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Meta Analysis

Arthroscopic rotator cuff repair with and without acromioplasty for rotator cuff tear: A meta-analysis of randomized controlled trial

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ABSTRACT

Introduction: Although acromioplasty is being widely performed with arthroscopic rotator cuff repair, it remains unknown whether it improves functional outcomes or decrease retear rate. The aim of this meta-analysis is to compare the clinical outcome of arthroscopic rotator cuff repair with and without acromioplasty for the treatment of rotator cuff tear.

Methods: A search was performed in the MEDLINE, EMBASE, and Ovid databases. All randomized controlled trials that reported the outcome of arthroscopic rotator cuff repair with and without acromioplasty were included in the meta-analysis. The outcomes were American Shoulder and Elbow Surgeons (ASES) score, Constant score, UCLA score, and retear rate. We then analyzed the data using RevMan (version 5.1).

Results: The literature search identified a total of 5 studies with 447 patients that were included in the meta-analysis. There was no significant difference in the American shoulder and elbow surgeons, University of California-Los Angeles (UCLA), or constant scores between the acromioplasty and nonacromioplasty group.

Conclusion: Our meta-analysis does not demonstrate any difference in the functional outcome and retear rate of arthroscopic rotator cuff with or without acromioplasty.

Level of evidence: Level II. Therapeutic study.

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1. Introduction

Rotator cuff tears are one of the most common shoulder injuries and can be a source of persistent pain, disability, and decreased range of motion (ROM) and strength.¹ Medium to large rotator cuff tears are treated with rotator cuff repair.

Traditionally, acromioplasty have been routinely performed, as a part of the arthroscopic repair.² Acromioplasty is an effective surgical procedure in increasing the height of the subacromial space, and thus relieving the symptoms of impingement syndrome. The mechanical impingement is believed to contribute to abrasion of the supraspinatus tendon, eventually leading to its rupture.³ Neer hypothesized that

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acromioplasty smoothens the area of contact over the supraspinatus tendon and decreases mechanical wear.⁴ The effectiveness of acromioplasty, as an adjuvant procedure in rotator cuff repair, remains unknown, with some studies supporting this while others refuting any benefit.⁵⁻⁷ Despite this, the incidence of acromioplasty with rotator cuff repair has significantly increased recently.^{8,9}

Randomized controlled trials are considered to be the most reliable form of scientific evidence in the hierarchy of evidence because randomized controlled trials reduce spurious inferences of causality and bias. Our aim was to compare the functional outcome, revision rate of the two groups of patients treated for rotator cuff repair with and without acromioplasty by arthroscopic method. Our hypothesis was that both the groups were comparable, with no benefit of acromioplasty.

2. Methods

This meta-analysis was conducted according to the guidelines of Preferred Reporting Items for Systematic Reviews and Meta-Analysis and the Cochrane Handbook for Systematic Reviews of Interventions.

2.1. Literature search

We searched the Cochrane Central Register of Controlled Trials (The Cochrane Library, 2013, Issue 9), PubMed (1946 to September 2013), and EMBASE (1980 to September 2013) databases. No language or publication restrictions were applied. Articles in languages other than English were translated with the help of medically knowledgeable speakers. The following keywords were used for the searches: Rotator cuff repair, cuff repair, rotator cuff, acromioplasty, and subacromial decompression. We checked the reference lists of published studies to identify additional trials. Furthermore, we searched the following journal contents in the past 3 years for randomized controlled trials: *Arthroscopy: The Journal of Arthroscopic and Related Surgery*, *The American Journal of Sports Medicine*, *The Journal of Bone and Joint Surgery*, *The Bone and Joint Journal*, *Clinical Orthopaedics and Related Research*, and the *Journal of Shoulder and Elbow Surgery*.

2.2. Eligibility criteria

We systematically reviewed the literature according to the following criteria: (1) a target population of rotator cuff tears requiring arthroscopic repair, (2) Level I and II randomized controlled trials evaluating surgical interventions, (3) studies comparing the outcomes of arthroscopic rotator cuff with and without acromioplasty. (4) One or more outcomes of interest postoperatively (e.g. retear rate, shoulder score, and complications).

2.3. Selection of studies

Two authors (SM and SK) independently scanned records retrieved by the searches to exclude irrelevant studies and to identify trials that met the eligibility criteria. They retrieved

and independently reviewed full-text articles for the purpose of applying inclusion criteria. Differences in opinion between authors were resolved by discussion and consultation with the senior author (BC) (Fig. 1).

2.4. Outcomes

The primary outcome of interest was American shoulder and elbow surgeons (ASES score).¹⁰ Secondary outcomes noted were Constant score,¹¹ University of California-Los Angeles (UCLA)score,¹² and retear rate.

2.5. Assessment of heterogeneity and statistical methods

We planned to consider both clinical heterogeneity (e.g. differences among patients, interventions, and outcomes) and statistical heterogeneity variation between trials in the underlying treatment effects being evaluated. To establish inconsistency in the study results, statistical heterogeneity between studies was formally tested with I^2 .¹³ The I^2 estimate

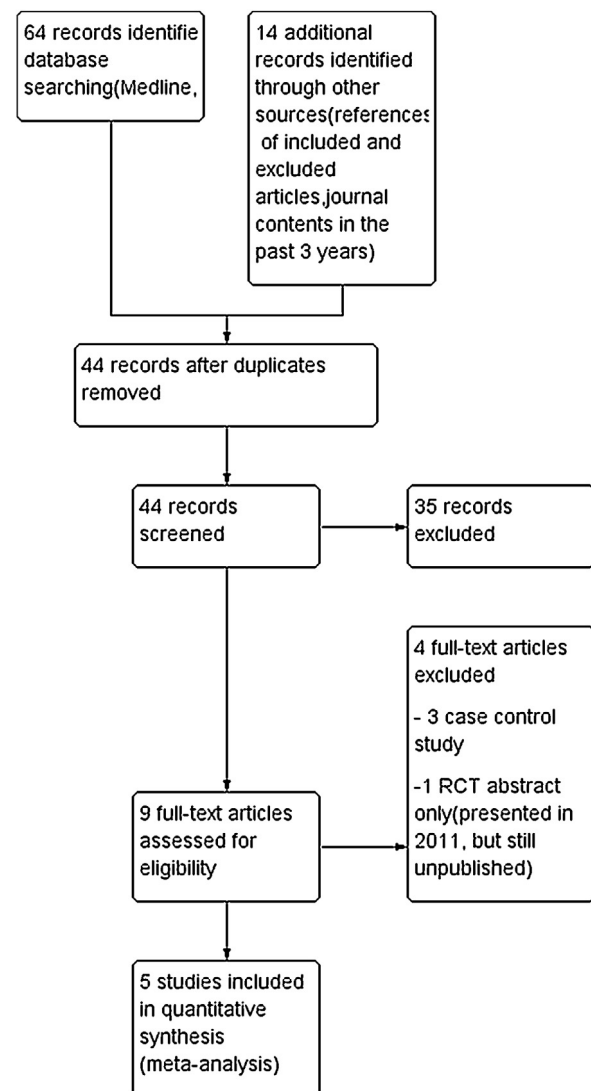


Fig. 1 – Search strategy results.

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