Intraoperative Direct Sonication of Implants and Soft Tissue for the Diagnosis of Periprosthetic Joint Infection

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This novel protocol exhibited a diagnostic capacity comparable with the conventional sonication method while substantially simplifying the sonication process.

Prospective study involving patients with total hip or knee arthroplasty (August 2021 to March 2022)

- Consecutive patients requiring implant removal (N = 64)
- Prosthetic components
- Adjacent soft tissue
- BACT/ALERT 3D blood culture system

Patients with PJI (n = 36)
- Sensitivity: 91.7%
- Specificity: 82.1%
- Fluid from direct sonication

Patients with aseptic failure (n = 28)
- Sensitivity: 55.6%
- Specificity: 92.9%
- Conventional synovial fluid

14 cases of PJI detected by culturing the direct sonication fluid but not by culturing the synovial fluid

The detection times for Staphylococcus aureus and coagulase-negative Staphylococcus were comparable

However, it involves several steps, materials, and personnel, increasing the risk of contamination

Innovative Sonication Method for the Intraoperative Diagnosis of Periprosthetic Joint Infection

Sonication is a popularly used technique for the diagnosis of microbial periprosthetic joint infection (PJI)

Sonication involves several steps, materials, and personnel, increasing the risk of contamination.