

Chapter 11

Tropical pancreatitis – changing trends

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Summary

The pattern of tropical pancreatitis as seen at our centre is changing. From our observations we conclude that tropical pancreatitis is now running a milder course with a late onset of symptoms and better longevity. We attribute the changes in the environmental factors to this better profile. These environmental factors include improvements in socio-economic status of the people of Kerala, better nutrition, replacement of cassava by other food items like rice, and better hygiene, less infections and more protein intake, despite of increasing alcohol intake.

Introduction

Tropical pancreatitis is a clinical entity accounting for majority of cases of chronic pancreatitis in South India. Originally described as "Pain in childhood, diabetes mellitus by puberty and death in the prime of life", this disease is also characterised by varying degrees of steatorrhea, and calculi in pancreatic duct. Abdominal pain was the initial manifestation in majority of cases and the pain used to be very severe leading to narcotic addiction and suicide attempts. Diabetes mellitus was brittle, ranging from very high blood glucose levels to fatal hypoglycemia. These patients have a peculiar appearance characterised by wasting of muscles, protuberant abdomen, parotid swelling and cyanotic hue of lips. The main complications of the disease were uncontrolled diabetes mellitus, hypoglycemia, recurrent infections and liver disease. Also, there were local complications like pseudocyst formation, development of carcinoma pancreas, pancreatic ascites and obstructive jaundice.

Etiological factors thought to be important in the genesis of this disease include protein malnutrition, high carbohydrate intake in the form of cassava, toxins in food, especially cyanogenic glycosides of cassava, parasitic infections and probably genetic factors.

Over the last three decades there has been a considerable change in the natural history of tropical pancreatitis. The disease now affects an older population and has become less severe. In the majority of the patients abdominal pain is neither the first symptom nor a dominant

symptom. Diabetes mellitus is mild and is easier to control, but the microvascular complications have become prominent. Another important feature is the emergence of carcinoma pancreas as a leading complication and the most important cause of mortality.

This study was conducted at the Medical College, Kottayam from April 2000 to June 2001 and included 52 patients. Here we compare the findings in our patients with the data from two earlier studies from Kerala, by Geevarghese in 1968 and by Balakrishnan V in 1980.

Materials and methods

All patients admitted with a history suggestive of pancreatitis were evaluated. We included subjects with pancreatic calculi demonstrable by imaging studies, any stone size in non alcoholic and stone size > 7mm in alcoholics and excluded subjects with significant history of chronic alcohol use. All the patients who were included in the study were evaluated in detail. Detailed clinical history was taken with particular reference to the onset of illness, the first symptom, the character and severity of abdominal pain and the duration, control and complications of diabetes mellitus and history of steatorrhea. Details regarding dietary habits, alcohol intake, smoking and malnutrition were obtained. Family history regarding similar illness and diabetes mellitus was also taken. Physical examination was performed with particular attention to nutritional status of the patient, signs of fat-soluble vitamin deficiency, signs of protein malnutrition and features of local complications. Cardiovascular system evaluation included physical examination, chest X ray, ECG, 2D Echo and TMT when needed. Nephrological evaluation included tests for microalbuminuria and renal functions. Neurological evaluation was done for evidence of diabetic/nutritional peripheral neuropathy, tropical spastic paraplegia and tropical ataxic neuropathy. An ophthalmologist performed ophthalmologic evaluation for evidence of retinopathy. The patients also underwent imaging studies ranging from plain X ray of abdomen to ERCP. USG abdomen was performed in all the patients. Other investigations included fasting and postprandial blood sugar levels, liver function tests and analysis of ascitic fluid/pleural fluid and FNAC of suspicious mass lesions and endoscopic studies.

The results

Total 52 patients were studied: 34 males and 18 females. The mean age of patients at the time of inclusion in the study was 42.9years. Tables 1 and 2 show the clinical profile of the patients.

