Review of 12 patients with Fibrocalculus Pancreatic Diabetes Mellitus (type III) as seen at Queen Elizabeth Central Hospital (QECH)

(2 Year Retrospective Study)

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Introduction

First cases of pancreatic fibrosis and calcification were described by Sharper in Uganda in 1959[1], and by mid 1960s about 8% of diabetics registered at Mulago Diabetic Clinic had this disease[2]. Since then the disease has been reported in South America, Jamaica, South East Asia and other African states like Nigeria in the West, Kenya in the East and Zambia in the Central, but this disease has not yet been reported in Malawi. This review is presented to remind other clinicians that they must keep a vigilant watch for this type of disease in order not to miss it.

Materials and methods

The study included twelve Malawian diabetics (9 males and 3 females) aged 30 – 50 years amongst the 220 diabetic patients registered in our diabetic clinic at Queen Elizabeth Central Hospital. All these patients presented with 5 – 10 years history of predating symptoms of dyspepsia resulting in their management as cases of peptic ulcer disease and also with pancreatic calcification together with frank symptoms of diabetes mellitus. After complete physical examination each patient had the following parameters investigated, namely:- FBS, 2°PPBS, FRC, Urea, Body weight, plain abdominal x-rays.

Results

The details of results obtained are shown in Tables 1 and 2 and Figure 1.

Common clinical features as shown in Table 1 were excessive alcohol intake, upper abdominal pain and weight loss. There was no patient with a family history of diabetes mellitus. Complications such as neuropathy, nephropathy, retinopathy and macrovascular disease were uncommon during the study period.

Table 1

Clinical Features	Number of patients Affected	Percentage (%)
excessive alcohol intake	12	100
predating abdominal pain (range 5 – 10 years duration)	12	100
weight loss	12	100
family history of diabetes	0	0
neuropathy (extremities)	2	17
retinopathy (transient blurred vision)	1	8
nephropathy	0	0
macrovascular disease (diabetic foot)	1	8

Table 2

Laboratory Findings in 12 Pancreatic Diabetics

Case	Age	Sex	FBS (mg/dl)	2°PPBS (mg/dl)	Hb (g/dl)	Urea (mg%)	Body Weight (kg)	Pancreatic Calcification
1	36	M	128	314	12.5	20	40	+ve
2	40	M	180	360	13.6	18	42	+ve
3	35	F	200	408	12.8	24	39	+ve
4	33	M	166	344	11.9	28	45	+ve
5	41	F	170	368	12.6	16	38	+ve
6	50	M	136	298	11.8	12	41	+ve
7	48	M	175	406	12.2	22	38	+ve
8	38	F	158	355	11.5	17	44	+ve
9	30	M	148	348	12.0	20	46	+ve
10	43	M	130	286	13.4	13	43	+ve
11	45	M	202	498	11.6	21	45	+ve
12	37	M	152	328	12.6	26	35	+ve

Key to Table 2 : M = male, F = female, FBS = fasting blood sugar, 2°PPBS = 2 hours postprandial blood sugar, Hb = haemogram.

Table 2 shows laboratory findings in these twelve pancreatic diabetics. There were nine males aged 30 – 50 years (mean 40) and three females aged 35 – 41 years (mean 38). Anaemia was rare despite persistent weight loss. Azotaemia was also uncommon. Pancreatic calcification shown by plain abdominal x-ray was a common feature (Fig 1).

