

A COMBINED SURGERY FOR CHRONIC LOCKED ANTERIOR SHOULDER DISLOCATION: CASE REPORT AND REVIEW OF THE LITERATURE

KRONİK KİLİTLİ ÖNE OMUZ ÇIKIĞI İÇİN KOMBİNE CERRAHİ: LİTERATÜR DERLEMESİ VE OLGU SUNUMU

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Omuz çıkıkları sıklıkla eğer 3 haftadan daha eski ise kronik olarak adlandırılmaktadırlar. Bu çıkıkların çoğuna büyük Hill-Sachs lezyonları, glenoid kavite kemik kayıpları ve nörolojik yaralanmalar eşlik edebilir. Bizim olgumuz 66 yaşında bir bayan ve düşme sonucu başvurduğu merkezde sadece Radius alt uç kırığı olarak tedavi edilmiş, öne omuz çıkığı atlanmış. Kronik kilitleli öne omuz çıkığının sonucu olarak büyük bir Hill-Sachs lezyonu olduğu saptandı. Yaralanmadan yetmiş gün sonra hastanın omuz rahatsızlığından (ağrı ve hareket kısıtlılığı) dolayı hastaya tedavi olarak; açık redüksiyon, Latarjet Prosedürü ve proksimal humeral içe döndürme osteotomisi uygulandı. Bu tedavi kombinasyonu kronik omuz çıkığı için İngilizce literatürde bir ilktir. Bir yıl sonra hasta ameliyat sonucundan oldukça memnun kalmıştır. Hasta fonksiyonel omuz hareketini kazanmış ve omzunun instabilite olmadan ağrısız olduğu saptanmıştır. Büyük Hill-Sachs lezyonları yaşlı hastalarda genel olarak hemiarthroplasti ile tedavi edilmektedir ancak hastanın kendi kemiği korunarak da başarılı sonuç alınabilir.

Anahtar Kelimeler: Omuz çıkığı, kronik, cerrahi

SUMMARY

Shoulder dislocations are commonly named chronic if it is older than 3 weeks. Many of these dislocations can be complicated by large Hill-Sachs lesions, glenoid cavity bone loss and neurologic injuries. Our case is 66 years old female and she had been treated only as distal radius fracture by a center and anterior shoulder dislocation was missed. As a result of chronic locked anterior locked dislocation, she had a large Hill-Sach lesion. Seventy days after injury; because of the patient's shoulder discomfort (pain and limited motion) we performed open reduction, Latarjet Procedure and proximal humeral internally rotating osteotomy as a treatment. This type of treatment for chronic anterior dislocation is used firstly by us in English literature. After one year the patient was satisfied with the result. She gained functional motion and she was pain free without shoulder instability. Large Hill-Sach lesions are commonly treated by hemiarthroplasty if the patient is elderly. But preserving patients own bone can be successful too.

Key words: Shoulder dislocation, chronic, surgery

INTRODUCTION

Shoulder dislocations are commonly named chronic if it is older than 3 weeks¹. Old unreduced dislocation of shoulder usually occurs in older population. This type of condition is characterized with limited motion and pain at shoulder. Many of these dislocations can be complicated by large Hill-Sachs lesions, glenoid cavity bone loss and neurologic injuries. Soft tissue contractures of capsular components and rotator cuff often occurs. Anterior shoulder dislocations can be diagnosed more easily than posterior dislocations by clinical and radiological examinations but they can also be overlooked because of other traumas. These injuries can be managed by no treatment, closed reduction, open

reduction, hemiarthroplasty or total shoulder replacement².

CASE REPORT

66 years old female patient was consulted because of limited motion and pain of her right shoulder. In her medical history it's realized that she fell onto her outstretched right hand seventy days ago. She had referred to an orthopaedic clinic and the diagnosis was; right distal radius fracture. As a treatment, closed reduction and long arm cast was applied. She had discounted her shoulder pain. After six weeks her cast was removed and physiotherapy process started. As the time progressed her shoulder pain and limited motion

became her major discomfort. Apelet sign was an evident inspection finding. Passive range of motion of her right shoulder was limited and painful in all directions. Her active abduction, forward flexion, internal rotation was sequentially 10° - 15° and 10° . It was apparent that her right shoulder was anteriorly dislocated by plain shoulder radiographs (figure 1). Magnetic Resonance Imaging was performed for further investigation. There was a massive Hill-Sachs lesion on posterolateral aspect of humeral head and capsulolabral complex was displaced in anterior direction (Bankart Lesion) (figure 2). An open reduction, proximal humeral internal rotation osteotomy and Latarjet Procedure (LP) was planned and the patient was informed about the risks, possible complications-outcomes of this kind of a sophisticated operation. A deltopectoral approach was used. Humeral head was locked under coracoid process.



