

The Use of Semitendinosus Tendon Graft versus Modified Weaver-Dunn Procedure for Treatment of Acromioclavicular Joint Dislocation: A Comparative Study

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Abstract

Background: Biomechanical studies comparing various surgical techniques for acromioclavicular joint reconstruction have reported that semitendinosus tendon graft for coracoclavicular ligament reconstruction provides a substantial improvement in initial stability and a load-to-failure equivalent to the intact coracoclavicular ligaments. Although it represents a biomechanical improvement compared with coracoacromial ligament transfer, there is still a lack of prospective comparative studies confirming the clinical relevance of these biomechanical findings.

Aim of Study: The aim of this study is to compare and evaluate the clinical and radiological results of using Semitendinosus Tendon Graft versus Modified Weaver-Dunn Procedure for treatment of Acromioclavicular Joint Dislocation.

Patients and Methods: Prospective Comparative Randomised Control Study included 40 patients with 40 shoulders diagnosed clinically and radiologically as Rockwood type III and type V Acromioclavicular joint dislocations underwent operative treatment of AC dislocation; 20 patient (group A) treated by modified Weaver-Dunn operation with mean follow-up 14.4 months and the other 20 patient (group B) treated by reconstruction with Semitendinosus autograft T with mean follow-up 12 months. Clinical evaluation was performed using the Constant score. Preoperative and postoperative radiographs were compared.

Results: The mean Constant score improved from 55 points to 86 points in the Weaver-Dunn group, and from 60 points to 89 points in the semitendinosus tendon group ($p < .37$). The radiologic measurements showed a mean coracoclavicular distance in the Weaver-Dunn group become 11.20mm, compared with 10.6mm in the semitendinosus tendon group ($p < .92$). Both groups achieved significant improvements in both range of motion and functional activity according to Constant score. In our study, we saw a trend to wards better results in semitendinosus tendon group than Weaver-Dunn group although not on a significant level.

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Conclusion: Semitendinosus tendon graft for coracoclavicular ligament reconstruction resulted in superior clinical and radiologic outcomes compared to the modified Weaver-Dunn procedure but not on a significant level.

Key Words: Acromioclavicular dislocation – Weaver-Dunn procedure – Constant score – Semitendinosus tendon graft.

Introduction

THE acromioclavicular joint provides a 'key-stone' link between the scapula and the clavicle. The integrity of the sternoclavicular and acromioclavicular joints is important for the normal coordination of movement of the shoulder girdle [1].

Injuries to the acromioclavicular joint account for approximately 12% of those to the shoulder girdle seen in clinical practice. This is likely to be an underestimate of their true prevalence, since patients with minor sprains may not seek medical attention. They are between five and ten times more common in males. Incomplete separations of the joint are approximately twice as common as complete disruptions. The aim of treatment should be to return the patient to the level of function before injury, with a pain-free, strong and mobile shoulder [2].

Low grade injuries (type I & II) often can be conservatively managed, as the coracoclavicular ligaments remain intact and keep the clavicle in close proximity to the scapula. However, higher grade injuries (Types III, IV, V and VI) result in the complete disruption of these ligaments and often result in both inferosuperior and anteroposterior instability. Operative stabilization often is indicated and can minimize the discomfort and

disability associated with this instability. The unstable AC joint has been treated with a multitude of operative techniques over time, with many reporting good to excellent outcomes [3].

Many surgical techniques have been described for the management of symptomatic AC joint separations. Rigid CC ligament fixation using screws, Kirschner wires, or Steinman pins have fallen out of favor in clinical practice due to their high failure and complication rates. These suboptimal outcomes are likely due to the failure of rigid fixation to accommodate the normal motions that are known to occur within AC joint. Rigid fixation therefore results in decreased patient satisfaction, function, and strength [4].

The modified Weaver-Dunn procedure involves That coracoacromial ligament was sharply detached off the most anterolateral aspect of the acromion with a small piece of bone, maintaining as much length as possible. A locking stitched was weaved into the distal end of the detached CA ligament with a No. 2 Fiber Wire. After 1 cm of distal clavicle was resected, the sutures ends were passed through drill holes in the superior aspect of the distal clavicle. The clavicle was reduced into an anatomic position, and the sutures were tied. The reconstruction was augmented with a No. 2 Fiber Wire suture looped underneath the coracoid and brought around the clavicle and tied [5].

