

# RETROSPECTIVE OBSERVATIONAL STUDY ON TROPICAL CHRONIC PANCREATITIS IN A TERTIARY CARE HOSPITAL OF EASTERN INDIA

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## ABSTRACT:

**BACKGROUND:** Chronic pancreatitis is an universal disease and the presentation is quite variable in different parts of India. Tropical chronic pancreatitis is a type of chronic pancreatitis which is benign but incurable, progressive, and debilitating that destroys both exocrine and endocrine system and quality of life by itself and its complications. Not restricted to tropics with a genetic predisposition; It affects younger age group from poor socio-economic background, non-alcoholic and with no gall stone disease. Most common presentation is abdominal pain.

**AIM OF THE STUDY:** In the present study we describe the clinical, demographic profiles and management of patients with TCP in a tertiary health care centre of eastern India.

**MATERIALS AND METHODS:** It is a retrospective observational study. Patient's records from various surgical units of department of surgery and surgical gastroenterology from June 2018 to May 2023 were taken. A total of 137 patients got selected from 162 number of chronic pancreatitis patients from records of various surgical units of department of surgery for a span of 5 years.

**RESULTS:** Mean age was around 21-30 years, Male/Female ratio was 7:3, of lower socio-economic status (53%). Pain was the most common symptom (98%), followed by diabetes (11%) which was insulin requiring and ketosis resistant, jaundice (4%), pseudocyst of pancreas (5%) of the cases, respectively. Some patients were also presented with left side portal hypertension. Most of the patients were having history of pain abdomen for more than 5 years with repeated hospitalization for severe pain abdomen. Pain relief was satisfactory after Frey's procedure. Radiological findings were atrophy of pancreas (73%) with dilated

pancreatic duct (62%) and pancreatic calcification and ductal calculi especially in the pancreatic head (60%).

**CONCLUSION:** Intractable pain was the most common indication for surgery and Frey's procedure was the most common procedure done for pain relief.

**KEYWORDS:** Chronic Pancreatitis, Tropical Chronic Pancreatitis, Frey's procedure

## **INTRODUCTION**

Tropical Chronic Pancreatitis (TCP) is a juvenile form of chronic calcific non-alcoholic pancreatitis prevalent in tropical developing countries usually India and Asian countries [1]. Also known as fibro calcific pancreatic diabetes, juvenile tropical pancreatitis syndrome, nutritional pancreatitis [2]. It mainly affects young population who are malnourished with low socio-economic status [2]. Natural history of this disease is described as recurrent attacks of upper abdominal pain with repeated hospitalisation, large pancreatic calculi predominantly in head region with dilated main pancreatic duct [2,4,16]. With advanced disease especially in third decade, may present with diabetes and steatorrhea [3]. This diabetes is insulin requiring although ketosis resistant [4]. Exact aetiology and progression of the disease is variable and to date unclear. Environmental, genetic mutation (SPINK-1) [10-14], Immune System modulation is thought to be responsible [5,6]. Most of the studies of Indian population has shown that highest incidence of this disease is in south-western state of Kerala (prevalence of 1 in 793) [1]. Sporadic report from other regions is also reported with alcohol predominates as the cause of pancreatitis in Northern India [1]. Data about the demographic and clinical profile of TCP from eastern India are scarce.

In this study, we report the clinical and demographic profiles and management of patients with TCP in our tertiary care hospital in eastern India.

## **AIM AND OBJECTIVES**

In the present study we describe the clinical, demographic profiles and management of patients with TCP in a tertiary health care centre of eastern India.

## **MATERIALS AND METHODS**

**STUDY TYPE:** Retrospective observational study

**PLACE OF STUDY:** Department of general surgery SCB MCH, Cuttack

**TIME PERIOD OF STUDY:** June 2018 to May 2023

**SOURCE OF DATA:** Surgical units of department of surgery & surgical gastroenterology, SCB MCH, Cuttack

## **INCLUSION CRITERIA:**

- Patients diagnosed as TCP based on clinical, biochemical and radiological findings.

## **EXCLUSION CRITERIA:**

- Patients diagnosed as alcoholic pancreatitis.
- and other forms of chronic pancreatitis.

**SAMPLE SIZE:** Total number of patients of Chronic pancreatitis were found 162 and 137(84.5%) patients were diagnosed as TCP. Most of the patients were referred by physicians, gastroenterologists and surgeons.

## **STATISTICAL ANALYSIS:**

Independent T test was used to examine differences in age.

Fisher's exact test for sex and chi square for aetiology was used.

Sensitivity, specificity, positive predictive value, negative predictive value, and accuracy were calculated. A "p" value of less than 0.05 was statistically significant. Data analysis was performed using SPSS software.

Data was analysed using WILCOXN sign rank test & fisher's exact test by SPSS version 17.

Comparative charts were made, and data was analysed.

