Unexpected Positive Cultures in 183 Aseptic Revision TKA: Low Risk of PJI at Midterm Follow-Up

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INTRODUCTION: Unexpected positive cultures in aseptic revision total knee arthroplasties (TKAs) are frequently reported in the literature. However, their risk of subsequent periprosthetic joint infection (PJI) remains unclear. This study evaluated management strategies of unexpected positive cultures after aseptic revision TKA, midterm survivorship free of PJI, and risk factors for infection after index revision.

METHODS: We retrospectively identified 183 aseptic revision TKAs with unexpected positive cultures performed from 2009-2022 at a single academic institution. At the time of index revision, all patients had an MSIS score of <2 based on 2011 criteria. The most common organism isolated was coagulase-negative *Staphylococcus* (32%). The median number of positive intraoperative cultures was 1 (range, 1-3), and 8% were grown in broth only. The mean age was 65, 52% were women, and mean BMI was 32 kg/m^2. Mean follow-up was 3 years.

RESULTS:

Of the 183 revision TKAs with unexpected positive cultures, 50% were prescribed postoperative antibiotics, with 67% prescribed two weeks or less of oral antibiotics. The 5-year survivorship free of revision for PJI was 95%. There were nine subsequent revisions for PJI. Of the nine aseptic revision TKAs with a subsequent PJI, all had a single culture isolated during the index aseptic revision, and six (67%) were prescribed post-operative antibiotics after the index revision. A different organism from the unexpected positive culture was isolated in all subsequent PJIs, with the most common being *Staphylococcus aureus* (33%). Postoperative antibiotic therapy and number of positive cultures at index revision were not associated with subsequent PJI.

DISCUSSION AND CONCLUSION:

In this series of 183 aseptic revision TKA with unexpected positive cultures, the 5-year survivorship free of PJI was excellent at 95%, and there were no subsequent PJI with the same organism. There was no association between postoperative antibiotics, or number of cultures isolated and PJI risk.