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Clinical Presentation and Treatment Outcome of Chronic Pancreatitis

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Abstract **Original Research Article**

Background: Chronic pancreatitis is a progressive inflammatory condition of the pancreas, leading to irreversible structural damage, pain, and functional impairment, including malabsorption and diabetes mellitus. Its clinical presentation varies, often including recurrent abdominal pain, weight loss, and steatorrhea. This study aimed to evaluate clinical presentation and treatment outcomes of chronic pancreatitis. ***Methods:*** This retrospective study was conducted at the Department of Hepatobiliary, Pancreatic & Liver Transplantation Surgery, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh from July 2005 to June 2008. A total of 30 diagnosed patients with chronic pancreatitis were enrolled purposively. Data were analyzed by using MS Office tools. ***Results:*** Most patients in this study present with recurrent upper abdominal pain, often accompanied by nausea and vomiting in 60% of cases. The pain is typically dull, relieved by antispasmodics, and improves on an empty stomach or when leaning forward. Treatment outcomes reveal that 80% of patients undergo surgery, with 7 experiencing complications such as external pancreatic fistula, wound infections, and pancreatic exocrine insufficiency. Some patients experience pain recurrence, requiring revision surgery. A small percentage receive medical treatment or undergo ERCP for pain and related complications. ***Conclusion:*** Chronic pancreatitis patients often have recurrent upper abdominal pain, nausea, and vomiting. The pain is dull, relieved by antispasmodics, and improves when the stomach is empty or leaning forward. Surgery outcomes are generally positive, though complications like pancreatic fistula, infections, and exocrine insufficiency may occur. Some require revision surgery.

Keywords: Chronic pancreatitis, Clinical presentation, Endoscopic techniques, Exocrine insufficiency, Treatment outcome.

INTRODUCTION

Chronic pancreatitis (CP) is a progressive inflammatory disease of the pancreas characterized by irreversible structural changes, chronic abdominal pain, and exocrine and endocrine dysfunction. The condition significantly impacts patients' quality of life and imposes a considerable burden on healthcare systems worldwide [1]. Although chronic pancreatitis is less common than acute pancreatitis, its long-term consequences, including malnutrition, diabetes mellitus, and pancreatic carcinoma, make it a critical area of study [2]. The etiology of CP varies globally, with alcohol abuse being the most common cause in Western countries. In contrast, idiopathic and tropical pancreatitis predominate in developing countries, including regions of Asia and Africa [3,4]. Genetic predisposition and autoimmune mechanisms have also been implicated in its pathogenesis, adding complexity to its diagnosis and management [5]. The disease affects both genders, but certain subtypes, such as alcoholic chronic pancreatitis, are more prevalent in men [6]. The clinical presentation of CP is diverse, with recurrent abdominal pain being the hallmark symptom. Pain is often severe, epigastric, and radiates to the back, frequently exacerbated by meals [7]. As the disease progresses, patients may develop complications such as pancreatic exocrine insufficiency, characterized by steatorrhea, weight loss, and fat-soluble vitamin deficiencies [8]. Endocrine dysfunction, manifesting as diabetes mellitus, commonly occurs in advanced stages of the disease [9]. Additionally, CP is associated with an increased risk of pancreatic cancer, particularly in individuals with hereditary pancreatitis or longstanding disease [10]. The management of CP focuses on alleviating symptoms, addressing complications, and improving quality of life. Pain management remains a cornerstone of treatment and often requires a multimodal approach, including lifestyle

modification, pharmacological therapy, and in some cases, interventional or surgical procedures [11]. Nutritional support, such as pancreatic enzyme replacement therapy (PERT), is essential for managing exocrine insufficiency and preventing malnutrition [12]. Advances in endoscopic techniques, such as endoscopic retrograde cholangiopancreatography (ERCP), have revolutionized the management of complications like pancreatic duct strictures and pseudocysts [13]. Surgical options, including partial pancreatectomy or drainage procedures like the Puestow procedure, are reserved for refractory cases or when malignancy is suspected [14]. Despite advances in diagnostic and therapeutic modalities, the prognosis of CP remains guarded. Early diagnosis and intervention are crucial to mitigating its complications and improving patient outcomes. However, the heterogeneity of its etiology, clinical presentation, and response to treatment highlights the need for personalized approaches to care [15]. This study aimed to evaluate the clinical presentation, management strategies, and treatment outcomes of chronic pancreatitis patients in a tertiary care hospital setting. By identifying key patterns and outcomes, the findings may contribute to optimizing care and informing future research in this field.

