Arthroscopic versus open acromioplasty: a systematic review

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CRD summary
This review compared arthroscopic acromioplasty with open techniques in patients undergoing subacromial decompression for rotator cuff tendonitis. The authors were unable to detect appreciable differences between arthroscopic and open acromioplasty. There is very limited evidence available and the authors’ conclusions seem appropriate.

Authors' objectives
To determine whether the arthroscopic approach to acromioplasty produces different outcomes in comparison with traditional open techniques.

Searching
MEDLINE, ACP Journal Club, the Cochrane CENTRAL Register, the Cochrane Database of Systematic Reviews and DARE were searched; the search terms were reported.

Study selection
Study designs of evaluations included in the review
Randomised, prospective, comparative trials were eligible for inclusion. The mean follow-up duration ranged from 3 months to 8 years.

Specific interventions included in the review
Studies of open versus arthroscopic acromioplasty were eligible for inclusion. The arthroscopic techniques evaluated included the posterior and lateral approaches, while the open approaches were those of Neer, and Neviaser and Neviaser.

Participants included in the review
Studies of patients undergoing subacromial decompression for rotator cuff tendonitis were eligible for inclusion. The mean age of the participants was between 39 and 51 years, the proportion of males ranged from 42 to 70%, and the average symptom duration ranged from 16 months to 5.1 years, across the arms of the trials.

Outcomes assessed in the review
No specific inclusion criteria were stated for the outcomes. The primary outcome of interest was pain relief, which was presented as changes in the visual analogue scale (VAS). The secondary outcome variables were measures of function (degree of external rotation, degree of internal rotation and anterior deltoid strength), UCLA shoulder score, duration of surgery and how long it took for patients to return to work or normal activity.

How were decisions on the relevance of primary studies made?
Seven reviewers reviewed the full papers and discussed them in a journal club format. It is unclear how decisions at the title and abstract stage were made.

Assessment of study quality
The authors stated that selection bias, performance bias, transfer bias and detection bias were investigated. However, the validity of the studies was not quantified beyond level of evidence. It is unclear how many reviewers applied the validity criteria.

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction. Changes in VAS scores and the UCLA shoulder rating scale, and differences between groups in function and the time to return to work or normal activity, were extracted.
Methods of synthesis
How were the studies combined?
The studies were combined in a narrative and organised by outcome.

How were differences between studies investigated?
Study characteristics were tabulated for the examination of between-study differences, and differences discussed in the text.

Results of the review
Four prospective, randomised controlled trials (RCTs) across five publications were included (n=177).

The average pain scores improved in all groups for both arthroscopic and open techniques, with little or no difference between groups (3 studies). There was little or no difference in strength, range of motion, time taken to return to work, or complications between the arthroscopic and open approaches. Two studies reported statistically significant reductions in operating time: one reported a reduction with the arthroscopic technique and the other with the open technique.

Authors' conclusions
The authors were unable to detect appreciable differences between arthroscopic and open acromioplasty.

CRD commentary
The research question was stated clearly, and the inclusion criteria were well-defined for interventions, participants and study design. Relevant electronic databases were searched, but the searches only included English language papers and this might have led to language bias. In addition, the authors did not report any specific attempts to identify unpublished studies, which may also have increased the possibility that some relevant studies were missed. Study selection was conducted in duplicate at the full paper stage, but it is unclear whether similar methods to reduce error and bias were applied at the title and abstract stage, or during the data extraction. The validity of the primary studies was assessed but, generally, the authors did not utilise this beyond allocating a level of evidence, although some aspects of study quality were reported and discussed. The narrative synthesis of the studies was appropriate given the clinical heterogeneity between them. The authors' conclusions seem appropriate given the evidence available.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors stated that future researchers should design studies with adequate statistical power to detect differences in the outcomes of interest.

Funding
Not stated.

Bibliographic details

PubMedID
17159578

DOI
10.1097/BLO.0b013e31802f5436

Indexing Status
Subject indexing assigned by NLM
MeSH
Acromion /surgery; Arthroscopy; Humans; Pain Measurement; Randomized Controlled Trials as Topic; Range of Motion, Articular; Recovery of Function; Rotator Cuff /injuries /surgery; Rupture; Shoulder Joint /physiopathology

AccessionNumber
12007000646

Date bibliographic record published
06/12/2007

Date abstract record published
01/09/2008

Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.