#### **ETHICAL ISSUE:**

The present study is approved by the ethics committee of SCB medical college Cuttack as per the principles of Helsinki declaration.

#### **PROCEDURE:**

A detailed history from the records was taken about the age, sex and socioeconomic status of patients. Detailed history of duration, intensity and recent history of increased episodes of intractable pain were obtained. History, duration and management of diabetes also derived. History of alcoholism, smoking which includes the duration of intake of alcohol and smoking, and quantity of each day was obtained. Along with this family history about any affected first degree and second-degree relatives was derived. Diet and nutrition assessments were also performed. Detailed clinical history of any recurrent attacks of abdominal pain with repeated hospitalisation, diabetes, jaundice also found out. All patients underwent complete hemogram, liver function test, renal function test including serum calcium and phosphate. Levels of serum amylase, lipase, fasting and post prandial blood sugar with HbA1c and lipid profile were also assessed. USG, CECT of Abdomen and pelvis and MRCP were performed in all patients. TCP was defined by features consistent with atrophied pancreas, dilated main pancreatic duct on CT scan. Findings of head mass or biliary stricture was rare. CA 19-9 and genetic study was conducted selectively.

From a total number of 162 patients of chronic pancreatitis; 137(84.5%) patients were found to be cases of TCP. Out of these, 70 % of patients managed conservatively by oral or injectable analgesics, proton pump inhibitors and pancreatic enzymes and 30 % of patients required surgery. We did Lateral Pancreatojejunostomy of Partington – Rochelle type, Frey's procedure which is a hybrid surgical procedure where combination of head coring and drainage is done, cystogastrostomy, cystojejunostomy in case of pseudocysts with TCP, Whipple's procedure and others [17-23]. Post surgical follow up was done in all patients for 2 years. Usually after one to two years of symptoms of abdominal pain, TCP was diagnosed.

#### **OBSERVATION:**

Out of total patients of Chronic pancreatitis (162), TCP was diagnosed in 137 patients. [Table1]

Males predominate females. Out of 137 number of patients 96 were males and 41 were females with male: female ratio of 7:3. [Table1]

Maximum number of patients were found out to be in the age group of 21-30 years. Patient of age less than 10 years were found to be 1 %. Above 50 years found in 11% of patients. [Table2]

Out of all symptoms, abdominal pain was the most common symptom being present in 98% patients. Among these patients' 62% were having mild pain and managed with oral analgesics and 32% of patients, the pain severity was more and required injectables following hospitalisation. 22% patients had recurrent severe pain with multiple hospitalisations for

acute on chronic pancreatitis. Presence of pain reflects disease activity in TCP. Out of the total patients, 11% presented with diabetes which usually required insulin. 2% of patients presented with steatorrhea. Only 1% presented with ascites. [Table3&4]

Out of all the surgical procedures we did Frey’s procedure on 46 % of patients followed by lateral pancreateojejunostomy. Partington-Rochelle type in 17 % of patients especially when TCP presented with pseudocyst of pancreatic head region, cystojejunostomy in 12% and cystogastrostomy in 17 % of patients of pseudocysts of tail of pancreas. [Table5]

Pain relief was satisfactory after Frey’s procedure. [Table6]

TABLE 1-SEX DISTRIBUTION

Gender	Number of patients	Percentage (%)
Male	96	70%
Female	41	30%
Total	137	100%

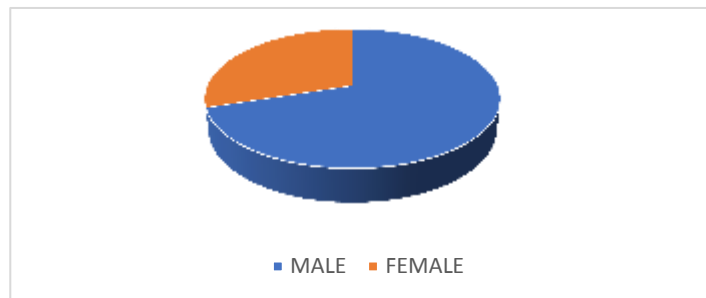


TABLE 2-AGE DISTRIBUTION

Range in years	Number of patients	Percentage (%)
<10	1	1%
11-20	19	14%
21-30	43	31%
31-40	35	26%
41-50	23	17%
51-60	10	7%
>60	6	4%