Figure 1. Initial radiography

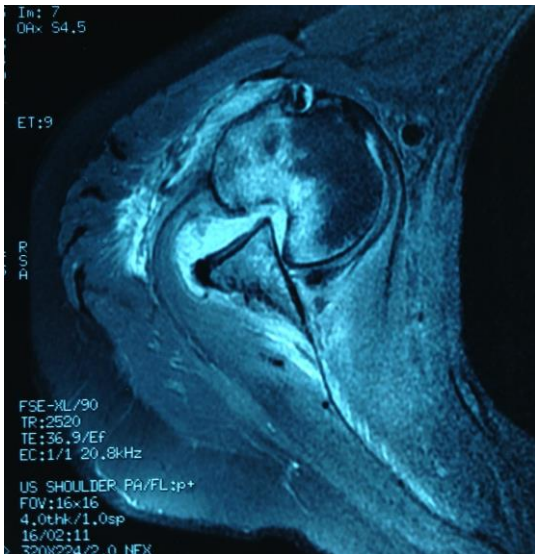


Figure 2. Initial MRI view

According to LP; the coracoid process that had origo of coracoacromial ligament and conjoint tendon was osteotomised (figure 3).



Figure 3. Coracoid osteotomy

Subscapularis tendon and capsule was opened accordingly. Open reduction of the glenohumeral joint was performed. Special care was undertaken for possible neuro-vascular complications. After open reduction of the joint, we fixed the coracoid process fragment flashly and infraequatorially to glenoid fossa by two screws. After that a three hole locked proximal humerus plate was firstly fixed to humeral head by five screws. One Kirshner wire to humeral head and another to humeral diaphysis was inserted anteriorly paralel to each other as a guide for derotation osteotomy (figure 4).

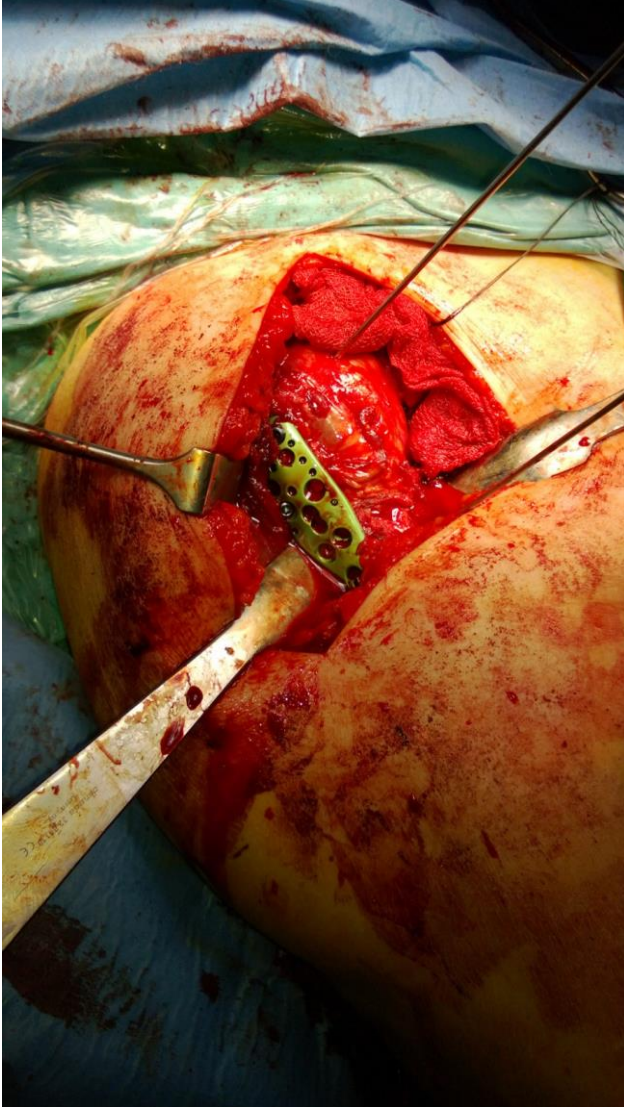


Figure 4. Guide pins and proximal humeral plate application

A transverse subcapital osteotomy was performed, the proximal fragment was internally rotated 25° relative to distal fragment and the plate was fixed with three screws to the diaphysis (figure 5).



Figure 5. 25 degrees internally rotating osteotomy of proximal humerus

The lateral portion of the capsule was repaired to coracoacromial ligament's coracoid portion. Subscapularis tendon was shortened and repaired by the help of an anchor suture (figure 6).



Figure 6. Immediate postoperative radiography

After the operation a computerized tomography (CT) study was performed to be sure about reduction (figure 7).



Figure 7. Immediate postoperative computerized tomography view

There was no early or late complications. The arm rested in a sling for three weeks postoperatively, after than passive and active range of motion exercises of shoulder began without allowing active flexion and passive extension of the elbow. At the end of six weeks the

extremity was left free for motion in all directions. At the end of one year the patient was satisfied with the result and there wasn't any instability sign with neither physical nor radiologic examinations (figure 8a,b,c,d,e). Her active abduction, forward flexion, internal rotation was sequentially 100°-90° and 70°.

A written permission was taken from the patient for being case report.



