

TRAVMATİK ANTERİOR OMUZ İNSTABİLİTESİNDE AÇIK VE ARTROSKOPİK BANKART TAMİRİ SONUÇLARININ KARŞILAŞTIRILMASI

Comparison of Open and Arthroscopic Bankart Repair Results in Traumatic Anterior Shoulder Instability

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ÖZET

Amaç: Travmatik anterior omuz instabilitesi cerrahi tedavisinde açık ve artroskopik Bankart tamirinin klinik sonuçlarının karşılaştırılması amaçlandı.

Materyal ve Metod: Ocak 2005 ile Ocak 2013 yılları arasında tekrarlayan anterior omuz instabilitesi nedeniyle cerrahi tedavi uygulanan 23 hastadan son kontrolleri yapılan 20 hasta (17 erkek, 3 kadın) çalışmaya dahil edildi. Hastaların 10'una (ort. yaş 30, dağılım 17-43) açık Bankart tamiri, 10'una (ort. yaş 21, dağılım 18-49) artroskopik Bankart tamiri uygulandı. Ağrı değerlendirme vizüel analog skalasına (VAS) göre yapılırken klinik sonuçlar Rowe skalası kullanılarak değerlendirildi. Ameliyat sonrası ortalama takip süresi açık tamir grubunda 37.4±27.1 ay iken, artroskopik tamir grubunda 23±6.9 ay idi. İstatistiksel değerlendirmede Shapiro-Wilk testi ile Mann-Whitney U testi kullanıldı.

Bulgular: VAS skoru açık tamir grubunda 5.7±2.5, artroskopik tamir grubunda 4.1±1.9, Rowe skoru açık tamir grubunda 97.5 (dağılım 80-100), artroskopik tamir grubunda 95 (dağılım 50-100) olarak bulundu. Klinik sonuçlar açık tamir grubunda 9 hastada (%90) mükemmel, bir hastada (10%) iyi iken, artroskopik tamir grubunda 8 hastada (80%) mükemmel, bir hastada (10%) iyi, bir hastada (10%) kötü olarak bulundu. Açık grupta 2 hastada, artroskopik grupta ise 5 hastada dış rotasyon kısıtlılığı gözlemlendi. İki grup arasında VAS skoru, Rowe skoru ve eklem hareket açıklığı bakımından istatistiksel olarak anlamlı fark görülmedi (p>0.05).

Sonuç: Çalışmamızda artroskopik tamir ile açık tamir sonuçları, son yıllardaki çalışmalarla paralel olarak eşdeğer bulundu. Ancak artroskopik tamirin cerrahi tecrübe ve tamir yöntemlerinin gelişmesiyle, postoperatif hasta konforu ve rehabilitasyon kolaylığı nedeniyle avantajlı olduğu kanısındayız.

Anahtar Sözcükler: Bankart; İnstabilite; Omuz; Cerrahi; Açık; Artroskopi

ABSTRACT

Objective: The purpose of the study was to compare the clinical results of open and arthroscopic bankart repair in the surgical treatment of traumatic anterior shoulder instability.

Material and Methods: Out of 23 patients who had surgical treatment due to recurrent anterior shoulder instability between January 2005 and January 2013, 20 patients (17 men, 3 women) whose last controls were made were included in the study. Open Bankart repair was applied on 10 (average age 30, ranging between 17 and 43) patients and arthroscopic Bankart repair was applied on 10 (average age 21, ranging between 18 and 49) patients. While pain was assessed according to visual analog scale (VAS), clinical results were assessed by using Rowe scale. Average postoperation follow-up time was 37.4±27.1 months in the open repair group, while it was 23±6.9 months in the arthroscopic repair group. Shapiro-Wilk test and Mann-Whitney U test were used for statistical analysis.

Results: VAS score was 5.7±2.5 in the open surgery group, while it was 4.1±1.9 in the arthroscopic group and Rowe score was 97.5 (ranging between 80 and 100), while it was 95 (ranging between 50 and 100) in the arthroscopic repair group. Clinical results were perfect in 9 (90%) patients in the open surgery group, while they were good in 1 (10%) patient. In the arthroscopic repair group, clinical results were perfect in 8 (80%) patients, good in 1 (10%) patient and bad in 1 (10%) patient. Limitation of external rotation was seen in 2 patients in the open group and in 5 patients in the arthroscopic group. No statistical difference was found between the two groups in terms of VAS score, Rowe score and range of motion (p>0.05).

