



Withholding Prophylactic Antibiotics Improves Culture Yield in Revision TKA for Periprosthetic Joint Infection With Negative Aspirations: A Multicenter Retrospective Study

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BACKGROUND

- Preincision antibiotic prophylaxis reduces infection risk in total knee arthroplasty, but its role during revision surgery for periprosthetic joint infection (PJI) remains uncertain.
- Administering antibiotics before intraoperative cultures are obtained may suppress culture yield or alter concordance with the preoperative aspiration, potentially complicating postoperative antimicrobial selection.
- **Purpose: To determine whether the timing of prophylactic antibiotics affects intraoperative culture yield and aspirate-to-tissue concordance during two-stage exchange for chronic knee PJI.**

METHODS

- Retrospective multicenter study of 576 patients with chronic knee PJI treated with two-stage exchange arthroplasty and ≥ 1 year follow-up.
- PJI was defined using the 2013 Musculoskeletal Infection Society (MSIS) criteria.
- Patients without preoperative synovial aspiration or receiving outpatient antibiotics within 2 weeks of aspiration or revision surgery were excluded (n=182).
- Preoperative aspirate cultures, intraoperative tissue cultures, and prophylactic antibiotic regimens were recorded.
- Prophylaxis was administered before incision in 49% and withheld in 51%.

RESULTS

- Overall intraoperative culture positivity was identical with early versus delayed prophylaxis (63% vs. 63%, $p=0.960$).
- Aspirate-to-tissue concordance was also similar (85 versus 80%, $P = 0.225$).
- Among patients with positive preoperative aspiration, antibiotic timing did not affect intraoperative culture yield (89% vs. 87%, $p=0.531$).
- However, in patients with a negative preoperative aspiration, withholding prophylaxis significantly increased culture yield (49% vs. 29%, $p=0.015$).

CONCLUSION

- Antibiotic prophylaxis timing did not influence overall intraoperative culture yield or aspirate-to-tissue concordance in revision TKA for PJI.
- However, when the preoperative aspiration was culture-negative, withholding prophylactic antibiotics significantly improved the likelihood of identifying a pathogen.
- Surgeons should consider delaying prophylaxis in this subgroup to optimize microbiologic diagnosis.