Prof. Levy's theory on the role of C Acnes in the aetiology of Osteoarthritis receives further scientific support from Robert Hudek et al.

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Cutibacterium acnes is an intracellular and intra-articular commensal of the human shoulder joint

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Background: *Cutibacterium acnes* (*C acnes*) is a mysterious member of the shoulder microbiome and is associated with chronic postoperative complications and low-grade infections. Nevertheless, it is unclear whether it represents a contaminant or whether it accounts for true infections. Because it can persist intracellularly in macrophages at several body sites, it might in fact be an intra-articular commensal of the shoulder joint.

Methods: In 23 consecutive, otherwise healthy patients (17 male, 6 female; 58 years) who had no previous injections, multiple specimens were taken from the intra-articular tissue during first-time arthroscopic and open shoulder surgery. The samples were investigated by cultivation, genetic phylotyping, and immunohistochemistry using *C acnes*–specific antibodies and confocal laser scanning microscopy.

Results: In 10 patients (43.5%), cultures were *C acnes*–positive. Phylotype IA1 dominated the subcutaneous samples (71%), whereas type II dominated the deep tissue samples (57%). Sixteen of 23 patients (69.6%) were *C acnes*–positive by immunohistochemistry; in total, 25 of 40 samples were positive (62.5%). Overall, 56.3% of glenohumeral immunohistochemical samples, 62.5% of subacromial samples, and 75% of acromioclavicular (AC) joint samples were positive. In 62.5% of the tested patients, *C acnes* was detected immunohistochemically to reside intracellularly within stromal cells and macrophages.

Discussion: These data indicate that *C acnes* is a commensal of the human shoulder joint, where it persists within macrophages and stromal cells. Compared with culture-based methods, immunohistochemical staining can increase *C acnes* detection. Phylotype II seems to be most prevalent in the deep shoulder tissue. The high detection rate of *C acnes* in osteoarthritic AC joints might link its intra-articular presence to the initiation of osteoarthritis.

Level of evidence: Level III; Cross-Sectional Design; Epidemiology Study

Keywords: *Cutibacteriu*

To our knowledge, Levy et al were the first to hypothesize that *C acnes* might be an underestimated pathogen causing shoulder osteoarthritis.[42]

42. Levy O, Iyer S, Atoun E, Peter N, Hous N, Cash D, et al. *Propionibacterium acnes*: an underestimated etiology in the pathogenesis of osteoarthritis? J Shoulder Elbow Surg 2013;22:505-11. https://doi.org/10.1016/j.jse.2012.07.007