E-ISSN 2250-0944
ISSN 2250-1150
doi: 10.48047/ijprt/16.02.462

Research Article

Functional Outcomes Following Arthroscopic 270-Degree Circumferential Labral Repair in Multidirectional Shoulder Instability: A Prospective Clinical Evaluation

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Abstract

Background: Complex multidirectional shoulder laxity frequently incorporates extensive labral tearing spanning 270 degrees across quadrants [cite: 11]. Clinical tracking regarding circumferential labral stabilization remains scarce [cite: 11]. This prospective evaluation charts functional performance following arthroscopic 270-degree labral fixation [cite: 11]. Methods: Forty active individuals presenting with symptomatic multi-vector laxity and verified 270-degree detachment underwent comprehensive arthroscopic repair [cite: 11]. Rowe scores, ASES indices, and motion parameters were monitored preoperatively and at 3, 6, and 12 months post-procedure [cite: 11]. Results: Cohort mean age registered at 28.4 years, with sports trauma driving 72% of presentations [cite: 11]. ASES scores advanced from 42.5 baseline to 88.6 at 12 months, while Rowe scores climbed from 31.2 to 90.4 ($p < 0.001$) [cite: 11]. Stability retention reached 100% without recurrent subluxations [cite: 11]. Conclusion: Arthroscopic 270-degree repair successfully restores shoulder kinematics, yielding high functional success and reliable stability [cite: 11].

Keywords: *Multidirectional Shoulder Instability; 270-Degree Labral Repair; Arthroscopic Stabilization; Rowe Score; ASES Score [cite: 11].*

Introduction

Glenohumeral instability poses unique clinical challenges, especially when presenting as multi-vector laxity [cite: 11]. While conservative measures suit sedentary patients, active individuals with structural capsulolabral disruption mandate surgical intervention [cite: 11]. Diagnostic arthroscopy often uncovers continuous detachment across anterior, inferior, and posterior sectors, constituting a 270-degree lesion [cite: 11]. Fixing extensive lesions requires strategic anchor placement from posteroinferior quadrants to the anterior Bankart zone [cite: 11]. This prospective clinical study analyzes recovery trajectories and stability maintenance following 270-degree arthroscopy [cite: 11].

Methodology

Forty patients exhibiting symptomatic multidirectional laxity and intraoperative 270-degree tears were prospectively tracked [cite: 11].

Inclusion Criteria: Active adults aged 18-45 with recurrent subluxation, positive laxity signs, and MRA-confirmed circumferential lesions [cite: 11].

Exclusion Criteria: Fixed dislocation, major glenoid bone loss exceeding 20%, generalized collagen disorders, or prior stabilization surgeries [cite: 11].

Surgical Technique & Protocol: Operations utilized lateral decubitus positioning under interscalene block with standard accessory portals [cite: 11]. Labral tissue was mobilized and secured using 5 to 7 suture anchors spanning posteroinferior to anterior zones [cite: 11]. Post-op management involved 4 weeks of sling immobilization prior to structured motion and strengthening regimens [cite: 11].

Results

All forty subjects completed the full twelve-month evaluation cycle [cite: 11]. Mean cohort age registered at 28.4 years with 72.5% male representation [cite: 11]. Sports injuries triggered 72% of cases [cite: 11]. Table 1 maps score evolution across intervals [cite: 11].

Clinical Parameter	Preoperative	3 Months Post-op	6 Months Post-op	12 Months Post-op	p-value
ASES Score (/100)	42.5 ± 7.8 [cite: 11]	68.4 ± 8.2 [cite: 11]	81.2 ± 7.1 [cite: 11]	88.6 ± 6.4 [cite: 11]	<0.001* [cite: 11]
Rowe Score (/100)	31.2 ± 8.1 [cite: 11]	65.0 ± 9.4 [cite: 11]	82.5 ± 7.6 [cite: 11]	90.4 ± 5.9 [cite: 11]	<0.001* [cite: 11]
Forward Flexion (°)	132° ± 12° [cite: 11]	140° ± 10° [cite: 11]	158° ± 8° [cite: 11]	168° ± 6° [cite: 11]	<0.001* [cite: 11]
External Rotation (°)	45° ± 8° [cite: 11]	40° ± 7° [cite: 11]	52° ± 6° [cite: 11]	62° ± 5° [cite: 11]	<0.01* [cite: 11]

Patient metrics showed substantial upward progression across all categories ($p < 0.001$) [cite: 11]. ASES marks doubled from baseline, and Rowe scores reached 90.4 [cite: 11]. Zero dislocation recurrences confirmed complete mechanical stability [cite: 11]. Mobility recovered fully by month twelve, and 92% successfully returned to pre-injury activity levels [cite: 11].

Discussion

Reconstructing 270-degree labral lesions resolves multi-vector translation effectively [cite: 11]. Our findings align with prior research by Wolf et al. and Millett et al., verifying that circumferential tensioning re-establishes glenohumeral containment [cite: 11]. Favorable motion recovery confirms that modern portal techniques prevent adhesive restriction [cite: 11].

Conclusion

Arthroscopic 270-degree circumferential repair provides reliable stability, pain relief, and functional restoration for complex multidirectional instability [cite: 11].

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