was based on clinical, biochemical (serum amylase, serum lipase, blood sugar) and radiological investigations. All patients of chronic pancreatitis were between ages of 10-62 years. **Results :** The median age of our patients was 42 (10-62) years. There were 38 men and 12 women. The etiology of CP was idiopathic pancreatitis in 32 (64%) and alcoholic in 17 (34%). Pain (94%) was the commonest presenting complaint. Of 50 patients 33 underwent surgery, 11 underwent endotherapy and 6 underwent external drainage via pigtail catheterization. 14 patients were kept on medical therapy those later on underwent surgery due to partial or no relief of abdominal pain. None had complete relief of pain, 6(42.85%) had partial relief and 8(57.14%) did not respond to therapy. 11 of 50 patients (22%) underwent endotherapy for relief of abdominal pain. Eight (72.72%) had complete response and 3(27.27%) had partial response. 33 of 50 patients (66%) underwent surgery for abdominal pain. The operated patients were followed for 1 to 5 years. About 26 (78.78%) had complete relief of pain and 7(21.21%) had partial response. **Conclusion :** Idiopathic pancreatitis is the most common form of chronic pancreatitis seen at our hospital, and in general, the majority of these subjects showed a good response to endotherapy and surgery of chronic pancreatitis. Pancreatic endotherapy is effective as short-term intervention, can be used at an early stage and has limited indications. The failure of ductal decompression to relieve pain in short term is consistent with the multifactorial etiology of pain in chronic pancreatitis. Surgical decompression provides immediate pain relief in 70-90% of patients. However surgery remains the mainstay of treatment of majority of our patients and has shown comparatively better results to endotherapy and conservative management.

Key words : Chronic Pancreatitis, Complications, Different Treatment Strategies

Introduction :

Chronic pancreatitis is a long-standing inflammation of the pancreas that alters the organ's normal structure and functions. ⁽¹⁾ It can present as episodes of acute inflammation in a previously injured pancreas, or as chronic damage with persistent pain or malabsorption. It is a disease process characterized by irreversible damage to the pancreas as distinct from reversible

changes in acute pancreatitis. The symptoms consistent with chronic pancreatitis usually present with persistent abdominal pain or steatorrhea resulting from malabsorption of the fats in food. Significant weight loss often occurs due to malabsorption. The patient may also complain about pain related to their food intake, especially those meals containing a high percentage of fats and protein. The mechanism of chronic pancreatitis viewed from a genetic standpoint indicates early onset of severe epigastric pain beginning in childhood. It is an autosomal dominant disease; chronic pancreatitis disease is identified in the

* Professor, ** Assistant Professor,

*** Resident, Department of General Surgery, B J Medical College, Civil Hospital, Ahmedabad, Gujarat, India

Correspondence to : shahapurvag@gmail.com

cationic trypsinogen gene PRSS1, and mutation, R122H. R122H is the most common mutation for hereditary chronic pancreatitis with replacement of arginine with histidine at amino acid position 122 of the trypsinogen protein. There are, of course, other mechanisms- alcohol, malnutrition, and smoking- each exhibiting its own effect on the pancreas. The annual incidence of chronic pancreatitis is 5 to 12 per 100,000 persons; the prevalence is 50 per 100,000 persons. (2) It is more common in men than women. Various modalities in the treatment of pancreatitis include medical management, surgical approach^(1, 3, 4) (Whipples, Cystogastrostomy / Roux-en-y cystojejunostomy, Triple Bypass, Distal Pancreatectomy)⁽⁵⁾ and minimal invasive approach (Sphincterotomy +Stenting, ESWL+ Stenting, Endoscopic CD/CG).^(6, 7)

Complications of Pancreatitis :

- Ascites
- Small intestinal / Biliary obstruction
- Portal / Splenic vein thrombosis
- Pancreatic/Peripancreatic phlegmon/pseudocyst
- Diabetes
- Weight loss due to poor absorption of fat, nutrients and vitamins (most often the fat-soluble vitamins A,D,E, or K)

Objectives :

The objective was to review and compare different modalities of treatment of chronic pancreatitis in terms of medical, surgical, and minimal invasive approach with respect to their outcome in the form of symptomatic relief and complication.

