

Is Posterior Delamination in Arthroscopic Rotator Cuff Repair Hidden to the Posterior Viewing Portal?

Yung Han, MD, FRCSC, USA

Jin-Hyup Shin, MD, KOREA

Chang-Woo Seok, MD, KOREA

Chang-Hyun Lee, MD, KOREA

Seung-Ho Kim, MD, PhD, KOREA

Madi Hospital

Seoul, KOREA

Summary:

Since the treatment of delamination in rotator cuff repair is important to the healing process, this study examines if the commonly used posterior viewing portal fails to appreciate these lesions when compared to differential rotator cuff portals, and proposes a treatment-based classification.

Abstract:

BACKGROUND: Failure of rotator cuff healing is problematic in rotator cuff repair and untreated delaminated lesions have been considered to impede the healing process.

PURPOSE: The purposes of this study were: 1) to examine if posterior delamination is hidden to the most commonly used posterior viewing portal compared to differential rotator cuff portals, and 2) to observe posterior delamination patterns so that a treatment-based classification system may be proposed.

METHODS: One-hundred thirty consecutive patients undergoing arthroscopic repair by 4 different surgeons were prospectively evaluated for the presence of posterior delamination viewable through the posterior, posterolateral, and lateral portals. Randomized arthroscopic pictures were viewed by 2 independent blinded observers and Fleiss' kappa was used to assess inter-reliability agreement. Additionally, patterns of posterior delamination and surgical treatment were assessed.

RESULTS: The incidence of posterior delamination was 88%. Only 11% were visualized through the posterior portal, whereas 70% and 100% were visualized through the posterolateral and lateral portals, respectively. Fleiss' kappa was 0.78 (95% CI, 0.73 - 0.83) indicating substantial agreement. Three general patterns of posterior delamination with specific surgical repair strategies were identified: type A1) full-thickness tears with extensive posterior delamination separating the rotator cuff into 2 layers and sometimes with dissociation of the rotator cable; type A2) bursal sided partial-thickness tears with posterior delamination; type B1) delamination with L-shaped bursal layer tear and crescent shaped articular layer tear; type B2) partial-thickness articular sided tear with extensive posterior delamination; and type C) extensive degeneration hallmarked by the "overcooked chicken" sign.

CONCLUSIONS: The incidence of posterior delamination is extremely high and the majority of these lesions are missed if viewing from just the posterior portal. Differential rotator cuff portals are needed to appreciate and treat posterior delamination. Patterns of delamination can be classified according to surgical repair strategy. It is important to recognize that the rotator cable may delaminate from the cuff and not to mistake it for a "retracted" articular layer as previously described.