METHODOLOGY

This retrospective study was carried out in the Department of Hepatobiliary, Pancreatic & Liver Transplantation Surgery at Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh, from July 2005 to June 2008. A total of 30 patients diagnosed with chronic pancreatitis were included. The study received approval from the hospital's ethical committee, and a purposive sampling method was employed. Case selection was based on history, physical examinations, and various investigations, including plain abdominal X-rays, ultrasonography, ERCP, CT scans, and MRI. Pre-designed case records were thoroughly reviewed, and a protocol was developed to extract information from hospital records. Detailed clinical data, including age, sex, address, socioeconomic status, habits, past medical history, nutritional status, symptoms, family history, clinical findings, and biochemical results, were recorded. The collected data were analyzed using MS Office tools.

RESULT

Most patients in this study were in their 30s and 40s, with a mean age of 28.3 years (29.5 for males and 26.5 for females). All presented with recurrent upper abdominal pain of increasing intensity and shorter intervals between attacks. In 13%, the pain became continuous, with occasional exacerbations and incomplete remissions. Pain onset was sudden during attacks. In 60% of patients, the pain was accompanied by nausea and vomiting. It was dull aching, slightly relieved by antispasmodics, and improved on an empty stomach or leaning forward. Most patients experienced discomfort lying down after a full meal. Jaundice was observed in some cases, including two with choledocholithiasis and cholelithiasis, one with suspected pancreatic head malignancy, and three with chronic inflammatory strictures of the terminal common bile duct. In this study, 5 patients had diabetes (2 on insulin, 2 on oral agents, and 1 on dietary control). Abnormal LFTs were found in 3 patients, elevated serum calcium in 5, and high serum cholesterol in 2. Preoperative assessments included CBC, LFT, renal function tests, blood sugar, chest X-ray, and ECG. Of the 30 patients, 24 underwent surgery, 2 were treated with ERCP, and 4 received medical management. In this study, 4 patients (13.33%) received medical treatment for pain, pancreatic insufficiency, and disease- related complications. The pain was managed with non-narcotic analgesics, narcotics, pancreatic enzyme supplements, antidepressants, H2 blockers, proton pump inhibitors, and antioxidants. Pancreatic sphincterotomy and stent placement were used for pain relief in cases of ductal obstruction. Additionally, 2 patients (6.66%) were treated with ERCP. In this study, 24 patients (80%) underwent surgical management, with 7 experiencing postoperative complications. These included external pancreatic fistula (1 case), wound infections (3 cases), pancreatic exocrine insufficiency (2 cases), and diabetes mellitus (1 case). Two patients showed poor postoperative outcomes, with pain recurrence within six months requiring revision surgery. Of the total participants, 5 were diabetic preoperatively, and 1 new case of diabetes developed postoperatively.

Table 1: Demographic data (N=30)

Age (Year)	10-20	21-3	31-40	41-50	≥51	Total	%	M: F
Male	1	4	10	2	3	20	66.67	-
Female	1	4	2	1	2	10	33.33	-
Total	2	8	12	3	5	30	100	2:01

Table 2: Pain analysis (N=30)

Site of pain	n	%	Radiation to the back	
			n	%
Upper abdominal pain	20	66.6%	13	43%
Around umbilicus	6	20%	2	6.60%
Diffuse	4	13%	0	0%
Total	30	100%	15	50%

Table 3: Duration of pain (N=30)