Conclusion: The results of arthroscopic repair and open repair in our study were found to be in parallel with the results of recent studies. However, with the developments in repair methods and surgical experiences, we are of the opinion that arthroscopic repair is more advantageous due to postoperative patient comfort and ease of rehabilitation.

Keywords: Bankart; Instability; Shoulder; Surgery; Open; Arthroscopy

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INTRODUCTION

Bankart lesion was defined by Perthes and Bankart for the first time at the beginning of 20th century (1). 90% of shoulder dislocations are traumatic anterior instability and Bankart lesion has been found in 90% of traumatic shoulder dislocations (2,3). Today, the primary treatment of traumatic recurrent anterior glenohumeral instability is acknowledged as surgery. While open Bankart repair was seen as the golden standard in surgical treatment, arthroscopic surgery has recently come to the forefront with the developments in surgical experience and arthroscopic fixation technologies (4). While arthroscopic treatment has advantages such as small cuts, short period of postoperative pain and ease of rehabilitation, it also has disadvantages such as less possibility of capsular shift (5,6).

In this study, clinical results of open and arthroscopic Bankart repair in patients with isolated traumatic anterior shoulder instability were compared.

MATERIALS AND METHODS

Out of 23 patients who had surgical treatment due to recurrent anterior shoulder instability between January 2005 and January 2013, 20 patients (17 men, 3 women) who came to checkups regularly were included in the study. Open Bankart repair was applied on 10 (average age 30, ranging between 17 and 43) patients and arthroscopic Bankart repair was applied on 10 (average age 21, ranging between 18 and 49) patients in desk chair position and by an experienced surgeon. In case of limitation in daily activities due to fear of dislocation and in case of positive instability tests in clinical examination, operation was decided upon. Preoperative anterior-posterior radiographies of all patients were taken. Comorbid pathologies and labrum dislocation were assessed with magnetic resonance imaging (MRI) and labrum dislocation was found in all patients (Figure 1). The patients who had at least 4 dislocations, who did not have previous surgeries on the related shoulder and who did not have bone Bankart lesion were included in the study, while the patients who had previous surgeries on the related

shoulder, who had bone Bankart lesion, who could make voluntary dislocation and who had intrarticular comorbid pathology except for Bankart lesion were excluded. While none of the patients were professional athletes, they were patients who experienced instability in their daily activities. While pain was assessed according to visual analog scale (VAS), clinical results were assessed by using Rowe scale. Average postoperative follow-up time was 37.4 ± 27.1 months in the open repair group, while it was 23 ± 6.9 months in the arthroscopic repair group.

Figure 1. Arrow shows the Bankart lesion.



STATISTICAL ANALYSIS

The data obtained from statistical analyses were transferred to SPSS 15.0 (SPSS Inc., Chicago, IL, USA) program. Shapiro-Wilk test was used to test whether the data were normally distributed and Mann-Whitney U test was used to find out whether there were differences between the two groups. Significance level was taken as $p < 0.05$.

RESULTS

The average time between the first trauma to surgery

was 21 months (ranging between 6 and 240 months) in the open surgery group, while it was 12 months (ranging between 6 and 12 months) in the arthroscopy group. The average length of operation time was 60 minutes in the open group and 90 minutes in the arthroscopy group. The length of cut was about 9 cm. in the open group, while it was 3 cm. in the arthroscopy group. VAS score was 5.7 ± 2.5 in the open surgery group, while it was 4.1 ± 1.9 in the arthroscopy group. Rowe score was 97.5 (ranging between 80 and 100) in the open surgery group and 95 (ranging between 50 and 100) in the arthroscopic repair group. Clinical results were perfect in 9 (90%) patients in the open surgery group, while they were good in 1 (10%) patient. In the arthroscopic repair group, clinical results were perfect in 8 (80%) patients, good in 1 (10%) patient and bad in 1 (10%) patient. None of the patients was found to have dislocation again. Range of motion was compared with the fit shoulder. Only 2 patients in the open group (5° in one patient and 10° in one patient) and 5 patients in the arthroscopic group (20° in 2 patients, 10° in two patients and 5° in one patient) were found to have limitation of external rotation. No statistical difference was found between the two groups in terms of VAS score, Rowe score and range of motion ($p > 0.05$).

