



# Can “infraspinatus rotational transfer” be a surgical option for severe rotator cuff tears?

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The treatment of severe rotator cuff tears remains challenging [1]. Complete repair of a rotator cuff tear gives good results, but some cases are difficult to repair due to severe retraction or poor quality [2]. Therefore, in severe rotator cuff tear, various surgical methods such as debridement, partial repair, tendon transfer, superior capsule reconstruction, and reverse shoulder arthroplasty have been introduced. However, the optimal method is controversial due to its high failure rate, longevity concerns, and unpredictable results [3-5].

The importance of covering the original footprint in rotator cuff repair is well known [6]. However, the re-tear rate increases when excessive tension is applied to the repaired rotator cuff tendon [7]. After Debeyre et al. [8] introduced the muscle advancement technique to elevate the supraspinatus from the supraspinatus fossa for covering the footprint in 1965, various modifications have been reported. Recently, Yokoya et al. [9] and Gupta et al. [10] reported good results using both supraspinatus and infraspinatus advancement techniques.

On the other hand, Harada et al. [11] introduced a new surgical method for severe rotator cuff tear using only infraspinatus advancement in "The clinical outcomes of infraspinatus rotational transfer for irreparable posterosuperior rotator cuff tears: a preliminary report." In this study, Harada reported a low failure rate (2/34, 5.9%) at 1 year after surgery in 34 patients. Compared

with the failure rate of previous surgical methods of severe rotator cuff tear, the results were superior or similar [12]. Rotator cuff repair using its own tendon produces better results than other reconstruction or transfer surgery [9]. It is also meaningful in that it showed satisfactory results even at the age of 75 or older. All functional scores and shoulder elevation range were significantly improved after 1 year of surgery. However, there was no improvement in external rotation range or strength related to the infraspinatus. As mentioned by the authors, the elevation was improved by increasing the efficiency of the deltoid muscle due to the “spacer effect” of the transferred infraspinatus, but the function of the infraspinatus may have been sacrificed. However, previous muscle advancement studies have shown improved external rotation strength in the 2-year follow-up after surgery, so close observation is likely to be required [13].

There is a risk of suprascapular nerve palsy in this muscle advancement technique [14]. Compared to the recent surgical technique that advanced both infraspinatus and supraspinatus, in case of advancement of only the infraspinatus, a longer length of infraspinatus must be advanced to cover the great tuberosity. This may cause retraction of the suprascapular nerve and may increase the risk of palsy. Therefore, suprascapular nerve release will have to include cutting of the transverse scapular ligament during surgery [15]. It is also necessary to consider cosmetic is-

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sues due to open surgery and scapular dyskinesia due to muscle damage around the scapular.

Nevertheless, “infrapinatus rotational transfer” may be a good surgical option for severe rotator cuff tears. However, in a situation where various surgical methods for irreparable rotator cuff tear are being reported, biomechanical studies and comparison studies that can show superiority are needed. In addition, due to the short follow-up period, research on long-term outcomes and complications should continue.

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