Duration	n	%
2-6 month	13	43%
7-12 month	9	30%
2-3 years	6	20%
4-5 years	2	6.60%

Table 4: Clinical findings (N=30)

Variables	n	%
Abdominal pain	30	100%
Obstructive jaundice	6	20%
Malabsorption disorder	8	26.60%
Diabetes mellitus	5	16.60%

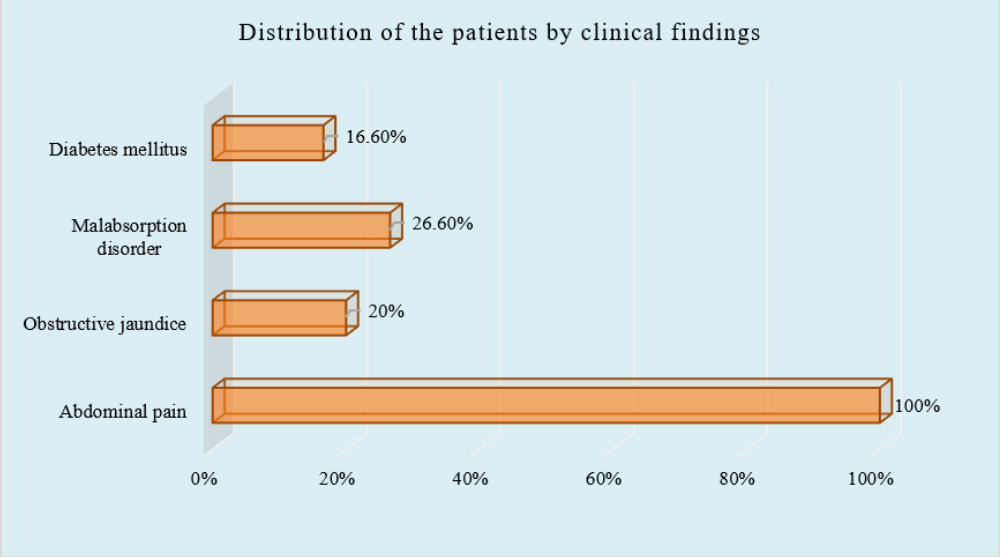

Figure I: Bar chart showed clinical findings of the patients (N=30)

Table 5: Associated symptoms (N=30)

Symptoms	n	%
Nausea and vomiting	18	60%
Loss of appetite	11	36.60%
Weight loss	21	70%
Weakness and fatigue	16	53.30%
Backache	6	20%

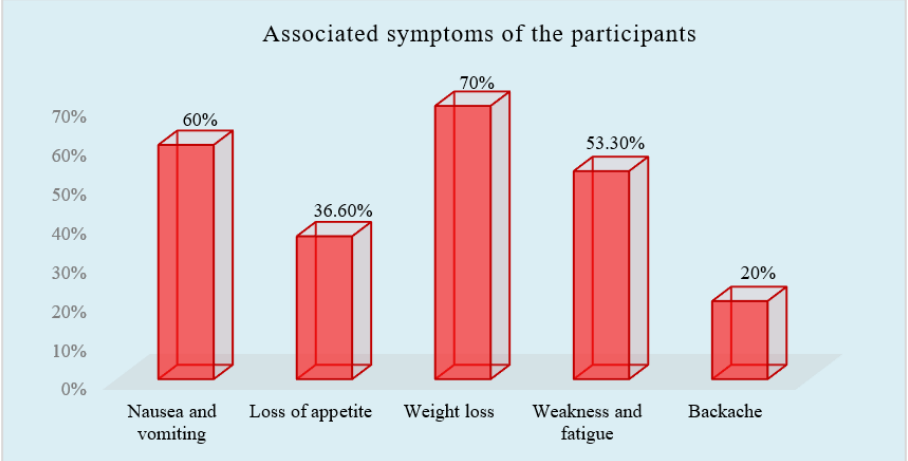

Figure II: Column chart showed symptoms wise patients (N=30)

Table 6: Physical signs (N=30)

