

## CASE REPORT

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# Tropical Chronic Pancreatitis and Peripheral Vascular Disease. A Case Report

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### ABSTRACT

**Context** It is well-known that subjects with diabetes resulting from tropical chronic pancreatitis are prone to diabetic microvascular complications (neuropathy, nephropathy and retinopathy). However, macrovascular complications (coronary artery disease, stroke and peripheral vessel disease) are rare, as these subjects are younger, leaner and have lower cholesterol levels.

**Case report** We report the case of a 51-year-old male who had tropical chronic pancreatitis, diabetes and severe peripheral vessel disease with gangrene. He was lean, had borderline lipid levels and was normotensive. His ECG was normal.

**Conclusions** Peripheral vascular disease can occur in these diabetic subjects, even without additional risk factors for atherosclerotic vascular disease. All subjects with tropical chronic pancreatitis and diabetes should have a complete foot examination once a year, in addition to screening for other vascular complications.

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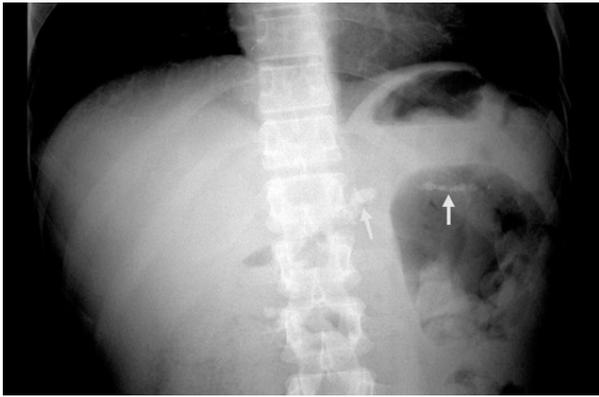
### INTRODUCTION

Tropical chronic pancreatitis (TCP) is an unusual form of non-alcoholic pancreatitis seen in the tropics. Subjects with TCP can

develop diabetes, which has been termed fibrocalculous pancreatic diabetes. It is well-known that these subjects are prone to developing the microvascular complications of diabetes. Traditionally, as these often-malnourished subjects are leaner, younger and have lower cholesterol levels, it has been suggested that macrovascular complications such as coronary artery disease, stroke or peripheral vessel disease are uncommon in these subjects; however, with the increasing survival rate of these patients, these complications are also being reported [1, 2]. We report the case of a patient with TCP who had severe peripheral vessel disease.

### CASE REPORT

A 51-year-old man, who had suffered from TCP together with diabetes for the past 23 years, presented with gangrene of his right big toe. He had a history of claudication pain for the previous 6 months (claudication distance: 200 m). He had never smoked or consumed alcohol. He had been on pancreatic enzyme supplements for the previous 10 years. He was taking two injections of premixed 30/70 insulin daily. His BMI was 19.2 kg/m<sup>2</sup> and his random blood glucose level at admission was 248 mg/dL (reference range: 80-120 mg/dL). His blood pressure was 120/80 mmHg. His lipid profile showed: total cholesterol 155 mg/dL (reference range: 150-250 mg/dL), HDL cholesterol 42 mg/dL (reference range:



