

Evaluating the Diagnostic Yield of Sonication in Late Hip and Knee Arthroplasty Infections: Is it Always Superior to Tissue Culture?

Christos Kyriakopoulos, Charalampos Tsakiroopoulos, Panagiotis Masouros, Nikos Siatos, Antonios Anastasiadis
ST' Orthop. Depart. General Hospital of Attikis 'KAT', Greece

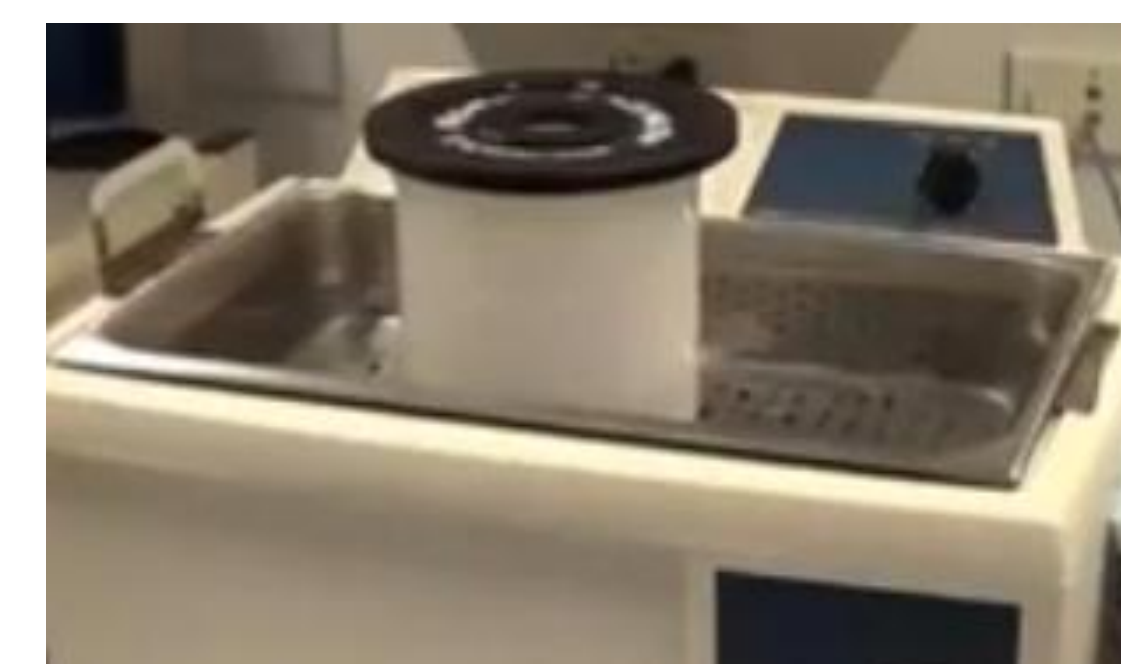
• Introduction & Aim:

- Differences between sonication culture and tissue culture are to be expected, given that they are fundamentally different methods
- Sonication culture may detect different microorganisms compared to tissue culture. In some cases, it may identify additional organisms that tissue culture fails to detect in polymicrobial infections, or it may miss microorganisms that are identified in tissue culture.
- These discrepancies are clinically significant, as they not only affect the definition of periprosthetic joint infection (PJI) cases, but also influence patient management and the selection of appropriate antibiotics.
- To compare the results of sonication in relation to the results of tissue and joint cultures in late periprosthetic infections of total hip and knee arthroplasties



• Methods and material

- Between 2016 and 2025, seven patients with late (more than 2 years postoperatively) periprosthetic infection following total hip and knee arthroplasty were retrospectively studied. The diagnosis was established according to MSIS criteria. In all patients, intraoperative tissue cultures and sonication cultures were obtained.
- All remained in hospital until the final results of the sonication culture and received antibiotic therapy.
- All patients were treated with a two-stage revision, using a spacer in the first stage.



• Results

- In 4 patients, the sonication culture matched the tissue cultures.
- In 1 case, while a pathogenic microorganism was isolated from the tissue cultures, the sonication culture showed no growth.
- In 1 patient, the sonication culture revealed an additional microorganism.
- In 1 patient with a multi-organism infection in tissue cultures, sonication revealed only one microorganism.



• Conclusions

- It is worth noting that tissue cultures remain significantly reliable. Although sonication culture takes more time to show results, it seems to help in the personalized management of late periprosthetic infections. It clarifies the suspicion of periprosthetic infection by either confirming the result of tissue cultures or contradicting it. It becomes particularly valuable in cases of doubt or in polymicrobial tissue cultures.



• References

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