Table 1: Initial symptoms

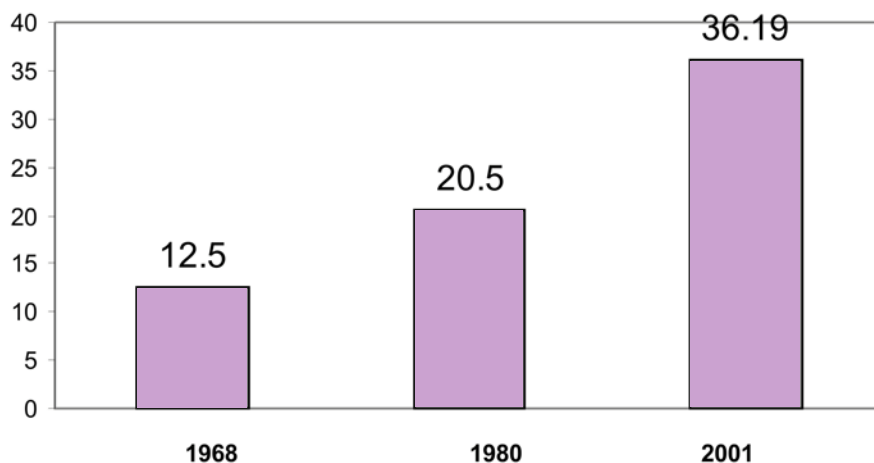
	Males	Females	Total	%
Diabetes Mellitus	19	13	32	61.5
Abdominal pain	13	3	16	30.8
Others	2	2	4	7.7

Diabetes mellitus is the leading presenting symptom accounting for 61.5% of the patients. It is especially so in females, where diabetes is the first symptom in 72.2%. Abdominal pain is the presenting symptom in only 30.8% of cases. This is in contrast with previous studies where abdominal pain was the initial symptom in 83.3% patients.

Table 2: Age of onset of first symptom

Age	Male	Female	Total
< 10	0	0	0
10 – 15	2	0	2
16 – 20	1	3	4
21 – 25	5	2	7
26 – 30	6	3	9
31 – 35	4	2	6
36 – 40	6	0	6
41 – 45	2	5	7
46 – 50	2	0	2
51 – 55	4	1	5
> 55	2	2	4

Fig. 1: Mean age of 1st symptom - a comparison with earlier studies



As shown in table 1, compared with previous studies there is a remarkable shift in the initial presentation of the illness. The mean age of onset of the disease has shifted by more than two decades.

Table 3: Age of onset of diabetes mellitus

Age	Male	Female	Total	%
< 10	0	0	0	0
10 – 15	0	0	0	0
16 – 20	1	2	3	7.7
21 – 25	3	2	5	12.8
26 – 30	3	2	5	12.8
31 – 35	3	4	7	17.9
36 – 40	7	0	7	17.9
41 – 45	1	4	5	12.8
46 – 50	3	0	3	7.7
51 – 55	2	1	3	7.7
> 55	0	1	1	2.6

