Orthopaedics & Traumatology: Surgery & Research (2013) **99**, 123—130

Available online at
SciVerse ScienceDirect
www.sciencedirect.com

Elsevier Masson France
EM|consulte
www.em-consulte.com/en

ORIGINAL ARTICLE

Coracoid bone block versus arthroscopic Bankart repair: A comparative paired study with 5-year follow-up

C. Bessiere[a,*], C. Trojani[a], C. Pélégri[b], M. Carles[a], P. Boileau[a]

[a] *Department of Orthopaedic Surgery and Sports Trauma, de L'Archet Hospital, 151, route de Saint-Antoine de Ginestière, 06202 Nice, France*
[b] *Department of Orthopaedic Surgery, Princess Grace Hospital, 98012 Monaco, France*

Accepted: 30 December 2012

KEYWORDS
Joint instability;
Shoulder dislocation;
Arthroscopy;
Coracoid;
Bone block

Summary
Introduction and hypothesis: The hypothesis of this study was that the rate of recurrence of anterior instability of the shoulder after arthroscopic Bankart repair with suture anchors is higher than after coracoid bone block (Latarjet procedure).
Materials and methods: This continuous retrospective monocentric study included a cohort of patients who underwent surgery for post-traumatic recurrent antero-inferior instability (2004—2005): 51 patients who underwent an open Latarjet procedure were paired for age at surgery to 51 patients who underwent an arthroscopic Bankart repair. All patients were evaluated with a questionnaire and 50% were evaluated in a follow-up consultation with X-rays. Recurrent instability was defined by at least one episode of anterior dislocation or subluxation.
Results: Demographic data, soft tissue and bone lesions were statistically similar between the groups. At 5 years follow-up, the recurrence rate was 24% in the Bankart group and 12% in the Latarjet group ($P = 012$). In the Bankart group, age under 25 years old ($P = 0.01$), competitive sports after surgery ($P = 0.01$), and glenoid erosion ($P = 0.02$) were independent risk factors of recurrence. In the Latarjet group, five technical errors were identified out of six cases of recurrence. Fifteen of the 18 cases of recurrence did not undergo revision surgery because patients remained satisfied with their results.
Discussion and conclusions: At 5 years of follow-up, the rate of recurrent instability following arthroscopic Bankart repair was two times higher than that following the coracoid bone block procedure. Young patients who wish to practice a competitive sport or present with glenoid erosion are poor candidates for arthroscopic Bankart repair. The rate of recurrence is

* Corresponding author. Tel.: +33 4 92 03 59 63.
E-mail address: charlesbessiere@yahoo.fr (C. Bessiere).

1877-0568/$ - see front matter
http://dx.doi.org/10.1016/j.otsr.2012.12.010

extremely high in unselected patients. The open Latarjet procedure results in a fairly high rate of recurrence due to technical errors.
Level of evidence: Level IV (retrospective study).

Introduction

Anterior instability of the shoulder is treated surgically by open [1,2] or arthroscopic [3,4] Bankart repair [5], or by coracoid bone block (Latarjet procedure) [6,7]. Arthroscopic Bankart repair results in reinsertion of the labrum and tightening of the inferior glenohumeral ligament [8,9]. Coracoid bone block by the Latarjet-Patte technique provides reconstruction of the anterior-inferior glenoid rim and stabilizes the shoulder by a ''triple locking'' effect of the bone, capsule and ligament [10]. According to the meta-analysis by Hobby et al. [11], recurrence (dislocation and subluxation) after arthroscopic Bankart repair with suture anchors varies between 0 to 29.6%, with a mean of 8.9%. The rate of recurrent instability with the Latarjet procedure was 1.7 to 14.2%, with a mean of 6.8% [12—18]. We performed a paired comparative retrospective study whose aim was to compare the rate of recurrence following Bankart repair and Latarjet procedure. Our hypothesis was that the rate of recurrent instability after Bankart repair was higher than after the Latarjet procedure.

