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Important lessons from a rare case of Charcot osteoarthropathy of the wrist in a diabetic patient with bilateral Charcot feet

E Izadi², ME Edmonds¹, V Kavarthapu², G Vivian³, D Elias⁴, NL Petrova¹, J Compson²

¹Diabetic Foot Clinic, ²Dept of Orthopaedic Surgery, ³Dept of Nuclear Medicine and ⁴Dept of Radiology, King's College Hospital, London, United Kingdom

Background and aim: We report a rare case of Charcot osteoarthropathy of the wrist in a diabetic patient. This case has important lessons for the pathogenesis, presentation and diagnosis of Charcot osteoarthropathy. **Presentation:** A 48 years old female with 17 years duration of type 2 diabetes initially presented at her local hospital with bilateral foot ulceration complicated by sepsis. This was treated by surgical debridement of both feet and intravenous antibiotics. During her rehabilitation, she suddenly noticed change in the shape of both feet on the same day, leading to bilateral Charcot foot deformity. At this time, she also complained of pain and swelling of the right wrist which was hot and swollen but not deformed. There was no previous trauma. X-ray of the wrist was non-remarkable. She developed further infection in both Charcot feet and was referred to our Diabetic Foot Clinic. She needed further surgical debridement. She had developed a painful deformity of the wrist with abnormal prominence of the distal ulna and a positive piano key deformity. SPECT CT showed disorganisation, fragmentation and fracture of the carpal bones. Despite the use of a circumferential thermoplastic wrist splint, she progressed to a grossly destructive arthropathy with radiocarpal joint dislocation and ligamentous rupture, carpal collapse and extensive synovitis typical of Charcot osteoarthropathy and demonstrated on MRI. Interestingly, she had clinical evidence of small fibre neuropathy in her feet and hands although large fibre sensation was preserved in both feet and hands. She underwent arthrodesis of the right wrist, using modified Bower's procedure and repair of extensor tendon. A low profile wrist arthrodesis plate was used. Her pain was relieved and her deformity corrected. As her ankles showed increasing instability, despite total contact casting, she also underwent surgery namely internal fixation with intramedullary nail and screws, correcting deformity and stabilising her ankles. **Conclusion:** There are several lessons from this rare case. It demonstrates that Charcot osteoarthropathy can develop, in a non-weightbearing joint of a limb which has relatively preserved sensation and has not been subjected to obvious trauma. The initial warning was a prodromal period of warmth and swelling of the wrist although X-ray at that stage was normal. This inflammation was associated with a subsequent catastrophic disorganisation of the wrist indicative of Charcot osteoarthropathy which had already occurred in both lower limbs. Modern orthopaedic techniques can now stabilise Charcot deformity both in lower and rarely in upper limbs.