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CASE REPORT Changes in local antibiotic delivery systems for the management of osteomyelitis

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Traditionally osteomyelitis has been managed with systemic antibiotics with or without surgical debridement of infected bone. Sometimes local antibiotic delivery systems are used in conjunction with surgery. This case history follows a 56yr old patient with type 2 diabetes who presented with ulcers under his 1st metatarso-phalangeal (MP) joint bilaterally 10 years apart and changes in the antibiotic delivery system we used in his management. He first presented to our multidisciplinary clinic in 2003 with an ulcer under his left 1st MP joint. He was treated with oral antibiotics and placed into an off-loading cast. He went on to develop osteomyelits with periosteal reaction the full length of his 1st metatarsal. This was unresponsive to systemic antibiotics and a ray amputation was carried out at the level of the metatarso-cuneiform joint. The wound was packed with gentamicin impregnated methyl methacrylate beads. The wound went on to heal uneventfully. Despite wearing bespoke footwear the foot collapsed due to the lack of support of the 1st ray. He subsequently developed overloading of the left 2nd metatarsal requiring further surgery. Over a 5 year period he developed ulcerations under the right 2nd and 5th metatarsals requiring surgery. Ten years after initial presentation he represented with an ulcer under his right 1st MP joint. Conservative treatment failed and the infection spread with 3 blow-out lesions. This time surgery was undertaken to try and preserve the hallux and 1st metatarsal by impregnating the infected bone with high purity calcium sulphate mixed with vancomycin and gentamicin. The alternative would have been to carry out a forefoot amputation as a 1st ray amputation would not leave a sustainable ulcer-free foot. His wound healed completely 3 weeks after surgery. **Discussion**: Highly purified calcium sulphate has many advantages over other localised antibiotic delivery systems. Antimicrobials of choice can be added to the preparation to target causative organisms. The calcium sulphate is reabsorbed and therefore a second procedure is not required to remove the beads. Minimal bone resection is required thereby more of the foot is salvaged. We has now adopted this as treatment of choice in the management of osteomyelitis in patients who are unresponsive to systemic antibiotics