

***Cutibacterium acnes* Colonization: Implications for Total Hip Arthroplasty**

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Introduction: *Cutibacterium acnes* (*C. acnes*) is now recognized as a clinical entity in periprosthetic joint infections (PJI) of the shoulder and spine. However, the colonization rate of *C. acnes* in the adult hip is currently unknown. Therefore, the purpose of this study was to investigate the rate of *C. acnes* colonization from the skin of healthy subjects from various anatomic locations corresponding to direct anterior and lateral/posterolateral surgical approaches.

Methods: 90 patients scheduled for hip or knee surgery were recruited for cultured biopsies. Four 3-mm dermal punch biopsies were collected after administration of anesthesia, but prior to delivery of perioperative antibiotics. Pre-biopsy skin prep consisted of a standardized preoperative 2% chlorhexidine skin cleanse and an additional 70% isopropyl alcohol mechanical skin scrub immediately prior to biopsy collection. Two culture samples 10-cm apart were collected from a location approximating a standard direct anterior skin incision, and two samples 10-cm apart were collected from a location approximating a lateral skin incision (suitable for a posterior, direct-lateral or anterolateral surgical approach). Samples were cultured for two weeks.

Results: 22 of the 90 (24%) patients had a positive culture biopsy, 14 of which (16% of all patients) were positive for *C. acnes*. Ten (71%) of the culture positive biopsies for *C. acnes* were obtained from the anterior location with 50% of those obtained from the most proximal sample site.

Conclusions: Approximately 16% of the patients in the study demonstrated positive *C. acnes* colonization about the hip, the majority of which occurred from an anterior location. *C. acnes* should be considered in the diagnosis of PJI after THA. Given the high rate of skin colonization, particularly regarding the direct anterior approach to the hip, these results have stimulated consideration for different skin preparations for the THA patient.