Fig. 2: Age of onset of diabetes mellitus – a comparison with 1968 figures

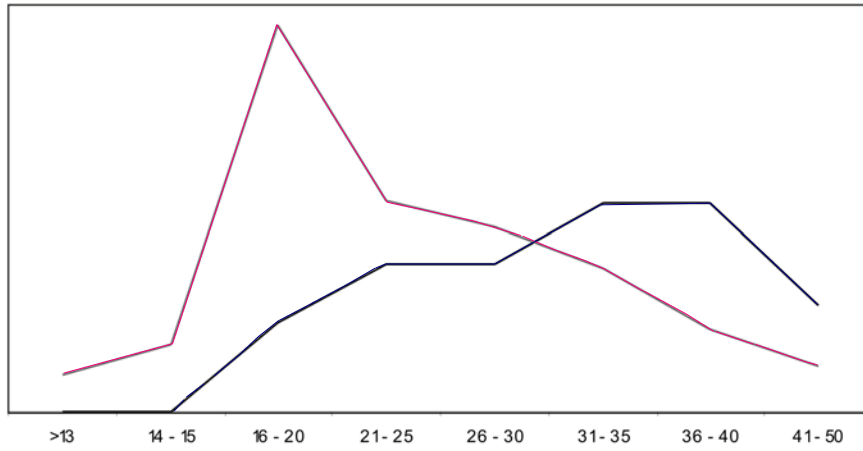
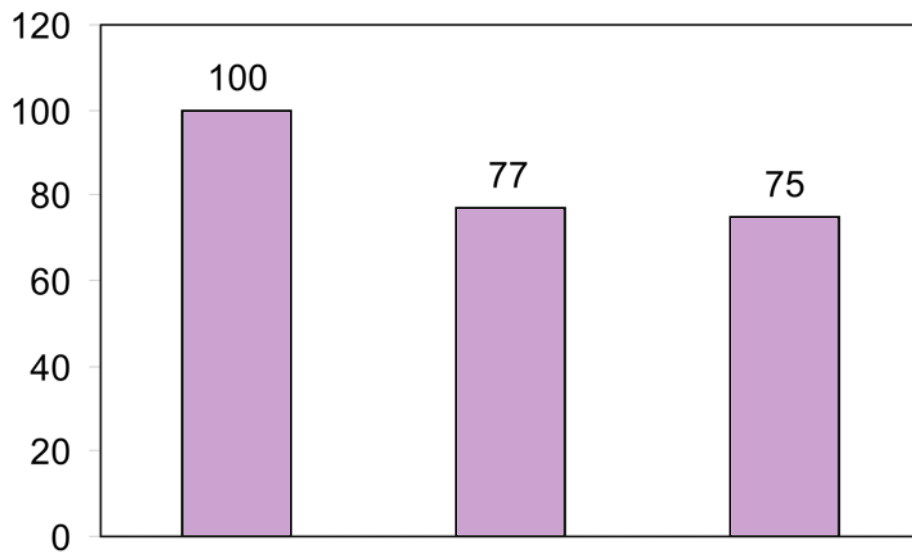


Fig. 3: Incidence of diabetes mellitus – a comparison with earlier studies



Diabetes control

Mean FBS of the patients were 172.6mg%, and the PPBS of the patients were 243.7 mg%. 19 patients were on oral hypoglycemics only. Their mean FBS was 174.1mg% and PPBS was 225.8mg%. About 17 patients were on insulin, their mean FBS was 189.5mg% and PPBS was 278.2 mg%.

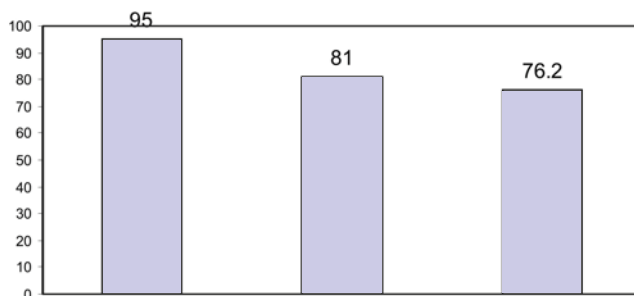
Microvascular complications

Microvascular complications were present in 16 patients – peripheral neuropathy in 16 patients, retinopathy in 11 patients and nephropathy in 6 patients. Their mean duration of diabetes mellitus was 11.9 years, compared to those without microvascular complications, whose mean duration of diabetes was only 4.09 years, indicating that duration of diabetes mellitus determines the microvascular complications. (Microvascular complications usually occur in the second decade of chronic hyperglycemia – Harrison). This shows that microvascular complication depends on duration of diabetes alone and pancreatitis as such has no role in the genesis of microvascular complications.

Abdominal pain

Abdominal pain was the first symptom in 28.8% of patients only. But eventually 76.9% of patients developed abdominal pain. Diabetes Mellitus precedes abdominal pain in a significant number of cases. In previous studies it was very rare for diabetes mellitus to precede abdominal pain.

Fig. 4: Incidence of abdominal pain – a comparison with earlier studies



Carcinoma pancreas

Totally, there were 8 cases (15.4%) – 3 females and 5 males. Mean age 45 years. In 4 of these patients carcinoma pancreas was the presenting symptom. In 3 diabetic patients, the beginning of abdominal pain was the symptom of carcinoma pancreas. All these 3 patients were diagnosed to have tropical pancreatitis, at the time of presentation as carcinoma pancreas.