**Figure 1.** An X-ray of the abdomen showing calcifications in the pancreas.

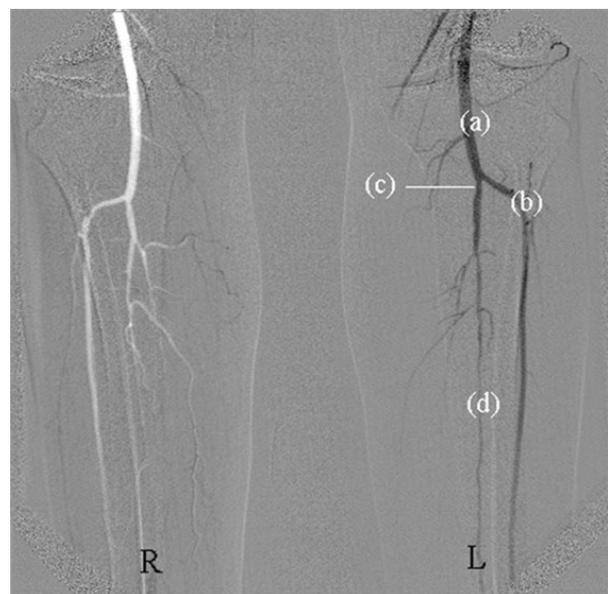
35-65 mg/dL), LDL cholesterol 100 mg/dL (reference range: 90-150 mg/dL), VLDL cholesterol of 13 mg/dL (reference range: 0-39 mg/dL), and triglycerides 70 mg/dL (reference range: 50-190 mg/dL). ECG and echocardiography were normal. He had severe bilateral distal symmetrical polyneuropathy on biothesiometry; the vibration perception threshold was 50 V at both ankle joints (reference range: 0-15 V). He also had proliferative retinopathy with traction retinal detachment in both eyes, but no nephropathy. His ankle brachial index was 0.75 in the right leg and 1.06 in the left leg (reference value: 0.90-1.20) showing impaired blood flow in the right lower limb. An X-ray of the abdomen showed pancreatic calcifications (Figure 1). An angiogram of the lower limbs showed severe peripheral vessel disease which was predominantly infrapopliteal (Figure 2). He underwent angioplasty for the stenosis of the right infrapopliteal vessels, followed by amputation of the right big toe. He was started on aspirin 75 mg, clopidogrel 75 mg and cilastazole 100 mg. With culture-specific antibiotics and proper wound dressing, the stump started to heal and the patient was discharged.

## DISCUSSION

It is well-known that diabetes due to TCP is associated with microvascular complications (neuropathy, nephropathy and retinopathy), as these are dependent on the duration and severity of hyperglycemia [1, 2]. The issue of

macrovascular disease in TCP with diabetes is quite intriguing as this gives an insight into the changing profile of the illness. To begin with, macrovascular complications of diabetes are rare in these subjects. This has been attributed to three factors: the younger age of the subjects, a lower body mass index and low cholesterol levels. However, reports of macrovascular complications have become more frequent [3]. Stroke, peripheral vessel disease, coronary artery disease and hypertension have all been reported in TCP [4, 5, 6, 7]. It has been reported that about 4.7% of diabetic subjects with TCP have peripheral vessel disease and about 5% have coronary artery disease [7].

It is tempting to speculate that this changing profile is linked to the increasing occurrence of insulin resistance syndrome (including type 2 diabetes and coronary artery disease) in tropical countries such as India. In other words, could the predisposition to macrovascular disease be linked to the co-existence of type 2 diabetes in these subjects? Another explanation is that chronic hyperglycemia is



**Figure 2.** An angiogram of the lower limbs showing severe peripheral vessel disease in this subject. (a) and (b) showing the normal popliteal and anterior tibial arteries. (c) showing the total occlusion of the posterior tibial artery at its origin (there is no visible artery originating at this point) and (d) showing a diffusely diseased peroneal artery. Similar changes are also seen in the right lower limb angiogram.

the major reason for macrovascular complications in these patients. The link between hyperglycemia and macrovascular disease is somewhat tenuous, given that other factors such as dyslipidemia, obesity and hypertension confuse the picture, especially in a type 2 diabetic subject [8]. However, these patients with pancreatic diabetes resulting from TCP (as in our case) have macrovascular disease in the absence of obesity, hypertension and overt dyslipidemia. This further tightens the links between hyperglycemia and macrovascular diseases such as peripheral artery disease. In type 1 diabetics, it has been shown that intensive insulin therapy can reduce atherosclerotic macrovascular disease [9]. Given that diabetes of subjects with TCP is similar to type 1 diabetes in that both are associated with a defect in pancreatic insulin secretion, it is likely that intensive insulin could prevent macrovascular disease in both these groups. However, there is a lack of published evidence on the issue of intensive insulin therapy in subjects with TCP.

For the present however, this case report only shows that severe peripheral vessel disease causing gangrene can occur in diabetic subjects with TCP. Therefore, regardless of whether they are seen in a busy gastroenterologist's office or in a specialized diabetes clinic, these subjects need an annual foot examination to rule out peripheral vessel disease.

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**Keywords** Diabetes Mellitus; Myocardial Ischemia; Pancreatitis, Chronic; Peripheral Vascular Diseases

**Abbreviations** TCP: tropical chronic pancreatitis

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