Sign	n	%
Epigastric tenderness	12	40
Anemia	16	53.3
Jaundice	6	20

Table 7: Findings of radiological study (N=30)

Findings	n	%
Plain X-ray abdomen A/P view		
Radio opaque calculi were present in the region of the pancreas	30	100%
a) Multiple radio-opaque shadows in the region of the pancreas across the upper abdomen anterior to the vertebral column at the level of D12, L1, and L2 vertebrae.	16	53.30%
b) Multiple radio-opaque shadows in the regions of the head of the pancreas.	8	
c) Radio-opaque shadows both in body and tail regions.	3	10.00%
d) Radio-opaque shadows present in the head and body region.	2	6.60%
e) Radio-opaque shadow only in the tail of the pancreas.	1	3.30%
ERCP done in16 patients		
a) Dilatation of the main pancreatic duct with intervening short stricture was seen.	6	20%
b) Marked dilatation of the main pancreatic duct with filling defect due to calculi was seen	8	26.60%
c) Dilatation of the main duct with a cystic appearance at the tail, branches showing a beaded appearance were seen.	2	6.60%
CT scan was done on 10 patients		
The primary finding includes focal or diffuse enlargement of the gland, dilatation of the main pancreatic duct, and intraductal calcifications.	6	20%
Space occupying lesion seen in the head region of the pancreas in 4 cases.	4	13.30%

Table 8: Finding of the ultrasonography of the hepatobiliary system and pancreas (N=30)

Findings	n	%
a) Multiple bright echogenic structures in the region of the pancreas casting acoustic shadows.	30	100%
b) Slightly enlarged liver with distended Gall bladder, and dilated CBD containing stones.	2	6.60%
c) A solid mass lesion in the region of the head of the pancreas.	3	10%

Table 9: Distribution of operative procedures (N=30)

Name of operation	n	%
Lateral pancreatico-jejunostomy	20	66.6
Distal/total pancreatectomy with retrograde drainage of duct by pancreaticojejunostomy	2	6.6
Pancreatoduodenectomy (Whipple, pylorus-preserving, duodenum-preserving)	1	3.3
Laparotomy & Biopsy	1	3.3
Anticolic gastro-jejunostomy with jejuno-jejunostomy with cholecysto-jejunostomy	1	3.3

Table 10: Complications following operation (N=30)

Complications	n	%	Management	Outcome
External pancreatic fistula	1	3.3	Conservative	Good
Wound infection	3	10	Regular dressing & antibiotic	Good
Malabsorption leading to weight loss	2	6.6	Pancreatic enzyme & insulin	Good
Newly developed diabetes	1	3.3	Diet control, oral hypoglycemic agent, insulin	Good

Table 11: Pain relief after pancreatojejunostomy (N=30)

Pain relief after operation	n	%
Good	22	73
Moderate	6	20
Poor	2	6.6

Table 12: Response in diabetic status after surgery (N=30)

Status of diabetes	Pre-operative		Post-operative	
	n	%	n	%
Diabetic	5	16.5	6	20
Non-diabetic	25	83.3	24	80