Materials & Methods :

Retrospective descriptive study

All the patients underwent a surgical intervention/ conservative/ medical management for chronic pancreatitis at General Surgery, Gastro surgery department of Civil Hospital Ahmedabad and “Ansh Clinic”, Siddhi Vinayak Hospital at Ahmedabad from May 2007 to September 2009. Approval from the

department of surgery and ethical committee was taken prior to the study. A research folder was compiled for each patient and numeric codes assigned in order to maintain patient confidentiality. On completion of the data collection process, both qualitative and quantitative data were analysed and comparisons made to the current literature. Interesting observations were highlighted and discussed in monograph form.

Inclusion criteria :

All patients of chronic pancreatitis between ages of 10-62 years, treated at General Surgery, Gastro surgery Department of Civil Hospital Ahmedabad and “Ansh Clinic”, Siddhi Vinayak Hospital at Ahmedabad from May 2007 to September 2009.

Exclusion criteria :

Pancreatic injury following blunt abdominal trauma

Age <10 years or > 62 years

Definition and Diagnostic Criteria:

Chronic pancreatitis was defined by features consistent with irreversible pancreatic inflammation, i.e. clinical, structural or functional abnormality of the pancreas. The presence of pancreatic calculi or ductal irregularity/parenchymal atrophy was determined at imaging using ultrasonography, CT scan, MRI, magnetic resonance cholangiopancreatography (MRCP), cholangiopancreatography (ERCP) or endoscopic ultrasound (EUS).^(8, 9) Ultrasound and CT were the usual initial investigations.^(10, 11) Other imaging modalities were carried out when indicated.

Diabetes mellitus was diagnosed if the fasting plasma glucose value was equal to, or greater than, 126 mg/dL confirmed on two occasions and/or a plasma glucose value equal to, or greater than, 200 mg/dL after a two-hour glucose load confirmed on two occasions^(8, 12) and/or requirements for insulin or oral hypoglycemic drugs. Alcohol intake was considered significant in chronic pancreatitis patients who had been taking the equivalent of 80g or more of ethanol/day for at least five years.⁽¹²⁾

Observations :

The median age of our patients was 42 (10-62) years. There were 38 men and 12 women. The etiology of CP was idiopathic pancreatitis in 32 (64%), alcoholic in 17 (34%) and hyperlipidaemia in 1(2%). Pain (n=47; 94%) was the commonest presenting complaint. The other presenting symptoms included jaundice (n=11; 22%), lump (n=19; 38%), weight loss (n=24; 48%), decreased appetite (n=16; 32%), nausea / vomiting (n=15, 30%) GI bleed (n=1; 0.5%), 18(36%) patients had diabetes and 7 (14%) had clinical steatorrhea.

On radio imaging, biliary obstruction was diagnosed in 11(22%), pseudocyst was present in 23 (46%) and pancreatic cancer in association with CP was diagnosed in 11(22%) patients dilated MPD in 15(30%) and pancreatic calcifications in 7 (14%).

Treatment Modalities :

Of 50 pts. 33 underwent surgery, ⁽¹⁾ 11 underwent endotherapy, 6 underwent external drainage via pigtail catheterization. 14 patients were kept on medical therapy that later on underwent surgery due to partial or no relief of abdominal pain. Results of surgery and endotherapy are shown in tables 2 and Figure-2 respectively.

Medical Therapy : 14 patients were treated with pancreatic enzyme supplements for abdominal pain and followed for a minimum period of 6 months. None had complete relief of pain, 6 (42.85%) had partial relief and 8(57.14%) did not respond to therapy.

