



Endoscopic Treatment in Acromioclavicular Dislocations by Ligamentoplasty with Semi-Tendinous (About Five Cases)

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ABSTRACT

The acromioclavicular disjunction is a very frequent reason of consultation which concerns the young subject and which is favored by the sport practice. Our study is a retrospective study of a series of 5 patients who underwent endoscopic surgical treatment with coraco-clavicular lacing by ligamentoplasty within the orthopedic trauma department over a 24-month period between 01/2016 and 12/2017. The postoperative Constant score was 92 on average. No infectious or early or late cutaneous complications were found in the patients of our series. On the radiological level, the measurement of the coraco-clavicular distance in pre- and immediate postoperative, which was on average 30 mm against 18 mm postoperatively. The rapid recovery and the possibility of performing other arthroscopic therapeutic gestures represent the main advantages of this type of treatment.

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Introduction

The acromioclavicular disjunction is a very frequent reason of consultation which concerns the young subject and which is favored by the sport practice essentially of contact sports [1]. To characterize the lesions, the Rockwood classification is the most used [2]. This classification makes it possible to pose the therapeutic indication: The surgical treatment is proposed for stages IV and beyond, whereas the treatment of stages I and II is functional and it is the treatment of stage III which is the most discussed in particular when the lesion is aimed at young and active subjects [1-4]. Currently, with the advent of arthroscopy with its minimally invasive character, it allows to reduce the morbidity and the consequences of this surgery offering at the same time an anatomical and durable reduction of the lesions [5, 6]

The objective of our study is to evaluate the clinical and radiological results of arthroscopic stabilization of acromioclavicular disjunctions by ligamentoplasty to the semi tendinous.

Material and methods:

Patients:

Our study is a retrospective study of a series of 5 patients who received endoscopic surgical treatment in orthopedic traumatology service over a 24-month period between 01/2016 and 12/2017. The series included subjects all male, with a mean age of 32.8 years with extremes ranging from 20 to 47 years old. The inclusion criterion of our study was the existence of an acromioclavicular disjunction of stage III or beyond (requiring surgical treatment) according to the Rock-Wood classification, in active subjects. Clinical examination was supportive of shoulder deformity, piano cleft and antero-posterior drawer (Figure 1) Dislocations sat on the right in 3 cases (60%) and on the left in 2 cases (40%).

The stage of dislocation was III in 3 patients (60%) and V in 2 patients (40%). The reported lesional mechanisms were mainly direct shocks to the shoulder stump during a road accident in all patients in our series.

The average operative time was 6 days with extremes ranging from 3 to 8 in our patients. Two patients practiced sport as leisure, the average retreat was 7 months. Surgical technique: Endoscopic surgical treatment of acromioclavicular dislocation involves the following steps: • Installation of the patient and anesthesia: The patient is in a semi-sitting position. The patient is under plexus block, with associated general anesthesia

First time: pneumatic tourniquet at the root of the lower limb. Collection of the tendon tendon by an oblique approach Cutaneous and subcutaneous incision next to the inside of the leg. (Figure 2) The average size of transplants was 4.9mm. •Way first and resections: The standard posterior optic pathway is set up for the exploration of the glenohumeral joint aimed at diagnosis, whereas the realization of the anterior way, whether antero-external or anterior-intern, will depend on the gestures associated with stabilization. of the acromioclavicular joint. These approaches are used to inspect the glenohumeral joint and the subacromial space. The arthroscope is introduced into the subacromial bursa with a bursectomy. The soft parts are resected for optimal visualization of the distal part of the clavicle. The arthroscope is introduced into the subacromial bursa with a bursectomy. The soft parts are resected for optimal visualization of the distal part of the clavicle. Hemostasis must be meticulous. The arthroscope is subsequently introduced by the lateral way. The anterolateral approach allows the introduction of the motorized bur, shaver and endoscopic scalpel. The first step will be to resect the lower joint capsule, then gnawing the articular meniscus, cleaning the coracoid with electrocautery is done by the same way first (Figure 3)

Reduction and fixation: by mini-approach

The steps followed for the reduction and fixation of the acromioclavicular joint differ from the type of fixation: the one used is based on a coraco-clavicular lacing or an autologous graft by the half-tendinous:

By horizontal first approach centered on the distal $\frac{1}{4}$ of the clavicle of 3-4 cms (Figure 4)

Drilling of 2 tunnels of 5.5 mm in diameter then passage of the transplant through the two orifices prepared on the clavicle and under the horizontal branch of the coracoid process, which is controlled under endoscopy (Figure 5), then the reduction is carried out by raising the arm, and suturing the transplant on itself at the top (Figure 6), as well as the closure of the delto-trapezoidal clevis. Immobilization elbow to the postoperative body was performed in all our patients for 3 to 6 weeks.

