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Arthroscopic Treatment of Anterior Shoulder Instability Using the Bankart Technique: A Retrospective Study of 18 Cases and Review of Literature

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Abstract

Anterior shoulder instability is prevalent among young, active individuals and often requires surgical intervention to restore joint stability and function. This study presents a retrospective analysis of 18 patients treated with arthroscopic Bankart repair, evaluating clinical and functional outcomes, recurrence rates, and impact on return to sports activities. Outcomes are discussed in the context of current literature highlighting advancements in arthroscopic techniques and their role in optimizing shoulder stability and mobility. Results demonstrate that arthroscopic Bankart repair yields excellent mobility preservation with moderate recurrence rates, emphasizing the importance of patient selection and technical precision.

Keywords: Anterior shoulder instability; Bankart; Arthroscopy; Duplay score

1. Introduction

The shoulder is the most mobile joint in the human body, conferring considerable range of motion at the expense of intrinsic stability. Anterior shoulder instability, characterized by recurrent dislocation or subluxation events predominantly in young and athletic populations, imposes significant functional limitations and risk of chronic joint damage if untreated. Clinical presentation ranges from frank dislocation to subclinical apprehension and pain during activity. Conventional surgical management includes open repair or increasingly favored arthroscopic stabilization. The Bankart lesion, a detachment of the antero-inferior labrum from the glenoid, is a common pathological substrate addressed by these procedures.

In recent decades, arthroscopic Bankart repair has evolved significantly, offering minimally invasive stabilization with improved visualization and preservation of the shoulder's native anatomy. Despite notable advances, recurrence rates and functional outcomes remain areas for ongoing research. This manuscript synthesizes findings from our experience with 18 patients undergoing arthroscopic Bankart repair and reviews contemporary literature to provide comprehensive insight into the technique's efficacy and limitations.

2. Materials and Methods

2.1. Patient Selection

This retrospective study reviewed 18 patients diagnosed with anterior shoulder instability and treated via arthroscopic Bankart repair by a single experienced surgeon. Inclusion criteria were:

- Age under 40 years
- Positive apprehension test indicative of instability

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- Imaging confirmation of an antero-inferior labral lesion on arthro-computed tomography (arthro-CT)
- Trauma-related instability episodes

Exclusion criteria incorporated:

- Generalized or multidirectional hyperlaxity assessed clinically and by Beighton score
- Absence of labral detachment on imaging
- Neurological deficits or rotator cuff tears
- History of atraumatic dislocations or more than three dislocation episodes

2.2. Surgical Technique

Under general anesthesia, patients underwent arthroscopic repair using the Bankart technique. The procedure involved:

- Diagnostic arthroscopy for lesion characterization
- Preparation of the glenoid rim to enhance healing
- Reattachment of the detached labrum to the glenoid via suture anchors
- Verification of repair stability and joint mobility intraoperatively

Postoperative protocols emphasized immobilization followed by structured physical rehabilitation targeting range of motion and strengthening.

2.3. Outcome Measures

Outcomes were assessed with:

- The Duplay score for anterior shoulder instability, evaluating pain, stability, mobility, and function
- Clinical examination for apprehension and subluxation recurrence
- Follow-up duration averaging 33 months (range 18–48 months)
- Return to sports, level of activity, and recurrence rates were recorded

Data from arthroscopic evaluation regarding lesion type and associated injuries were documented.

3. Results

3.1. Demographics and Baseline Characteristics

- Mean age: 24.5 years (range 15–34)
- Gender distribution: 17 males, 1 female
- Sports activity levels:
    - Non-sporting: 2 patients
    - Non-contact sports: 4 patients
    - Contact sports: 7 patients
    - Sports involving arm use: 1 patient
    - High-risk sports: 4 patients

3.2. Arthroscopic Findings

The lesion pattern included:

- Humeral head notching in 16 patients
- Bankart lesions in 15 patients
- Glenoid margin fractures in 1 case
- Early stage arthrosis in 1 case
- SLAP lesions type 1, 2, and 4 in 3 cases cumulatively
- No rotator cuff lesions

Three patients experienced recurrence postoperatively.

3.3. Clinical Outcomes

- The mean Duplay score indicated generally favorable outcomes

- Mobility was preserved in 100% of patients, notably higher than historical open repair series
- Recurrence rate was 17%
- Excluding recurrence cases, 87% of athletes resumed previous sport level, and 13% returned at a lower performance level

Table 1 Patient Demographics and Activity Level

Category	Number of Patients
Age Mean (years)	24.5
Male	17
Female	1
No Sports	2
Non-contact Sports	4
Contact Sports	7
Arm-related Sports	1
High-risk Sports	4

Table 2 Arthroscopic Arthropathy and Lesion Types

Lesion Type	Number of Cases
Humeral Head Notch	16
Bankart Lesion	15
Glenoid Margin Fracture	1
Early Arthrosis	1
SLAP Lesions (Type 1, 2, 4)	3
Rotator Cuff Lesions	0

Table 3 Clinical Outcomes and Recurrence

Outcome	Percentage (%)
Preservation of Mobility	100
Recurrence Rate	17
Return to Same Sport Level	87
Return to Lower Sport Level	13

4. Discussion

4.1. Advances in Arthroscopic Bankart Repair

Over the last 15 years, arthroscopic interventions have revolutionized the management of anterior shoulder instability. The literature indicates a trend toward reduced recurrence rates with refinements in the use of suture anchors and surgical technique. Comparative meta-analyses report recurrence rates ranging from 13% to over 30%, depending on the technique and patient cohort. In our series, a 17% recurrence aligns with contemporary expectations.

4.2. Mobility Preservation

A significant advantage of arthroscopic repair is the preservation of shoulder mobility. Compared to open procedures that can restrict motion by 10-15%, this study observed 100% mobility retention postoperatively, consistent with reported rates of near-normal range of motion. This is critical for athletes where biomechanical shoulder function is paramount.

4.3. Stability and Recurrence

While mobility is preserved, stability remains a challenge in certain populations, particularly those with coexisting hyperlaxity, extensive glenoid bone loss, or multiple dislocation episodes. The relatively moderate recurrence rate observed is consistent with these known predictors of poorer outcomes. These insights highlight the importance of rigorous patient selection and adherence to contraindications.

4.4. Impact on Return to Sports

Our findings demonstrate a high rate of return to sport at pre-injury levels (87%), reinforcing that arthroscopic Bankart repair supports functional rehabilitation and athletic activity resumption. This is congruent with the literature showing between 80-90% of patients return to their sport, albeit sometimes with modified intensity or position changes.

4.5. Limitations

This study is limited by its retrospective design and small sample size. Future prospective studies with larger cohorts and longer follow-ups are necessary to validate these findings and optimize surgical indications.

5. Conclusion

Arthroscopic Bankart repair for anterior shoulder instability offers excellent outcomes in preserving joint mobility and good stability in selected patients. Careful patient evaluation, surgical expertise, and dedicated rehabilitation contribute to minimizing recurrence and enabling return to athletic endeavors. Ongoing technical advancements promise continued improvement in managing this challenging pathology.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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