DISCUSSION

The exact incidence of chronic pancreatitis in Bangladesh is unknown. Allen Mersh [16] reported a prevalence of about 300 per 100,000 at autopsy, though clinically significant cases were much fewer. In Bangladesh, non-alcoholic cases dominate, with protein malnutrition and pancreatic calculi being common. Most patients in this study were in their 30s and 40s, with a mean age of 28.3 years. In Europe and North America, pancreatic calculi-associated chronic pancreatitis typically has a mean onset age of 40 years [17], though hereditary factors may lead to earlier cases. In developing countries like India, Indonesia, Malaysia, Uganda, and South Africa [18], chronic pancreatitis often occurs much earlier, sometimes in early childhood. In this series, 100% of patients reported a history of abdominal pain, consistent with findings from Indian and African studies [19]. Upper abdominal pain was noted in 66.6%, pain around the umbilicus in 30%, diffuse abdominal pain in 13%, and radiation to the back in 49.6% of cases. Fatty meals often trigger pain and are relieved by lying with knees drawn up or bending forward. Pain episodes in chronic pancreatitis persisted for days, requiring strong analgesics, with patients often seeking postural relief—a characteristic feature of the condition [20], as also observed in this study. Biochemical or overt jaundice, seen in 15-25% of calcific pancreatitis cases [21], was linked to CBD obstruction caused by stones, pancreatic carcinoma, edema, or hyperplastic fibrosis. In this series, 20% of patients presented with jaundice, attributed to choledocholithiasis (2 cases), carcinoma of the pancreatic head (1 case), and chronic inflammation with distal CBD obstruction due to hyperplastic fibrosis (3 cases). Patients with pancreatic calculi face an elevated risk of pancreatic carcinoma, with a prevalence under 5% [22, 23]. Here, 1% developed pancreatic head carcinoma, confirmed histopathologically. Despite advancements in diagnostics and surgery, operative intervention for chronic pancreatitis with pancreatic calculi remains a last resort, typically reserved for complications or failed medical management. Uncomplicated cases are typically managed conservatively with pain relief, nutritional support, enzyme replacement, and diabetes control if present. Surgery for chronic pancreatitis with pancreatic calculi is primarily indicated for intractable pain [24] or recurrent acute pain exacerbations, aiming to relieve pain rather than correct functional abnormalities [24]. In this series, pain was the primary surgical indication in 24 cases, including 6 for obstructive jaundice. Pain in chronic pancreatitis with calculi likely has multifactorial origins [25], making a single surgical procedure unlikely to cure all patients. Pain due to ductal obstruction is best managed with complete drainage of the pancreatic duct [26], making it a crucial factor in patient selection. Surgery is typically performed when medical and endoscopic treatments fail to alleviate intractable pain, and it is also indicated for obstruction of surrounding structures, hemorrhage, or suspected neoplasia. The preferred procedure is lateral pancreatico-jejunostomy [27]. Surgical drainage of the pancreatic duct is more effective than endoscopic treatment for pancreatic duct obstruction due to chronic pancreatitis [28]. This technique causes minimal tissue loss, preserving endocrine and exocrine functions [29], and studies have shown lower operative mortality and morbidity rates with lateral anastomotic drainage [30,31]. Long-term patency of lateral pancreatico-jejunostomy has been documented [32]. However, pancreatico-jejunostomy, even in cases with dilated pancreatic ducts, often fails to completely relieve pain. Pancreatic resection, such as distal pancreatectomy, is indicated in certain cases, particularly when the pancreatic duct is narrowed or there is distal duct obstruction or localized disease [33]. Results of pancreatic resection have been discouraging, except in patients with disease limited to one area of the gland. In this study, two patients underwent distal pancreatectomy with pancreatico-jejunostomy, yielding positive results. Pancreatoduodenectomy (Whipple procedure) also showed good results for pain relief [34]. Therapeutic indications for ERCP include the treatment of symptomatic stones, strictures, and pseudocysts. Ductal decompression through sphincterotomy or stent placement offers pain relief in most patients, with endoscopic drainage indicated for symptomatic or complicated pseudocysts [35]. In this series, two patients were treated with ERCP for pain palliation with satisfactory results. Postoperative complications occurred in 23.20% of patients, mostly minor, including 3.30% with external pancreatic fistula, 10% with wound infection, 6.60% with malabsorption, and 3.30% with diabetes mellitus. All were treated conservatively.

CONCLUSION & RECOMMENDATION

Most patients with chronic pancreatitis experience recurrent upper abdominal pain, nausea, and vomiting. The pain is dull, relieved by antispasmodics, and improves when the stomach is empty or when the patient leans forward. Treatment outcomes for most patients who undergo surgery are positive, though some may experience complications such as external pancreatic fistula, wound infections, and pancreatic exocrine insufficiency. A few patients may have pain recurrence within six months, requiring revision surgery or medical treatment for pain and related complications.

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