

## **Anterior Capsulolabral Repair in Arthroscopic Latarjet Reduces the risk of osteoarthritis development: A Matched-Pair Study**

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### **INTRODUCTION:**

The Latarjet procedure has increasingly been performed for patients with anterior glenohumeral instability due to the high failure rates observed with the Bankart repair especially in the long-term. The role of capsular repair is yet to be determined. There is a paucity of literature directly comparing outcomes between techniques with and without capsular repair.

To our knowledge, no study has yet analyzed the effect of capsulolabral repair in the arthroscopic Latarjet procedure on osteoarthritis development and postoperative outcomes.

Therefore, the purpose of the study was to analyze the effect of capsulolabral repair during the arthroscopic Latarjet procedure on osteoarthritis development and postoperative outcomes, and to compare the results between patients with and without capsulolabral reconstruction. The hypothesis of our study was that the arthroscopic Latarjet procedure with concomitant anterior capsular reconstruction would obtain lower osteoarthritis rates and better clinical outcomes.

### **METHODS:**

Retrospective of prospective collected data study of patients with anterior glenohumeral instability managed with an arthroscopic Latarjet procedure as primary surgery. Patients who underwent capsulolabral repair following the arthroscopic Latarjet were matched-paired in a 1:1 ratio according to preoperative features with patients who did not undergo capsulolabral repair.

Disposal of preoperative MRI or CT-scan, and minimum 2-year clinical and radiological follow-up were required for inclusion in the study. Patients with associated lesions requiring additional surgical procedures (i.e. remplissage, SLAP or cuff repair), those with previous surgeries including stability stabilization techniques, and patients with previous fractures, neurological/vascular lesions were excluded.

The primary outcome was glenohumeral osteoarthritis, assessed preoperatively, 2- and 5-years after surgery, using CT scans and graded according to Ogawa et al. classification that defined 4 glenohumeral osteoarthritis grades:

grade 1, sharpened margin of the humeral head or marginal spur formation, with the osteophyte measuring less than 3mm; grade 2, humeral osteophyte between 3 and 7 mm and/or slight glenohumeral joint irregularity or sclerosis without a spur; grade 3, humeral osteophyte measuring more than 8mm with narrowing of the glenohumeral joint but no collapse; and grade 4, complete collapse of the glenohumeral joint with or without osteophytes. To determine potential factors related to osteoarthritis development, we also evaluated postoperative radiologic outcomes including graft position in the axial and sagittal plane, screw angulation, and graft healing or osteolysis.

Range of motion was evaluated preoperatively, 6 weeks, 3, 6, and 12 months after the surgery.

Recurrence at the time of follow-up, set as subluxation or dislocation, apprehension, the Rowe score, WOSI Index, subjective shoulder value (SSV) and return-to-sport rate at the final follow-up were also recorded and compared between two groups.

### **RESULTS:**

Eighty-six patients, 43 in each group, mean age  $32.3 \pm 23.2$  years were included. Preoperative osteoarthritis was present in 18 of 43 cases (42%) across both groups. At the 2-year follow-up CT scan, osteoarthritis progression was observed in 60.5% (26/43) of patients in the non-repair group and 39.5% (17/43) in the repair group ( $p=.042$ ). Overall, OA progression was more severe in cases without capsular repair, with 30.8% of patients experiencing an increase of two OA grades compared to 5.8% in the repair group.

Osteoarthritis progression within five years was significantly higher in patients without capsular repair (82.8% vs. 55%,  $p=.035$ ). Furthermore, patients without capsular repair showed a greater degree of OA progression compared to those with capsular repair ( $p=.024$ ), with 27.6% and 15% of patients, respectively, experiencing an increase of two or more OA grades.

OA progression at 2- and 5-years follow-up showed no association with any of the preoperative features or postoperative radiologic results, including graft position, screw orientation or graft healing and resorption.

The external rotation in arm adduction was significantly restricted in patients with capsular repair at 6 weeks follow-up ( $29 \pm 19.6$  vs  $20.1 \pm 21$ ,  $p=.045$ ). However, external rotation at 3, 6, and 12 months postoperatively did not differ between the groups.

At a mean  $7.16 \pm 4$  years follow-up, no significant differences were observed in the rates of recurrence, revision surgery or postoperative outcomes. Most patients were able to completely return to their previous sport (79.1%); no statistical differences between groups were found.

### **DISCUSSION AND CONCLUSION:**

Conclusion: Capsulolabral repair in the arthroscopic Latarjet reduces osteoarthritis progression by 21% and 27.8% at 2- and 5-year follow-up respectively, as well as the severity of progression. Although early postoperative external rotation was more limited in the capsulolabral repair group, external rotation at 12-months follow-up did not show significant differences between groups.