Table 1 : Comparison of various modalities of Endotherapy in study group

Type	No.	Percentage	Complication
>Sphincterotomy + Stenting	2	4%	-
ESWL + Stenting	3	6%	Acute pancreatitis
Sphincterotomy + Stone removal + Stenting	1	2%	-
Endoscopic CD/CG	5	10%	G.I.Bleed

Endotherapy ^(6,7) :

11 of 50 patients (22%) underwent endotherapy for relief of abdominal pain. Eight (72.72%) had complete response and 3(27.27%) had partial response compared to 50-85% in Kozarek RA et al and 32% in Cahen DL et al. ^(2,13)

Surgery :

33 of 50 patients (66%) underwent surgery for abdominal pain. The operated patients were followed for 1 to 5 years. About 26(78.78%) had complete relief of pain and 7(21.21%) had partial response compared to 75% in Cahen DL et al. ⁽¹³⁾

The indication for surgery in these 33 patients and the surgical procedures performed are shown in Tables 3 and Figure-1. 5(10%) patients had postoperative complications; major among these being wound dehiscence (n=2), pancreatic fistula (n=1), GI bleed (n=1) and intraabdominal bleed (n=2). There were four postoperative death (3 post Whipple's and 1 post triple bypass). On follow up, all patients with jaundice, cholangitis and bleeding had relief of their symptoms. Patients underwent a prospective study to assess the effect of ductal decompression on pancreatic exocrine and endocrine function. Pancreatic endocrine function was evaluated by improvement in diabetic status. Patients underwent the evaluation preoperatively and on follow up at least after six months of surgery. In this study, there was some improvement in the status of beta cell function (in some pts. dose of insulin was reduced or pts. on insulin were shifted on oral hypoglycaemic drugs) on follow up of 6-12 months.

Figure 1: Various Complications of Surgery in study group ⁽¹⁾

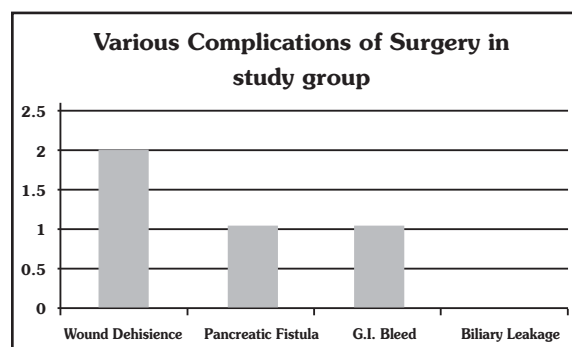


Table 2: Comparison of Results of various modalities of Endotherapy in study group ^(6, 7, 11)

Results	Shincterotomy+ Stenting ⁽⁷⁾	ESWL+ Stenting ⁽⁷⁾	Shincterotomy+ Stone removal + Stenting ^(6,7)	Endoscopic CD/CG ^(6,7)
Complete pain relief	2	2	-	4
Partial pain relief	-	1	1	1

Table 3 : Comparison of various Indications of Surgery in study group

Indications	No.	Percentage
Intractable Pain	6	12%
Pain with Jaundice	10	20%
Painless Jaundice	1	2%
Pancreatic Mass	11	22%
Pseudocyst/Abscess	9	18%
Splenic Vein Thrombosis/Splenic Hilum Abscess(12)	1	2%

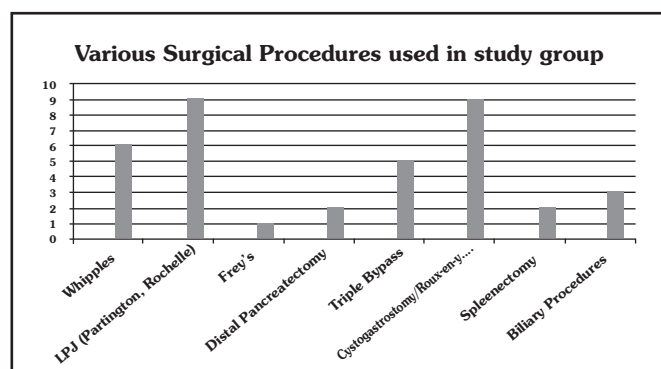
Table 4: Comparison of Results of various Surgeries in the study group

Result	LPJ ⁽¹⁾	Whipples ⁽¹⁾	Frey's ⁽⁴⁾	CG/RCJ ⁽¹⁾	DP	TBP ⁽¹⁾
Pain relief	9	3	1	9	2	4
Morbidity	1	1	-	2	-	1
Mortality	-	3	-	-	-	1

Discussion :

It is often difficult to differentiate recurrent acute pancreatitis from exacerbations of chronic pancreatitis. Even today, in certain situations, the correct diagnosis can often be achieved only on follow up of the patient. In all our patients the diagnosis of chronic pancreatitis was confirmed by imaging studies. In contrast to western countries idiopathic pancreatitis is the leading etiology in our Setup (41.8%), followed by alcoholism (34.9%) in this study. In our setup, alcohol intake is quite uncommon in females, so all cases of pancreatitis due to alcohol were seen in men. However 37.2 % of idiopathic pancreatitis occurred in females.