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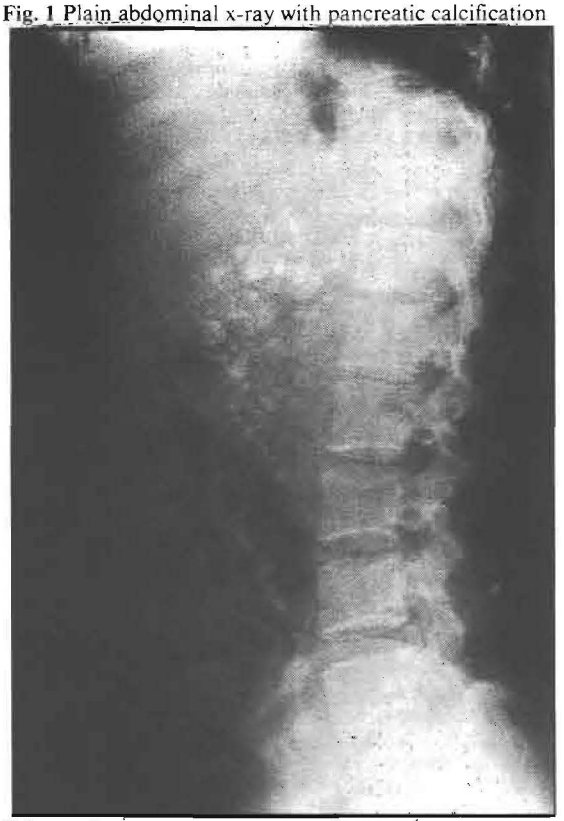
Fig. 1 Plain abdominal x-ray with pancreatic calcification



Discussion

In the tropics FCPDM should always be thought of in all diabetics of all age groups. Past history of repeated abdominal pains and failed management of what may look like peptic ulcer disease should always arouse a clinician's suspicion. In the junenile onset type evidence of malnutrition with persistent diarrhoea may be the associated clinical features. In such cases abdominal x-rays and other investigations for malabsorption should be performed. Aetiology, age onset and even predating symptoms of PCPDM may vary from one geographical region to another within the Tropics. This had led to description of the various forms of diabetes mellitus type III, namely the J, Z, K types etc.

The J-type was first described in Jamaica and now has been widely described also in Africa and Asia. Recurrent gastroenteritis with diarrhoea and vomitting results in childhood malnutrition. This causes stasis of pancreatic juices with resultant mucus plugs, pancreatic fibrosis and calcification. These patients are usually well nourished at presentation. Age onset is younger in this type of disease, thus the name of Juvenile Tropical Pancreatic Syndrome (JTPS)[3]. There is severe insulin resistance.

The Z-type – described by Zuidema in South East Asia[4] and also described in Ugandan patients[5], is associated with cassava staplefood. Here the causes are malnutrition and cassava consumption. The cassava cyanide is normally counteracted by sulphur containing amino acids. If these amino acids are lacking as in Protein Energy Malnutrition, pancreatic damage ensues and this results into fibrosis and calcification. These patients too may be insulin resistant.

The K-type (or Malawi type) has been described in Kenya, Zambia and today in Malawi. This is associated with consumption by males more than the females of strong indigenous liquor locally known as Kachasu in Malawi and Zambia or Changaa in Kenya. This is impure form of (Malawi) gin that damages the pancreas with resultant chronic pancreatitis, then fibrosis and finally calcification. Age here is 30 – 50 years with male preponderance and with predating symptoms simulating peptic ulcer disease. These patients have been found in our diabetic clinic to be usually insulin sensitive and this type of disease appears to be restricted only to sub-Sahara region.

Summary

12 patients with fibrocalculus pancreatic diabetes mellitus (FCPDM) investigated personally between June 1984 and May 1986 in our diabetic clinic are reviewed. All of them presented with frank diabetic symptoms of polyuria, polydipsia, weight loss and predating symptoms of upper abdominal pains mimicking peptic ulcer disease. Common findings were abdominal pains of 5 – 10 years duration, heavy intake of indigenous strong liquor known locally as Kachasu prior to presentation: as well as weight loss, fatigue and pancreatic calcification on plain abdominal x-rays at presentation. Uncommon findings during the study period were retinopathy, nephropathy, neuropathy and macrovascular disease. Management in all these cases was with insulin to which these patients were sensitive. The pathogenesis in these cases is as described elsewhere within the Tropics inside or outside the sub-Sahara region. The aetiology here in Malawi may however differ as discussed above.

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