Transplant International

LETTER TO THE EDITOR

Diabetic cheiroarthropathy following simultaneous pancreas-kidney transplantation

doi:10.1111/j.1432-2277.2008.00825.x

We report on two patients with Type I diabetes mellitus (TIDM) treated with simultaneous pancreas-kidney (SPK) transplantation. Following this procedure, both patients developed symptomatic cheiroarthropathy. SPK has previously been shown to slow or even reverse microvascular complications, but these cases suggest that such an improvement does not occur in cheiroarthropathy.

Patient 1 was a 37-year-old Caucasian male with a 12-year history of TIDM, complicated by end-stage renal failure secondary to diabetic nephropathy, autonomic neuropathy, and significant diabetic retinopathy. The second patient was a 51-year-old Caucasian male with a 38-year history of TIDM with associated nephropathy and retinopathy. Both underwent SPK transplantation using alemtuzumab at induction followed by maintenance with tacrolimus (trough levels 8–12 nM) and mycophenolate mofetil (500 mg twice daily). Both achieved good renal and pancreatic graft function (creatinine 135–156 mM, HbA1c 5.0–5.5) but at 2 and 3 months respectively, noticed significant thickening of the skin on the dorsum of their hands and a restriction in extension, consistent with a diagnosis of cheiroarthropathy (Fig. 1). Furthermore, prior to transplantation, both patients did not complain of any such symptoms pertaining to their hands whatsoever. Over the next 17 months, with intensive physiotherapy and maintenance of good glycaemic control their condition stabilized but showed no objective evidence of improvement with respect to total range of motion and resting contractures.

Microvascular complications (nephropathy, neuropathy, and retinopathy) are a cause of significant morbidity and mortality in patients with TIDM and their development is closely linked to glycaemic control [1]. SPK transplantation provides a means of normalizing blood glucose, thus limiting the progression of these complications; Pancreas transplantation prevents the recurrence of diabetic nephropathy in a simultaneously transplanted kidney prolonging graft survival [2]. Retinal lesions, which may be advanced at time of SPK transplantation, usually stabilize in the post-transplant period [3]. Neuropathy can show a marked recovery post-SPK transplantation with measurable improvements in both nerve conduction velocities, sensory action potentials and in autonomic dysfunction in the longer term [4].

Figure 1 'The prayer sign' demonstrating fixed flexion of fingers in a patient with cheiroarthropathy, which developed post simultaneous pancreas-kidney transplantation.

Diabetic cheiroarthropathy (DCA), also known as diabetic hand syndrome, occurs in up to half of patients with TIDM, typically those with a long history of disease. It is characterized by palmar fasciitis and a

thickening of the skin on the dorsum of the hand, resulting in flexion contractures of the fingers and tight, waxy skin resembling scleroderma [5]. The aetiology of DCA is unclear, but there appears to be a strong correlation with microvascular complications, particularly retinopathy [5,6]. It has been proposed that microangiopathy of dermal and subcutaneous vessels leads to ischaemia and subsequent fibrosis of connective tissues in the hand, as seen in early systemic sclerosis [6]. Hyperglycaemia can also lead to increased glycosylation of collagen, resulting in increased cross-linking of collagen and thickening of tendon sheaths, joint capsules, and skin [5,6]. These findings have led to the suggestion that improved glycaemic control may ameliorate DCA [5]. The only published report on DCA post-SPK documented a rapid improvement in the post-transplant period, but this appeared to correlate with steroid treatment rather than glycaemic control leading the authors to postulate an inflammatory or autoimmune component to DCA [7]. This is supported by other reports of corticosteroid responsiveness in DCA [8] and its occurrence in patients with diabetes with additional autoimmune phenomenon, including thyroiditis [9]. We report a worsening of DCA following steroid-free SPK transplantation in two patients with good glycaemic control challenging the concept of DCA being regarded purely as a microvascular complication. It should also be noted that these patients received alemtuzumab at induction and this therapeutic antibody has been associated with reports of autoimmunity post-treatment [10,11]. Thus DCA post-SPK transplantation may represent a novel alemtuzumab-associated autoimmune phenomenon.

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