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[O26] ROLE OF PREOPERATIVE BONE BIOPSY IN THE MICROBIOLOGICAL DIAGNOSIS OF LOWER EXTREMITY CHRONIC OSTEOMYELITIS

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Aim: The ultimate diagnostic proof of chronic osteomyelitis (COM) is the association of a compatible clinical presentation with an unequivocal positive deep bone sample culture. Intraoperative deep bone samples cultures has been widely considered the gold standard in this setting but the preoperative identification of the infecting microorganism through a bone biopsy is of paramount importance in the diagnostic and treatment protocol of any COM. Unfortunately, preoperative bone biopsies have proven to have a broad range of sensitivity values and the most useful biopsy technique remains unknown. The correlation of the preoperative and intraoperative microbiological results is a matter of concern. The purpose of this study was to assess the diagnostic accuracy of a percutaneous bone biopsy (PBB) and an open bone biopsy (OBB) in isolating the infecting organism in cases of lower extremity chronic osteomyelitis.

Methods: A retrospective study was done involving 29 patients suspected of COM and where either a PBB or OBB was performed during the preoperative diagnostic workup. Culture results from PBB and OBB were compared with intraoperative tissue cultures at the time of surgery. Epidemiologic data was recorded, Cierny-Mader type, number of samples, susceptibility profile, and technique-related complications. Only tibia and femur osteomyelitis were considered.

Results: Finally 29 patients were included in the analysis, twenty were men, with a mean age of 45 years old. In 19 cases the tibia was the involved bone. Type-IV osteomyelitis was the most frequent type of infection. The procedure was made percutaneously in sixteen cases (55%) and open biopsy was performed in thirteen patients. The most common pathogen encountered in our series were the Gram-positive cocci (*Staphylococcus aureus* in 13.8% of the cases, Coagulase negative *Staphylococcus* (CoNS) in 27.6% and *Streptococcus viridans* in 3.45% of the cases). Overall, the preoperative bone biopsy sensitivity was 48.2% while the specificity was 52.2%. Positive and negative predictive values were 54.2% and 46.15% respectively. In the case of the drugs most frequently used how local antibiotics, 50% of all *Staph. aureus* were resistant to gentamicin, 37.5% among CoNS and 20% among Gram-Negative Bacilli. No gram-positive resistance against Vancomycin was founded.

Conclusions: According our data, routine bone biopsy does not add a relevant diagnostic value in the preoperative microbiological diagnosis of COM. Although our accuracy is higher than normally reported in the literature, the cost, invasive nature, and the possibility of complications makes necessary to identify which patients could benefit from this diagnostic technique.