

***Cutibacterium acnes* Periprosthetic Joint Infections: Presentation and Treatment Considerations**

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INTRODUCTION:

Cutibacterium acnes (*C. acnes*; previously known as *Propionibacterium acnes* or *P. acnes*) periprosthetic hip and knee infections are underreported. While culture contamination with *C. acnes* occurs, true infections are important to recognize and treat. We sought to describe the demographics and treatment outcomes of patients with *C. acnes* hip and knee periprosthetic joint infections (PJIs).

METHODS:

Patients with *C. acnes* PJI of the hip and knee between 2001 and 2020 were retrospectively reviewed utilizing the institutional total joint registry. Patients with monomicrobial PJI and two positive cultures were considered to have true *C. acnes* PJI. Patients with polymicrobial infection or with *C. acnes* contaminants were excluded. This resulted in 36 PJIs (21 hips and 15 knees) with mean age 62 years and 42% female. Mean follow-up was 5 years.

RESULTS:

The median time to positive culture was 5 days (range, 3-9) and median synovial fluid cell count was 35,916 (range, 3200-146,000). The median erythrocyte sedimentation rate (ESR) was 20 mm/hr (range, 1-112), and C-reactive protein (CRP) was 20 mg/L (range, 1-104). Of the 36 PJIs, 18 (50%) were treated with chronic antibiotic suppression without surgery, and the remainder were treated with two-stage exchange arthroplasty. The survivorship free of reoperation for reinfection at two and five years was 92% and 86%, respectively. The survivorship at two years free of revision was 94% and free of reoperation was 88%. The mean Harris Hip Score (HHS) for THA patients was 79 preoperatively and 85 at two years. The mean Function component of the Knee Society Score (KSS) was 58 preoperatively and 64 at two years.

DISCUSSION AND CONCLUSION: Laboratory evidence of *C. acnes* infection in this cohort was typical compared to more conventional organisms. Cultures grew more quickly than previously thought in patients with *C. acnes* infection. Treatment with surgery or chronic antibiotic suppression alone both resulted in successful outcomes without reoperation at mid-term follow-up.