Anatomic Allograft. Anatomic reconstruction techniques typically include the use of tendon grafts or cortical fixation button devices to reconstruct the anatomy of the CC ligaments. Excellent biomechanical properties have been demonstrated with these techniques [5].

The use of grafts for anatomic reconstruction of the acromioclavicular joint was first reported by Jones and coworkers. In their study, an autogenous semitendinosus tendon graft was used to reconstruct the acromioclavicular joint [6].

In various biomechanical studies, the structural properties of the semitendinosus tendon graft as an anatomic reconstruction technique were compared with the intact coracoclavicular ligaments. They concluded that this graft can be used to replicate the course of the ligaments and provide stability to the clavicle that is very close to that provided by the intact ligaments, with the advantages of autogenous tissue [7].

The aim of this study is to compare and evaluate the clinical and radiological results of using Semitendinosus Tendon Graft versus Modified Weaver-

Dunn Procedure for treatment of Acromioclavicular Joint Dislocation.

Patients and Methods

From March 2013 till March 2015; Aprospective Comparative study was done on 40 patients with 40 shoulders were diagnosed clinically and Radiologically as Acromioclavicular joint dislocation (AC joint) underwent operative treatment of AC dislocation in Kasr Al-Ainy Cairo University Hospital; (group A) 20 patient treated by modified Weaver-Dunn operation. and (group B) 20 patient treated by anatomical reconstruction with Semitendinosus tendon autograft. The study was approved by the Research Ethics Committee at Faculty of Medicine Cairo University. An informed consent was provided by all study participants at the beginning of the study.

Skeletally mature patient, Acute and chronic Rockwood type III through VI Acromioclavicular joint dislocations and symptomatic (pain, loss of muscle strength of the scapular girdle) were included in our study.

Skeletally immature patient, patients with Open fractures, Associated fracture of distal third of clavicle and patients with Coracoid fractures were excluded from our study.

All patients in the present study were subjected to History taking including Personal history (Age-Sex), Present history (Mechanism of injury-Side) and Past history of previous chronic diseases, drug allergy, or previous operation.

Examination including Clinical assessment (Standard shoulder examination was performed in the form of Tenderness, Range of motion, Swelling, Skin condition, Neurovascular examination, Constant score for preoperative and postoperative assessment. Also examination for associated injuries was performed), Radiological assessment (All patients were evaluated by plain X-rays (A-P and Zanca views) of both shoulders preoperatively to classify the patient's dislocation) and Laboratory Investigation (CBC, Kidney function, urea, creatinine), Liver function (AST, ALT, Bilirubin), BL sugar, PT, PC, INR).

Preoperative preparation includes injection of 3rd generation cephalosporins one gram/IV to each patient is a routine after the induction of anesthesia. Each patient was wearing above knee elastic stocking to guard against DVT during the operation and at the same time to improve the venous return to the heart whiles the sitting position. General an-

esthesia was given for every patient after pre-anesthetic sedation, with proper intraoperative head support.

Modified Weaver-Dunn procedure: Beach-chair position was used for all patients (Fig. 1). A longitudinal incision is employed to gain sufficient access to the ACJ and surrounding structures. The incision should be linear in nature, extending from the tip of the coracoid anteriorly, to the spine of the scapula posteriorly, and centered over the ACJ. After development of subcutaneous flap and retraction of wound sides. The deltoid fibres are identified and peeled off in a sub periosteal fashion to expose the ACJ, the lateral end of the clavicle and the acromion. The tip of the coracoid, the coracoacromial ligament, and its insertion to the undersurface of the acromion are identified (Fig. 2). Ligation of coracoacromial ligament at its acromial side with Ethibond suture. The acromial end of the coracoacromial ligament is isolated and detached using a reciprocating saw or osteotome. A 3-5mm osteotomy cut is made from the underside of the acromion and a piece of bone with the coracoacromial ligament attached is preserved. This pedicled bone plug anchored to the tip of the coracoid is prepared with two to three No 5 Ethibond sutures passed through both bone and tendon. The lateral 1 cm of the clavicle are excised with the saw. The medullary bone of the clavicle is identified and curetted to create a cavity for the bone plug to insert into. Two unicortical drill holes are made in the upper cortex of the clavicle only by 2.7mm drill bit. The bone-plug-ligament complex is held by the Ethibond sutures and its length tested to ensure comfortable fit within the clavicle (Fig. 3). The free ends of the Ethibond sutures are passed through the drill holes in the superior cortex of the clavicle and the bone-plug guided to fit within the bed created for it. With the acromial bone plug within the intramedullary canal, sutures are tensioned and the clavicle manipulated to sit in the normal anatomical position. The repair is secured with several knot throws. Soft tissue repair is made, ensuring closure of the ACJ capsule and overlying muscle. Skin is sutured using continuous subcutaneous absorbable sutures, simple sutures or staple.

