

# King's College Hospital Diabetic Foot Clinic: Thirty years old



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**T**he multidisciplinary Diabetic Foot Clinic at King's College Hospital was established in May 1981. This article, written by invitation on the occasion of the Clinic's 30<sup>th</sup> anniversary, reflects on its underlying principles of care.

Diabetic foot disease occurs in people who have multiple and devastating comorbidities, making this group especially fragile and vulnerable. With an appreciation that such a group needs rapid access to specialised, multidisciplinary care, the King's Diabetic Foot Clinic was opened. Successful management needs the expertise of a multidisciplinary team, which at King's College Hospital includes diabetologists, podiatrists, nurses, orthotists, surgeons and radiologists. The multidisciplinary team works closely in the outpatient Diabetic Foot Clinic, but also extends its work to inpatient care in wards, operating theatres and angiography suites. The Clinic's activity resulted in a near immediate reduction in major amputations by 50% (Edmonds et al, 1986).

## Infection

One of the fundamental roles of the Diabetic Foot Clinic has been the aggressive treatment of infection. Early diagnosis of infection is difficult because diabetic neuropathy may mask both local and systemic signs. Nevertheless, infection in the diabetic foot is responsible for rapid progression to tissue necrosis and gangrene that frequently precedes amputation and must be addressed urgently. For this reason, the Diabetic Foot Clinic established an open-access service, seeing emergency cases on the same day or within

24 hours (Foster and Edmonds, 1987). This has become an increasingly important aspect of care; emergency visits increased from 228 in 2003 to 626 in 2008, and again in 2010 to 909. Rapid admission to hospital for the person with a foot in crisis can also be arranged through the Diabetic Foot Clinic's emergency service.

## The ischaemic foot

Infection in the presence of ischaemia is especially serious in the diabetic foot. Therefore, the aggressive treatment of ischaemia has been a fundamental aspect of diabetic foot management. The Diabetic Foot Clinic has adopted modern revascularisation techniques to manage the ischaemic lower limb, namely angioplasty and bypass. These techniques – together with aggressive treatment of infection – again resulted in a 50% reduction in major amputations of the ischaemic foot (Edmonds and Foster, 2001).

More recently, the diabetic ischaemic foot has been managed at the Diabetic Foot Clinic in an integrated care pathway. In this pathway angioplasty and bypass are regarded not as competing but as complementary treatments (Zayed et al, 2009). Coordination is accomplished through a twice-weekly joint vascular service–diabetic foot team clinic, and a weekly vascular–radiology meeting attended by interventional radiologists and vascular laboratory scientists. Angiograms are carefully reviewed and decisions made jointly about the suitability of angioplasty (often performed as a day-case procedure [Zayed et al, 2008]) or arterial bypass.

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### **The renal foot**

People with diabetes and nephropathy (including renal transplant) present a extremely high-risk group for foot problems. In a 4-year prospective study, the Diabetic Foot Clinic's approach to management of this group led to a 50% reduction in gangrene (from 16% to 8%) and a very low major amputation rate (Foster et al, 1995). The feet of people with diabetes, peripheral ischaemia and end-stage renal disease have been the most difficult to treat because of the presence of diffuse disease, greater involvement of the distal and pedal vessels and extensive tissue necrosis. However, bypass can be performed safely and effectively in this group.

### **The neuropathic foot**

Over 30 years of practice, progress has also been made in treating the neuropathic foot. Total-contact casting is used by the Diabetic Foot Clinic team to treat neuropathic ulceration. This casting technique is also used in the treatment of active Charcot neuroarthropathy, where the emphasis is on early diagnosis using technetium diphosphonate bone scan or magnetic resonance imaging (MRI) when plain radiograph is initially normal. Joint orthopaedic department–diabetic foot clinics are held and salvage of the late-stage deformed Charcot foot now uses both internal and external stabilisation techniques.

Orthotic expertise has also played a vital role in offloading the neuropathic diabetic foot. This includes the provision of custom-made insoles – more recently using computerised techniques – to prevent ulcer recurrence, and the manufacture of Charcot restraint orthotic walkers and ankle foot orthoses to manage Charcot neuroarthropathy.

### **A growing problem**

In the years since the Diabetic Foot Clinic's establishment there has been an ever-increasing burden of diabetic foot care; from 1981–1984 the team treated 239 people (148 neuropathic; 91 ischaemic),

yet in only a 6-week period in early 2004 the number reached 340 people (160 neuropathic; 180 ischaemic). To cope with this increased workload, the Diabetic Foot Clinic is always evolving and has now taken on the role of an “operations” day centre for people with diabetic foot disease where they receive podiatric, nursing, medical and surgical treatment, which includes access to diagnostic, laboratory and imaging services.

### **Conclusion**

This description of diabetic foot care will resonate with many multidisciplinary diabetic foot clinics throughout the world, staffed by healthcare professionals who are valiantly doing their best to treat the diabetic foot. We have learnt that diabetic foot problems can be very complex, and that people with diabetic foot disease are very vulnerable. They need care that is easily available, specialised and coordinated; this can only be supplied by a multidisciplinary diabetic foot service, and can prevent amputation in the majority of cases.

With ever-increasing numbers of people needing diabetic foot care, I hope that all diabetic foot clinics will receive the support they require and deserve. Anything less will amount to a betrayal of people with diabetic foot disease who need prompt, specialist foot care. ■

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