Unexpected Positive Cultures in Aseptic Revision Hip and Knee Arthroplasty: Prevalence and Outcomes at Mid-term Follow-up

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INTRODUCTION:
The outcomes of patients with unexpected positive cultures (UPCs) during revision total hip arthroplasty (THA) and total knee arthroplasty (TKA) remain unknown. The objectives of this study were to establish the prevalence and infection-free implant survival in UPCs during presumed aseptic single-stage revision THA and TKA at mid-term follow-up.
METHODS:
This study included 297 patients undergoing presumed aseptic single-stage revision THA or TKA at a single treatment centre. All patients with at least three UPCs obtained during revision surgery were treated with minimum three months of oral antibiotics following revision surgery. The prevalence of UPCs, causative microorganisms, recurrence of PJIs and infection-free implant survival were established at minimum 5-years' follow-up (range 5.1 to 12.3 years)
RESULTS:
Of the 297 patients undergoing aseptic revisions, 37 patients (12.5%) had at least three UPCs obtained during surgery. The UPC cohort included 23 males (62.2%) and 14 females (37.8%), with mean age of 71.2 years (range, 47 to 82 years). Comorbidities included smoking (56.8%), hypertension (48.6%), diabetes mellitus (27.0%), and chronic renal impairment (13.5%). The causative microorganism included *Staphylococcus epidermidis* (49.6%); *Bacillus species* (18.9%); *Micrococcus species* (16.2%) and *Cutibacterium acnes* (16.2%). None of the study patients with UPCs developed further PJIs or required further surgical intervention during follow-up.
DISCUSSION AND CONCLUSION:
The prevalence of UPCs during presumed aseptic revision THA and TKA was 12.5%. The most common causative microorganisms were of low-virulence, and included *Staphylococcus epidermidis, Bacillus* species, *Micrococcus* species and *Cutibacterium acnes.* Microorganism-specific antibiotic treatment for minimum three months duration of UPCs in presumed aseptic revision arthroplasty was associated with excellent infection-free implant survival at mid-term follow-up.