Semitendinosus Tendon Graft Procedure: Beach-chair position was used for all patients (Fig. 1). The semitendinosus tendon was harvested through a 5cm oblique incision over the pesanserinus from the ipsilateral knee using a stripper. The graft was prepared on the back table by tabularizing each end of the semitendinosus autograft with No. 2 sutures to allow it to be passed through the bony

tunnels (Fig. 4). A longitudinal incision is employed to gain sufficient access to the ACJ and surrounding structures. The incision should be linear in nature, extending from the tip of the coracoid anteriorly, to the spine of the scapula posteriorly, and centered over the ACJ. 10mm of the distal clavicle is removed in a perpendicular fashion using an oscillating saw or osteotome. The superior aspect of the distal clavicle was exposed over its borders by subperiosteal dissection to allow for complete visualization from its lateral aspect to the level of the normal coracoclavicular ligament attachment medially on the clavicle, leaving the anterior deltoid attachment on the clavicle intact. Make the bone tunnels in the clavicle in accurate position to recreate the coracoclavicular ligament. A cannulated reamer guide pin is used for placement of the tunnels. The first tunnel is for the conoid ligament, and that is roughly 45mm away from the distal end of the clavicle before resection of distal end of clavicle in the posterior one half of the clavicle. The footprint of the conoid ligament is posterior. The guide pin is also angled approximately 45° from the direct perpendicular of the clavicle to recreate the oblique nature of the ligament. Once the guide pin is inserted in the direction of the eventual bone tunnel, the appropriate reamer is placed over the guide pin and confirmation that the tunnel will be as posterior as possible without “blowing out” the posterior cortical structure of the clavicle. We usually used 4.5 drill bit to create bone tunnels in clavicle (Fig. 5). The same procedure is repeated for the trapezoid ligament. This is a more anterior structure than the conoid and is usually placed in the center point of the clavicle, approximately 15mm away from the center portion of the previous tunnel. The graft was passed from inferior to superior through clavicle tunnels. Looping the graft around the base of the coracoid process could be facilitated by the use of a curved aortic cross-clamp (Satinsky clamp) and a suture-passing device. The 2 arms of the graft were pulled under the deltoid by axial traction until the distal clavicle elevation was completely reduced. The tail ends of the graft were tied in a square knot fashion (Figs. 6,7).

Postoperatively, the patient remained in the hospital overnight and will be discharged in the next day, The shoulder was placed into an immobilizer (arm sling), Parenteral antibiotics for the first 24 hours postoperatively and Post procedure analgesic prescription and antiedemetous drugs. Also, Zanca as well as A-P radiographs of shoulder are taken immediately postoperatively, 3 months and 6 months.

Statistical methods:

SPSS (Statistical Package for Social Sciences, version 20.0, Chicago, IL) was used for data analysis. Mean and standard deviation were estimates of quantitative data. *t*-test compared means of 2 independent groups and Chi-square/Fischer exact were tests of proportion independence. *p*-value is significant at 0.05 level.

Results

In group A (modified Weaver-Dunn) the mean preoperative CC distance was 18.75mm that reduced postoperative to become 11.2mm with 49.55% percentage of reduction. In group B (Semitendinosus autograft) the mean preoperative CC distance was 17.15mm that reduced postoperative to become 10.6mm with 48.94% percentage of reduction (Table 1).