Calcification was present in 51.1% of the idiopathic group and 38.8% of alcoholic patients. Majority of patients (95.1%) had pain; however this could reflect selection bias as most patients with persistent pain were referred to our hospital. Diabetes mellitus was significantly more common in calcific pancreatitis group as compared to the non-calcific group. This may reflect that calcification develops in late stages of chronic pancreatitis associated with advanced endocrine deficiency. Patients with alcoholic pancreatitis had significantly shorter duration of symptoms as compared to idiopathic pancreatitis.

Figure 2: Various Surgical Procedures used in study group ⁽¹⁾

Surgery was the mainstay of therapy in most patients (n=33). Patients (n=14) were initiated with medical therapy but due to partial/no response were later on treated with surgery. Failure of conservative management in this study may due to presentation of patients in advance stages of the disease (huge cyst compressing surrounding structures, pancreatic mass, CBD strictures due to pancreatitis, MPD calculi with dilatation).

Endoscopic retrograde pancreatography followed by pancreatic endotherapy was done in 6 patients. Endotherapy was done via transpapillary route in all these patients with either a pancreatic stent or nasopancreatic drain. Extra corporeal shock wave lithotripsy fragmentation of pancreatic duct calculi in conjunction with endoscopic clearance of the main pancreatic duct is associated with maximum pain relief and least complication. Pancreatic stone lithotripsy was done in 3 of our patients. Endoscopic cystogastrostomy/ cystoduodenostomy were done in 5 patients with complete/partial relief in all patients. . Timing of endotherapy is best delayed approximately 4 weeks to allow the pseudocyst to mature. Earlier intervention may be necessitated by complications such as infection, hemorrhage, enteric or biliary obstruction.

Transmural drainage through the stomach (cystogastrostomy) is preferred for pseudocyst in the body and tail of the pancreas while those in the head are drained into the duodenum (cystoduodenostomy). An important concern in transmural drainage is potential bleeding (n=1) from blood vessels interposed

between the pseudocyst and gastroduodenal wall. Endoscopic ultrasound (EUS) or EUS-guided puncture of the pseudocyst eliminates this risk. When the cyst contains clear fluid, a 10Fr double pigtail stent will adequately drain the cyst. In the presence of necrotic debris, placement of a naso-cystic catheter for irrigation in addition to a 10Fr stent is required. When thick necrotic material is present, initial dilatation of the tract using a controlled radial expansion (CRE) balloon followed by removal of necrotic material with a dormia basket prevents subsequent clogging of the stent.

Transpapillary cyst drainage is preferred when cyst-duct communication is evident; complication rates are lower with transpapillary access (16%) than after the transmural approach (39%). Stents may be placed into the pseudocyst ; when technically not feasible, the stents should be advanced to the site of ductal communication as close as possible to the pseudocyst. In the presence of associated ductal disruptions, stents may either bridge the disruptions or be placed into the pseudocyst.

Conclusion :

To conclude idiopathic pancreatitis is the most common form of chronic pancreatitis seen at our hospital, and in general, the majority of these subjects showed a good response to endotherapy and surgery of chronic pancreatitis. Pancreatic endotherapy is effective as short-term intervention, can be used at an early stage and has limited indications. The failure of ductal decompression to relieve pain in short term is consistent with the multifactorial etiology of pain in chronic pancreatitis. Surgical decompression provides immediate pain relief in 70-90% of patients. However surgery remains the mainstay of treatment of majority of our patients and has shown comparatively better results to endotherapy and conservative management.

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