Fig. 5: Carcinoma pancreas – a comparison with earlier studies

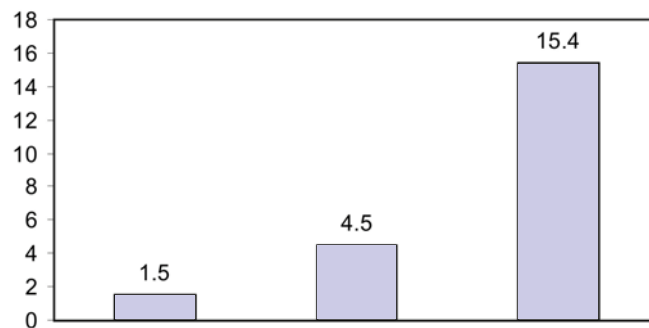


Fig. 6: Need for surgery – a comparison with earlier studies

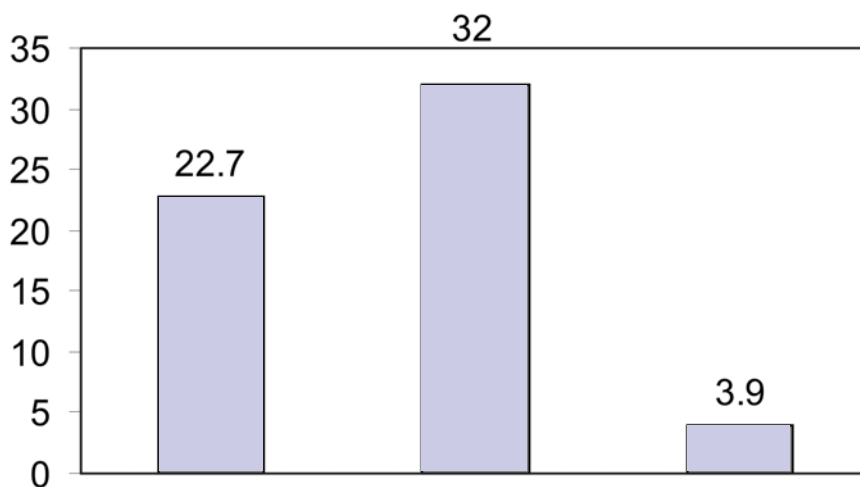


Table 4: Mortality in FCPD - a comparison

<p>Causes of death</p> <p>Carcinoma pancreas 66.66%</p> <p>Carcinoma stomach 16.7%</p> <p>Diabetic nephropathy 16.7%</p> <p>Cause of death comparison</p> <p>1968 – cirrhosis liver and hypoglycemia</p> <p>1980 – diabetic nephropathy</p> <p>2001 – carcinoma pancreas</p>
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Discussion

Our observations are that the onset of tropical pancreatitis has shifted by two decades. Tropical pancreatitis now constitutes a spectrum of disease ranging from the classical presentation (of pain in childhood, diabetes in puberty) to totally asymptomatic patients presenting as carcinoma pancreas, but the classical presentation is rare. Abdominal pain is neither the first symptom nor the dominant symptom; abdominal pain has decreased in severity and is easier to control. Microvascular complications of diabetes are common and are related to the duration of diabetes. Carcinoma pancreas can be the presenting symptom of tropical pancreatitis. Carcinoma pancreas is the leading cause of death in these patients. Alcohol has no etiological relation with tropical pancreatitis in our experience.

From these observations we conclude that overall, tropical pancreatitis is now running a milder course with a late onset of symptoms and better longevity. We attribute the changes in the environmental factors to this better profile. These environmental factors include improvement in socio-economic status of the people of Kerala, better nutrition, replacement of cassava with other food items like rice and better hygiene, less infections and more protein intake, in spite of increasing alcohol intake.

Table 5: Juxtaposing the changes in cassava production with the rising per-capita income

Cassava production		
1971	-	293020 hct. 4.61 m.tonne
1984	-	232753 hct. 3.95 m.tonne
1999	-	109257 hct. 1.97 m.tonne
Percapita Income		
1970	-	Rs. 594/-
1980	-	Rs. 1508/-
1990	-	Rs. 4200/-
1995	-	Rs. 11190/-
2000	-	Rs, 19465/-