Anatomic Bankart repair compared with nonoperative treatment and/or arthroscopic lavage for first-time traumatic shoulder dislocation

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CRD summary
This well-conducted review concluded that there was evidence that anatomical Bankart repair was effective in reducing long term recurrent instability and improving quality of life in the short term in young men with shoulder dislocation for the first time. Given the small number of available trials and differences between them, the authors' conclusions should be considered tentatively.

Authors' objectives
To compare the efficacy of anatomical Bankart repair versus sling immobilisation and/or arthroscopic lavage in patients with anterior shoulder dislocation for the first time.

Searching
The Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, EMBASE, CINAHL, Web of Science, LILACS, and ClinicalTrials.gov were searched up to 2011 for completed or ongoing trials. The search was not restricted by language. Search terms were reported. Bibliographies of identified trials were handsearched. The archives and proceedings of the American Academy of Orthopaedic Surgeons, the American Orthopaedic Society for Sports Medicine, and the Arthroscopy Association of North America were searched from 2005 to 2011. The list of eligible studies was checked with experts to ensure that no relevant trials had been omitted.

Study selection
Randomised controlled trials (RCTs) or quasi-randomised controlled trials that investigated anatomical Bankart repair versus arthroscopic lavage or immobilisation (with or without physical therapy) in patients (aged from 16 to 40 years) who had shoulder dislocation for the first time were eligible for inclusion. The primary outcome was recurrent instability (subluxation or dislocation) at a minimum of two years follow-up. Secondary outcomes of interest were: quality of life (as measured by the Western Ontario Shoulder Instability questionnaire), shoulder-specific patient reported outcomes, return to pre-injury level of activity or sport, and patient satisfaction.

The included trials investigated Bankart repair that involved open surgical shoulder stabilisation or arthroscopic shoulder stabilisation; the Caspari technique, bio-absorbable tacks, or suture anchors were used as fixation techniques. The age of participants ranged from 22 to 25 years; 88.6% were men. A range of outcome measures was used (details reported in the paper).

One reviewer screened the abstracts. Identified RCTs were assessed independently by two reviewers with disagreements resolved by consensus.

Assessment of study quality
The quality of included trials was assessed using the Cochrane risk of bias assessment tool. Methodological quality was assessed using the Checklist to Evaluate a Report of a Non-pharmacological Trial (CLEAR NPT), a 13-item checklist evaluating: sequence generation; allocation concealment; reporting of intervention for each group; skill of care providers; participants adherence; blinding of participants; care providers and outcome assessors; comparable co-interventions; follow-up schedule and loss to follow-up in each group; avoidance of ascertainment bias; and use of intention-to-treat analyses.

Two reviewers independently assessed trial quality.

Data extraction
For dichotomous outcomes, the number of participants in each group was extracted and used to calculate relative risks (RR) with 95% confidence intervals (CI). For continuous outcomes, the mean and standard deviation of each group was extracted and used to calculate mean differences with 95% confidence intervals. Where Western Ontario Shoulder...
Instability (WOSI) questionnaire scores were presented graphically, mean and standard deviations were derived.

Two reviewers independently extracted the data. Disagreements were resolved by consensus.

**Methods of synthesis**

For dichotomous outcomes, pooled relative risks with 95% confidence intervals were calculated. For continuous data, mean differences with 95% confidence intervals were calculated. A random-effects model was used. The number needed to treat was calculated. Statistical heterogeneity was assessed using the Cochran Q test and quantified using Ι².

Sensitivity analyses were used to assess the effect of specific items for methodological quality and removing one trial at a time. Subgroup analyses were planned according to activity levels, fixation techniques, age, sex, and types or surgical intervention. These were not carried out due to the small number and homogeneity of included trials.

Where trials could not be pooled due to small numbers or heterogeneity, a narrative synthesis was used.

**Results of the review**

Four trials were included in the review (228 patients) comprising three RCTs (204 patients) and one quasi RCT (24 patients). There were discrepancies in the review between the results of the assessment of risk of bias and the CLEAR NPT tool. According to the clear NPT tool, the co-interventions, follow up schedule and loss to follow-up were the same in all trials for each group and the details of the intervention were adequately reported. Allocation concealment was adequate in three trials. In two trials, intention-to-treat analyses were used. Sequence generation, blinding of participants and rehabilitation staff was adequately reported in one trial. No trials assessed participants adherence, clearly reported appropriate skills of care providers or blinded surgeons. For the Cochrane assessment of bias, all four trials showed a low risk of bias for completeness of outcome data and reporting bias. Two studies reported adequate outcome assessor blinding. One trial each showed adequate sequence generation and allocation concealment. No trials showed adequate blinding of participants or care providers. Length follow-up ranged from 24 to 120 months. Rate of follow-up ranged from 77.5% to 98.7%.

**Recurrent instability:** Recurrent instability was significantly lower for anatomical Bankart repair compared with shoulder immobilisation or arthroscopic lavage (RR 0.18, 95% CI 0.10 to 0.33; four trials). Anatomical Bankart repair remained superior when arthroscopic lavage (RR 0.14, 95% CI 0.06 to 0.31; two trials) and shoulder immobilisation/rehabilitation (RR 0.26, 95% CI 0.10 to 0.67; two trials) were considered separately. The number needed to treat was two. There was no evidence of statistical heterogeneity for any of these outcomes (P=0%). Sensitivity analyses did not significantly alter the findings.

**Secondary outcomes:** Anatomical Bankart repair was associated with significantly improved quality of life compared with shoulder immobilisation or arthroscopic lavage (mean difference of WOSI score -222, 95% CI -346 to -97; two trials). There were no significant differences in patient satisfaction between anatomical Bankart repair and shoulder immobilisation or arthroscopic lavage (RR 1.92, 95% CI 0.63 to 5.87; two trials). The results from individual trials for other functional outcome measures were reported in the paper.

**Authors’ conclusions**

There was evidence to suggest that anatomical Bankart repair was effective in reducing recurrent instability in the long term and for improving quality of life in the short term in young adults with shoulder dislocation for the first time.

**CRD commentary**

The review addressed a clear question with well-defined inclusion criteria. Several relevant databases were searched. Appropriate steps were taken to minimise language and publication biases. It was not possible to test for publication bias due to the small number of included trials, so it could not definitively be ruled out. Suitable steps were taken in the review process to minimise the risk of reviewer error and bias.

The quality of included trials was assessed. However, there were discrepancies in the results of the quality assessment between the two tools used, which raised uncertainties about the reliability of this assessment. Sensitivity analyses were used to investigate the impact of methodological quality on the results; this was found to have no effect on the findings. Appropriate methods were used to combine the trials. Statistical heterogeneity was assessed and there was no evidence for most outcomes. However, there was clinical heterogeneity between trials for intervention and outcome.
measures. Only a small number of trials with few participants were available, which weakened the strength of evidence. Most participants were young men (in their early twenties), so it was unclear to what extent the findings could be generalised to women or older populations.

This was a well-conducted review but, given the small number of available trials and differences between them, the authors' conclusions should be considered tentatively.

**Implications of the review for practice and research**

**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that further RCTs were needed to compare anatomical Bankart repair using modern fixation techniques with rehabilitation stratifying for age and sex. Outcome measures in future research should include recurrent instability rates, quality of life using the WOSI Questionnaire, upper extremity function as measured by the Disability of the Arm, Shoulder and Hand questionnaire, a validated measure of return to sport and work, range of motion, and complications.

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