DISCUSSION

The most common type of glenohumeral instability is anterior instability and most develops secondary to trauma. Open and arthroscopic Bankart repair are two methods used in the surgical treatment of traumatic anterior glenohumeral instability. Earlier, open surgery was accepted as the golden standard with its technically low recurrence rates and arthroscopic treatment was thought to be less satisfactory in the treatment of anterior shoulder instability when compared with open surgery. However, arthroscopic Bankart repair results began to be more satisfying as a result of the advantages such as developments in arthroscopic treatment techniques, increase in arthroscopic surgery experiences, cosmetic superiority, not causing much postoperative pain, and wide range of motion (7-10). In our study which assessed range of motion, clinical

scores and pain scores, no significant difference was found between open and arthroscopic treatment and this result supports this recent thought.

When studies in the literature were reviewed, in patients they followed with an average of 43 months after arthroscopic Bankart repair, Raffaele et al. (11) found that Rowe scores were as high as the opposite shoulder. In their study with 188 patients who had been followed for 25.3 months, Yan et al. (12) found that the average Rowe score was 91.9, while Hiroshi et al. (13) found the average Rowe score as 82 in their study they conducted on 28 shoulders. In their studies they compared open and arthroscopic surgery clinical results, Cole et al. (7) and Mahiroğulları et al. (14) did not find a difference between groups. Similarly, no significant difference was found between groups in this study, average Rowe score was found as 97.5 in the open surgery group, while it was found as 95 in the arthroscopic repair group. Recurrence after arthroscopic Bankart repair usually occurs in postoperative 12th month (15). Risk factors stated for recurrent dislocation can be listed as being younger than 22, number of dislocations before surgery, doing sports with males (12,16). In literature, recurrence rates in arthroscopic technique have been reported between 1.9% and 16% (10,17-20). In studies related with open Bankart surgery, Levine et al. (21) reported recurrence in 2 of 28 patients they had operated by using sewing hook and got good and perfect results in 93%. In their study, Cole et al. (7) reported 24% relaxation in the arthroscopic group and 28% relaxation in the open group in the treatment of anterior instability. Unlike literature, recurrence was not seen after 21 months follow-up time for 12 months in the arthroscopic group and for 21 months in the open group. Not having found recurrence in our study may be associated with short follow-up time and long term immobilization. Arthroscopic Bankart repairs included less difficulties when compared with open. It is important to use sufficient numbers of sewing anchors. Implant loosening, migration or unsuccessful placements are frequent preoperative and postoperative complications (22). Metal anchors were used and no complications were found. In recent

years, biodegradable anchors began to be used instead of metal anchors in order to get rid of the artifact formation and to avoid the cartilage of metal (23). Although we did not encounter any complications about metal anchors in our study, it is quite important for these to be placed very carefully and in a sitting position.

The results of our study showed that although there was no statistically significant difference between VAS scores, we are of the opinion that there was less pain and better cosmetic appearance in arthroscopic repair group. It is a truth that the capsule can be closed tightly, knots can be tied and strength can be felt in open Bankart repair. Thus, there may arise a view that open repair is more effective and more reliable. However, as long as they are tied with the suitable technique, arthroscopic knots can be as strong as surgical knots (24). In terms of cuts, although there is an area of 8 cm in the open group and 3 cm in the arthroscopic group, too much decomposing in the deeper layers can be seen as a disadvantage. A good elimination and lighting are a must in the open group. In arthroscopic repair, a good pump, too much irrigation serum, experience and in addition patients are clearly necessary. Today, arthroscopic techniques are frequently used in isolated anterior shoulder instability.

The disadvantages of our study can be listed as being retrospective, relatively less number of patients and short follow-up time for some patients. As a conclusion, this study showed similar clinical results of open repair and arthroscopic treatment in the surgical treatment of recurrent anterior shoulder stability and satisfactory results were taken with both methods. Based on these results, we are of the opinion that arthroscopic Bankart treatment which has supremacy in many areas such as hemorrhage, rehabilitation and wound recovery and which has a long learning curve that requires educational process, can give results as effective as open surgery, which was accepted as the golden standard with sufficient information and experience in the past.

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