Rehabilitation: It is a primary therapeutic step. It was started in the week following the intervention in a gentle and progressive way, after the removal of the means of restraint, all our patients benefited from several rehabilitation sessions. **Criteria for evaluation and follow-up of patients:** The consultation allowed a follow-up of our patients postoperatively. This follow-up was done clinically by:

- measuring the mobility of the shoulder
- Constant's score
- The search for mobility in the piano key of the acromioclavicular joint.
- The search for anteroposterior mobility of the acromioclavicular joint

And radiologically by standard lateral radiographs allowing to measure the coraco-clavicular distance preoperatively, immediately postoperatively, then at the last follow-up.



Figure 1 . Clinical preoperative aspect of sholder.



Figure 2. Stripping and preparation of the semi-tendinous graft.

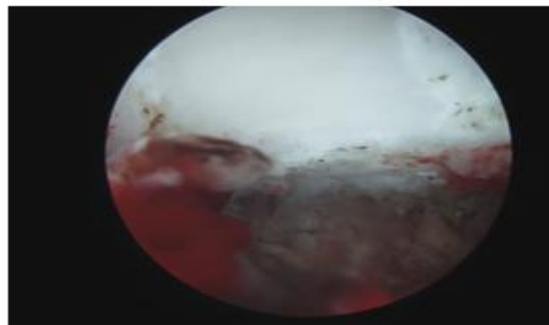


Figure 3. Endoscopic view of the coracoid



Figure 4 . Skin incision : horizontal mini open.

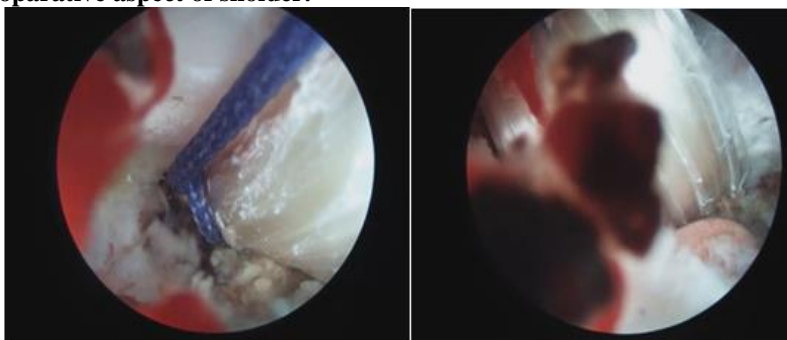


Figure 5. Endoscopic view of graft under the coracoid.



Figure 6. Peroperative view of graft while and after fixation.

