

عنوان مقاله:

Quantitative Real-Time Polymerase Chain Reaction May Serve as a Useful Adjunct to Conventional Culture in The Detection of Cutibacterium acnes in the Glenohumeral Joint: A Study of ۱۰۰ Consecutive Patients

محل انتشار:

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تعداد صفحات اصل مقاله: ۶

نویسندگان:

Matthew Como - *Department of Orthopaedic Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA, USA*

Rajiv Reddy - *Department of Orthopaedic Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA, USA*

Margaret Hankins - *Department of Orthopaedic Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA, USA*

Gillian Kane - *Department of Orthopaedic Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA, USA*

Dongzhu Ma - *Department of Orthopaedic Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA, USA*

Peter Alexander - *Department of Orthopaedic Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA, USA*

Kenneth Urish - *Department of Orthopaedic Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA, USA*

Amin Karimi - *Department of Orthopaedic Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA, USA*

Albert Lin - *Department of Orthopaedic Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA, USA*

خلاصه مقاله:

Objectives: Synovial fluid or tissue culture is the current gold standard for diagnosis of infection, but Cutibacterium acnes (C. acnes) is a frequent cause of shoulder PJI and is a notoriously fastidious organism. The purpose of this study was to compare quantitative real-time polymerase chain reaction (qRT-PCR) to standard culture as a more rapid, sensitive means of identifying C. acnes from the glenohumeral joint. We hypothesized that qRT-PCR would be more effective than standard culture at identifying C. acnes and would have greater sensitivity and specificity for detecting infection. **Methods:** This was a prospective observational study with ۱۰۰ consecutive patients undergoing arthroscopic or open shoulder surgery with known positive and negative controls. Intraoperatively, synovial fluid and tissue was obtained for C. acnes qRT-PCR and results were blinded to the gold standard microbiology cultures. **Results:** Clinical review demonstrated ۳ patients (۳%) with positive cultures, none of which were positive for C. acnes. Of the samples tested by the C. acnes qRT-PCR standard curve, ۱۲.۲% of tissue samples and ۴.۵% of fluid samples were positive. Culture sensitivity was ۶۰.۰%, specificity was ۱۰۰.۰%, PPV was ۱۰۰.۰%, and NPV was ۹۷.۹%. C. acnes qRT-PCR standard curve sensitivity, specificity, PPV, and NPV was ۶۰.۰%, ۹۰.۳%, ۲۵.۰%, and ۹۷.۷% respectively for tissue specimens and ۰%, ۹۵.۲%, ۰%, and ۹۵.۲% respectively, for fluid specimens. For combination of culture and tissue qRT-PCR, the sensitivity, specificity, PPV and NPV was ۱۰۰%, ۹۰.۳%, ۳۵.۷%, and ۱۰۰%, respectively. **Conclusion:** We report that qRT-PCR for C. acnes identified the organism more

frequently than conventional culture. While these findings demonstrate the potential utility of qRT-PCR, the likelihood of false positive results of qRT-PCR should be considered. Thus, qRT-PCR may be useful as an adjuvant to current gold standard workup of synovial fluid or tissue culture for the diagnosis of infection. Level of evidence: II

کلمات کلیدی:

cutibacterium acnes, Periprosthetic joint infection, Polymerase chain reaction, Shoulder Arthroplasty, Shoulder arthroscopy

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