Materials and methods

Fifty-one coracoid bone blocks (out of 57 consecutive procedures performed from January 1, 2004 to December 31, 2005, one lost to follow-up) were paired by age at surgery to 51 Bankart repairs (out of 69 performed from June 1, 2004 to May 31, 2005, three lost to follow-up). All patients were operated for the same indication: post-traumatic chronic antero-inferior involuntary instability of the shoulder. Shoulders presenting with a history of surgery or that had been treated with another surgical technique, as well as voluntary or posterior instability, rotator cuff lesions and shoulders that were painful due to an unidentified episode of instability were excluded. All patients presented with at least two episodes of instability.

Demographic data and preoperative lesions were not statistically different between the two groups except that patients in the Bankart group presented with significantly more dislocations for the first episode of instability than the Latarjet group (Table 1).

In the Bankart group, ligament repair was performed with a minimum of three Panalok™ suture anchors (Mitek, Johnson and Johnson, Somerville, New Jersey) associated with PDS II™ resorbable sutures (Ethicon, Johnson and Johnson). The Temporary Outside Traction Suture (TOTS) technique, a temporary traction suture [19], was systematically used. In the coracoid bone block group, the Latarjet technique modified by Patte and Walch [6,10,20] was used, including fixation with two screws. In 57% of the cases, fixation was obtained with 3.5 mm screws and in 43% of the cases, with 4.5 mm screws. Four different surgeons performed the procedures.

The technical choice of the procedure (arthroscopic or open surgery) was left up to the surgeon. During the inclusion period, there were no precise epidemiological criteria or protocols to help make the decision to operate (such as the Instability Severity Index Score [ISIS] [21] which was determined retrospectively).

All patients were evaluated by responding to an original questionnaire including in particular the American Shoulder and Elbow Surgeon score (ASES) score [22], subjective shoulder value (SSV) for practicing a sport, SSV for daily life [23], simple shoulder test (SST) [24] and SF-12 [25]. The questionnaire was filled out by the patient, either during the consultation (52 cases, 30 Bankart, 22 Latarjet), or email (50 cases, 21 Bankart, 29 Latarjet). An independent observer performed the evaluation. Recurrent instability was defined as at least one episode of dislocation or subluxation. The preoperative ISIS score was determined for each patient retrospectively, then compared between the groups (Table 1) and according to the development of recurrence.

Results were compared and univariate and multivariate analyses to identify risk factors of recurrence were performed using XLSTAT™ (Addinsoft, Paris, France) software (for quantitative variables: Fisher-Snedecor *F*-test, Student *T*-test and Mann-Whitney test; for qualitative variables: the Chi^2 test, the Fisher exact test; and multivariate analysis by multiple logistic regression in descending order of variance). $P < 0.05$ was considered to be significant.

Results

The results of the Bankart and Latarjet groups at follow-up and shoulder stability are shown in Fig. 1 and Table 2. The rate of recurrence after Bankart repair was 24% versus 12% after Latarjet ($P = 0.12$). Seven of the twelve cases of recurrence in the Bankart group occurred within 2 years after surgery. On the other hand, all recurrences in the Latarjet group except one occurred within 2 years after surgery.

Two patients in the Bankart group underwent revision surgery for recurrent instability: one by coracoid

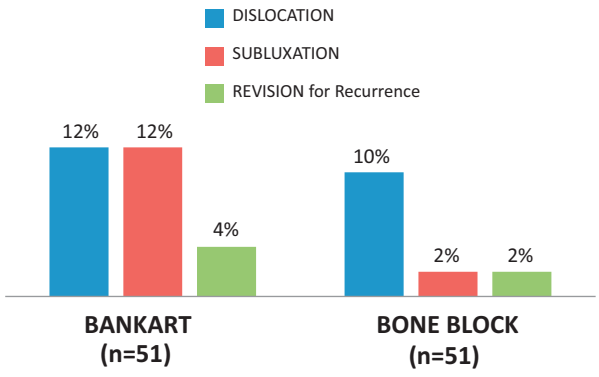

Figure 1 Recurrent instability and revision surgery.