Figure 8a. Postoperatively 1 year radiography



Figure 8b. Forward elevation of the shoulder



Figure 8c. Abduction of the shoulder



Figure 8d. External rotation of the shoulder



Figure 8e. Internal rotation of the shoulder

DISCUSSION

There are limited data about chronic shoulder dislocations in the literature because of its infrequency. Chronic dislocation of shoulder usually limits range of motion and the shoulder becomes painful. In the literature different terms are used such as; if the dislocation lasts more than 24 hours³, more than 1 week⁴, more than 3 weeks⁵ or more than a month⁶. There is debate on treatment of this old injuries in the literature. Some orthopaedic surgeons think that relocation of old unreduced shoulder dislocation can cause a hazardous surgery⁴, Mancini⁷ reported asymptomatic 24 years old anterior shoulder dislocation, Hejna⁸ et al. claim that in first 6 weeks manipulation under anaesthesia is acceptable but if the dislocation is older than 6 weeks there has to be no attempt at reduction, Bennett⁹, left older patients that has at least %50 painless range of motion untreated but generally suggests surgery because he believes that if this injury is left untreated pain and limitation of motion will increase overtime. Goga⁴ again reported that in his series patients that undergo surgery had better results. Rowe and Zarins⁵ claim that patients that they have performed surgery have more favorable results.

There are many options such as; closed manipulation, open reduction with or without transfixation, humeral head plasty¹⁰, hemiarthroplasty¹¹, reverse total shoulder arthroplasty¹² and resection of the humeral head (Jones procedure)⁴ as a treatment of chronic dislocated shoulder in the literature.

Hejna⁸ et al. suggest closed manipulation up to 6 weeks, Key¹³ and Mosely¹⁴ suggest up to 3 weeks and Schulz³ et al. suggest up to 4 weeks. For older dislocations there are possible complications such as; failure, humerus fracture and neuro-vascular injury.

For more older anterior dislocations open reduction is essential treatment modality. The classic approach is deltopectoral exposure. Sometimes it is difficult to visualize proximal portion of humerus because of its infracoracoid position and sometimes it's difficult to reduce the joint because of soft tissue contractures without releasing near muscles and capsule. Akinci et al.¹⁵ released deltoid, subscapular muscles and conjoint tendon half part to achieve the reduction in their series. Goga⁴ suggests that open reduction followed by coracoid transfer (as we did) is an acceptable method of treatment in chronic anterior dislocations regardless of the age of the patient or the duration of the dislocation. Some surgeons transfix the humeral head to acromion or glenoid cavity¹⁵ to prevent early dislocation and to allow the soft tissues to heal on the other hand Rowe and

Zaris⁵ claim that transfixation of the joint with a Kirshner Wire may only add further damage to the articular surfaces and diminish the beneficial effects of early active motion.

In older patients dislocation of the glenohumeral joint usually occurs due to avulsion fracture of the rotator cuff insertion or rupture of the cuff itself, however in young patients it's usually due to detachment of labral attachment¹⁶. For old locked anterior dislocations it's evident that there is a possible large Hill-Sachs lesion at the posterolateral part of the humeral head and erosion of the antero-inferior part of the glenoid. Coracoid osteotomy and transfer to the glenoid was first described by Latarjet in 1954¹⁷. There are many publications that reported excellent long term results of coracoid transfer to glenoid for anterior recurrent instability of the shoulder^{18,19,20}. Although chronic dislocation is not a type of recurrent instability, osteotomy of the coracoid process can make the exposure easier and augmentation of the antero-inferior part of the glenoid can reduce the instability after treatment of chronic dislocations. Augmenting the anterior glenoid and providing a dynamic sling of the subscapularis muscle can strengthen the procedure by preventing instability.

After open reduction of the chronic dislocation of the shoulder redislocation or instability is possible if there is a large Hill-Sachs lesion on the humeral head. An impression fracture is classified as small (less than 25% of articular surface), medium (25 - 50%), or large (more than 50%)²¹. The procedures that have been suggested for the treatment of an unstable shoulder with a large Hill-Sachs lesion include; osteochondral grafting, transplantation of the infraspinatus tendon into the head defect, humeral osteotomy, humeral head plasty-arthroplasty, and tightening of the anterior structures. As a treatment of Large Hill-Sachs lesions first subcapital humeral osteotomy is described in 1964. The idea stemmed from the rotational osteotomy of the humerus for birth injuries of the brachial plexus²². According to this procedure after subcapital osteotomy, the humeral head is internally rotated 25° so that Hill-Sachs lesion moves away from the glenoid to allow more external rotation without catching to glenoid and creating a new dislocation. Also subscapularis muscle is shortened and repaired in this procedure. We decided to perform internal rotation osteotomy for our patient because we think that the most minimal dissection demanding technique was that.

As a conclusion we can say that the combination of open reduction, internal rotating osteotomy of the proximal humerus and Latarjet procedure is first used by us for chronic anterior shoulder dislocation in the English

literature. We didn't transfix the joint because of possible complications such as wire breakage and iatrogenic injury to the articular cartilage. At the end of one year both the patient and we are satisfied with the result. The patient has to be followed up to see the long term results.

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