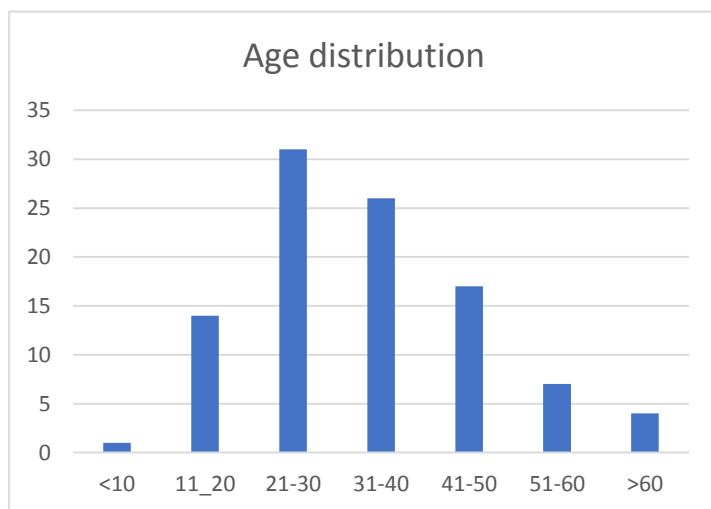


TABLE 3-SIGNS AND SYMPTOMS

Signs & Symptoms	Number of patients	Percentage (%)
Abdominal Pain	134	98%
Diabetes mellitus	15	11%
Steatorrhea	3	2%
Jaundice	6	4%

Ascites	1	1%
Malignancy	4	3%
Pseudocyst	7	5%

TABLE 4-PAIN SCORE

Grade	Description	Number of patients	Percentage (%)
MILD	Tolerable	22	16%
MODERATE	Oral analgesics	85	62%
SEVERE	Injectable analgesics	30	22%

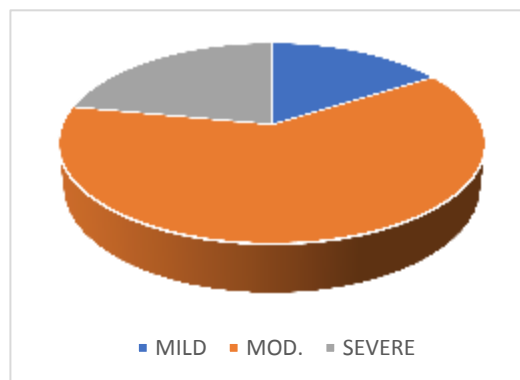


TABLE 5-SURGICAL PROCEDURES

Procedure type	Number of patients (Out of 137)
FREYS PROCEDURE	19
LATERAL PANCREATICOJEJUNOSTOMY	7
CYSTOGASTROSTOMY	7
WHIPPLES PROCEDURE	1
CYSTOJEJUNOSTOMY	3
OTHERS	4

TABLE 6- FOLLOW UP AFTER SURGICAL PROCEDURES

Results	Partington-Rochelle procedure	Frey procedure
Pain relief	6/7(86%)	17/19(90%)
Morbidity	0	0
Mortality	0	0
Nutritional improvement	all	all

**DISCUSSION**

Tropical chronic pancreatitis is the most common form of Chronic pancreatitis in Indonesia, South India, and Nigeria [7]. One of the pathophysiology of TCP is protein-calorie malnutrition and macronutrient deficiency [1]. In our study 53.7 % of patients were from low Income group. Haematological parameters like haemoglobin %, serum protein and albumin, A:G ratio, are within Normal limit at the time of presentation to us. Around 30% of patients had low BMI. So, malnutrition may not be the cause rather the effect of less Intake of food due to abdominal pain.

Insulin requiring ketoacidosis resistant diabetes is usually associated with TCP [4]. In India half of the cohorts of subject with TCP who had normal glucose tolerance developed diabetes after a mean follow-up of 2 years. In our study 89% of patients were nondiabetic on Initial presentation in our department. So, diabetes is not an early presentation of TCP In our study.

Surgical management is essential in those cases of intractable pain, biliary obstruction, duodenal stenosis, pseudocyst, internal pancreatic fistula, and unresponsive malnutrition [8]. Out of total 137 patients, surgery was done in 30% of patients and in majority of cases intractable pain was the main indication. Rest is managed conservatively by dietary modifications, pancreatic enzymes, proton pump inhibitors and analgesics. In our study, we did Frey's procedure in majority of cases along with Partington-Rochelle as drainage procedure. Frey's procedure is a hybrid surgical procedure where both head coring and drainage is done. Cystogastrostomy and cystojejunostomy was done for pancreatic pseudocysts.

Pain relief was satisfactory after Frey's procedure in 90% of patients presented with recurrent abdominal pain within 2 years.

The Goal of surgery was for relief of pain, improvement of exocrine and endocrine function and quality of life.

**CONCLUSION**

In our opinion TCP is the most common variant of chronic pancreatitis in eastern region of Odisha. Young males from lower socioeconomic status were more affected with majority of patients belong to age group of 21-30 years. Pancreatic calcification with ductal calculi is quite common. Adequate ductal drainage (Frey's) offers satisfactory results for pain relief. Frey's procedure gives satisfactory result for relief of pain though there is no significant improvement in Endocrine and Exocrine functions.

**CONFLICT OF INTEREST:** None to declare.

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