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Wound swabs and bone biopsy in diabetic foot osteomyelitis.

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Background: Osteomyelitis in the diabetic foot can lead to amputation. Appropriate identification of the organism causing infection can direct antibiotic therapy. In this retrospective study we looked at patients with confirmed osteomyelitis and obtained bone biopsy and swabs and cultured them to isolate organism from the infected bone. **Methods:** This retrospective study was conducted at a regional diabetic foot clinic where all patients who had confirmed osteomyelitis and bone biopsies were included in the study. The charts of patients with known diabetes and osteomyelitis during the period 1st January 2011 - 31st December 2011 were analyzed. Patient's demographics, biochemistry and microbiological data were obtained from the case notes and laboratory. Tissue cultures were obtained from either the base of the wound or wound edge and undertaken in combination with a deep wound swab. Bone biopsies were performed by the podiatric surgeons either during surgical removal of infected bone, or percutaneously in theatre under guided fluoroscopy through non infected tissue with an 11- gauge biopsy needle. **Results:** 66 cases of confirmed Osteomyelitis in 102 joints were entered into the study. Mean age of the study population was 61.3±11.4 years and 66.7% were males and 98.5% had Type 2 diabetes. Mean HbA1c 9.9±2.0%, ESR 87.6±38.6 mm/hr, CRP 96 ±88.4 mg/l. 64 (97%) patients had a positive history of a preceding foot ulceration, and in 50 of the cases (78.1%) a positive probe to bone test was recorded. Gram positive bacteria were the predominating pathogens cultured from bone biopsy methods in 71.4%, with *S. aureus* accounting for 30.2% of all gram positive bone biopsies alone. Gram negative bacteria were cultured 28.6% of bone biopsies with *E coli* and *Klebsiella pneumoniae* accounting for the majority of 21.4% of cultures. 34 patients had both bone biopsy and wound swab. In 25 patients (73.5%) there was at least one organism isolated from both procedures. *Pseudomonas aeruginosa* was however the most commonly cultured pathogen across all methods of culturing in the gram negative group in 31%. **Conclusions:** The pattern and distribution of osteomyelitis in this study reflected similar findings to that from other centers. The high ESR reflects the nature of inflammation in chronic osteomyelitis, which was elevated in all patients in this study. Raised CRP along with elevated ESR can be good markers of underlying osteomyelitis. Bone culture correlates with organisms cultured from wound swabs and the latter can be used to guide antibiotic therapy in centers where bone biopsies may not be readily available. Probe to bone test can be utilized as an effective bedside test to aid in the diagnosis of osteomyelitis.