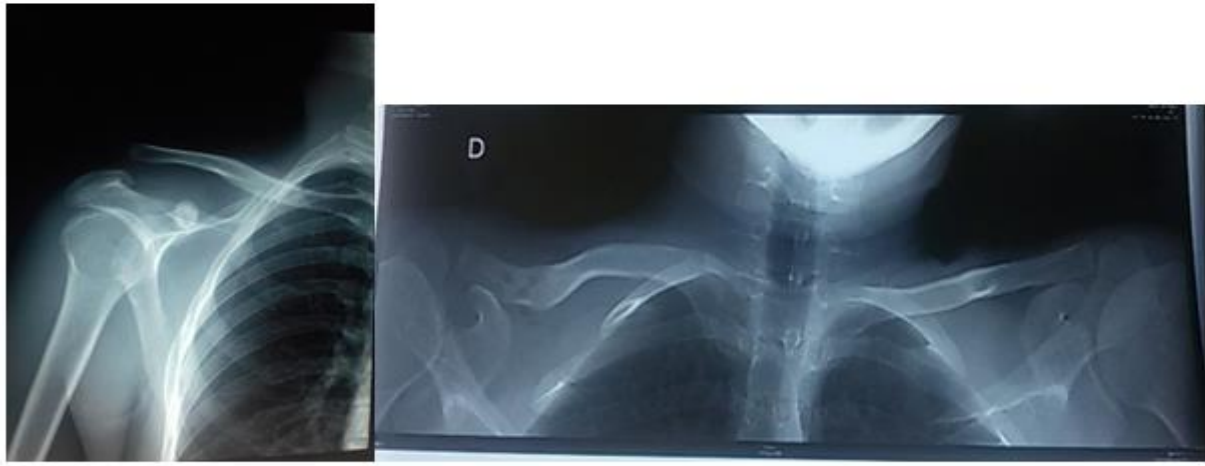


Figure 7 . X ray view before and after surgery

Results:

Clinically:

• Shoulder Function:

Residual pain and deformity were not found in any of our patients.

The average value of active mobilities of the shoulder in postoperative at two months are as follows:

The anterior elevation was 157°, the abduction 156° the external rotation 48°. These mobilities were substantially comparable to the contralateral sides and between the side of patients who had undergone endoscopic surgery.

The Constant postoperative score was on average 92.

The persistence of anteroposterior mobilities and piano touch was not noted in the 5 patients.

Regarding the resumption of professional activities, they were significantly shorter in all patients (7 weeks on average).

Patient satisfaction was good in all patients.

• Occurrence of Complications:

No infectious or early or late cutaneous complications were found in the patients of our series.

In our series, no recurrence of acromioclavicular dislocation has occurred.

Radiologically: (Figure 7)

The immediate reflection of the reduction is represented by the measurement of the coraco-clavicular distance in pre and postoperative immediate which was on average 30mm against 18mm postoperatively.

Discussion:

Our study aims to evaluate our endoscopic management results in the treatment of acromioclavicular disjunctions associated with lacing by the tendon tendon. The stabilization of a fresh acromioclavicular dislocation is achieved by maintaining a satisfactory reduction by coraco-clavicular lacing or by tendon grafting whether it is by coracoacromial ligament or by synthetic tendon until the ligament healing of the stabilizing ligaments of the joint [5,7].

The clinical results were evaluated in our series by the Constant score and the return to work or previous sports activity of patients who returned to this technique. In our series, we noted the low rate of surgical complications in the immediate aftermath. Other series have tried to demonstrate the benefit of arthroscopy and found the same results as those of our series [5,6]. In a series of Murena et al. , an average Constant score of 97 was reported [5].

Endoscopic treatment with combined coraco-clavicular lacing has made it possible to reduce the complications of open-air lacing, particularly recurrence, which occurs at high levels ranging from 10 to 30% [8, 9]. Other complications

that occur at higher rates for open surgery have been described: Migration of osteosynthesis pins, osteolysis around artificial ligaments of Goretex, fracture or disassembly of clavicular screws, resection too generous of the outer end of the clavicle and infections of the operative site [1,10-12]. The low rate of complication by endoscopic technique compared to that obtained by technique is a better indication to use this technique more. The arthroscopic approach of the acromioclavicular joint allows to respect the deltoid muscle, makes the hospitalization shorter, even ambulatory. It also allows the investigation and treatment of associated lesions, especially those of the glenohumeral joint, especially since 15% of acromioclavicular dislocations are accompanied by ruptures of the rotator cuff and /or lesions of the superior glenoid bead as demonstrated by a study conducted by Pauly et al. [13]. The result of the reduction was objectified immediately postoperatively by measuring the coraco-clavicular distance that was comparable to the healthy side. The addition of coraco-clavicular cerclage according to Mazzocca et al. (used mostly in chronic) does not significantly alter the stability or rigidity remains even less stable and less rigid than nonabsorbable artificial ligaments or the best is the autologous tendon that is used in the coraco-clavicular reconstructions in our series by endoscopic route [14, 15, 16].

Conclusion

The endoscopic technique significantly reduces the morbidity of open surgical treatment. This is a promising treatment for acromioclavicular disjunctions. Even if our series has a small staff, it demonstrates the benefits of endoscopic treatment.

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