



# Neurocirugía



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## C-0239 - IMPLANT MICROBIAL COLONIZATION DETECTED BY SONICATION AS A CAUSE FOR SPINAL DEVICE FAILURE: A PROSPECTIVE STUDY

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### Resumen

**Objectives:** To examine the potential role of sonication in the diagnosis of low-grade infections and its association with pedicle screw (PS) loosening, and to describe risk factors and radiological findings associated with spinal implant infection.

**Methods:** We prospectively included all patients who were subjected to implant removal. PS loosening was assessed with computed tomography (CT) scan. Different clinical and radiological parameters which could serve as indicators of implant infection were studied.

**Results:** 38 patients were included in the study and 11 of them (29%) had a positive sonication result. Patients with spinal implant infection were associated with screw loosening ( $p = 0.005$ ). Particularly, those screws with a positive microbiological culture showed signs of screw loosening in the preoperative CT scan ( $p < 0.001$ ). Our results also showed that radiological screw loosening at L1-L3 level, and loosened larger constructs were associated with screw microbial colonization. The most common isolated microorganisms were coagulase-negative staphylococci and *Cutibacterium acnes*. An implant-based multivariate analysis indicated that screw loosening, the absence of prophylactic cefazolin, ICU hospitalization, screw breakage and L1-L3 spine level were independent risk factors for implant-associated infection. Our model exhibited a high predictive power with an Area Under the Curve (AUC) of 0.937.

**Conclusions:** As clinical presentation of deep implant chronic infection is unspecific, consideration of these factors enables preoperative prediction and risk stratification of implant colonization, thus helping patient's management.