Table (1): Comparison of Coraco-Clavicular distance among 2 study groups.

	Study groups				<i>p</i> -value
	Modified Weaver-dunn		Semitendinosus graft		
	Mean	Std. Deviation	Mean	Std. Deviation	
- Coraco-Clavicular distance postop (mm)	11.0	3.28	10.6	3.15	0.56
- Coraco-Clavicular distance % drop	49.55	19.47	48.94	16.66	0.92

In group A (modified Weaver-Dunn) The patients' preoperative CS ranged from 40 to 70 with mean preoperative CS 55.3 that improved postoperative to become 86.6 with 60.93% percent of improvement. In group B (Semitendinosus autograft). The patients' preoperative CS ranged from 45 to 76 with a mean preoperative CS 60.15 that improved postoperative to become 89.2 with 52.47% percent of improvement (Table 2).

Table (2): Comparison of CS among 2 study groups.

	Study groups				<i>p</i> -value
	Modified Weaver-dunn		Semitendinosus graft		
	Mean	Std. Deviation	Mean	Std. Deviation	
- Constant score preop	55.30	9.65	60.15	9.68	0.12
- Constant score-postop	86.60	6.80	89.20	5.16	0.18
- Constant score % increase	60.93	29.72	52.47	29.37	0.37

In group A (modified Weaver-Dunn) the patients' preoperative CS (subjective results) were 2 patients had fair score (10%) and 18 patients had

poor score (90%) that improved postoperative to become 11 patients had excellent score (55%), 6 patients had good score(30%) and 3 patients had fair score (15%). In group B (Semitendinosus autograft). The patients' preoperative CS (subjective results) were 4 patients had fair score (20%) and 16 patients had poor score (80%) that improved postoperative to become 13 patients had excellent score (65%) and 7 patients had good score (35%) (Table 3).

Table (3): Comparison of CS (subjective results) among 2 study groups.

	Study groups				<i>p</i> -value
	Modified Weaver-dunn		Semitendinosus graft		
	No.	%	No.	%	
<i>Constant score preop (subjective results):</i>					
Fair	2	10.0	4	20.0	0.66
Poor	18	90.0	16	80.0	
Group Total	20	100.0	20	100.0	
<i>Constant score-postop (subjective results):</i>					
Excel	11	55.0	13	65.0	0.36
Fair	3	15.0			
Good	6	30.0	7	35.0	
Group Total	20	100.0	20	100.0	



Fig. (1): The beach-chair position.

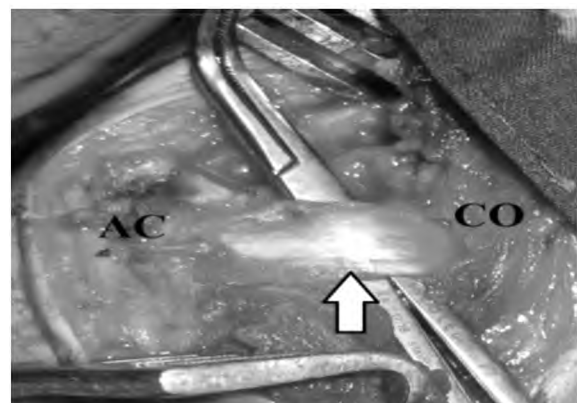


Fig. (2): The coracoacromial ligament (white arrow), AC: Acromion, CO: Coracoid.

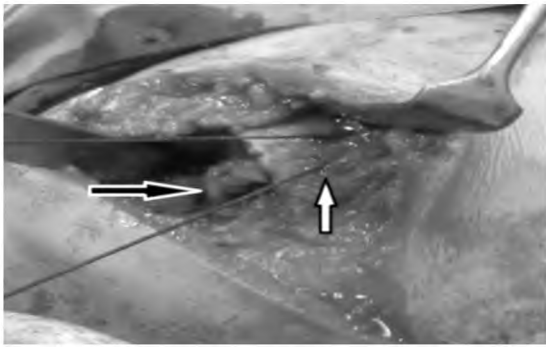


Fig. (3): Passage of coracoacromial ligament through clavicle (black arrow), Ethibond sutures arepassed through the drill holes in the superior cortex of the clavicle (white arrow).

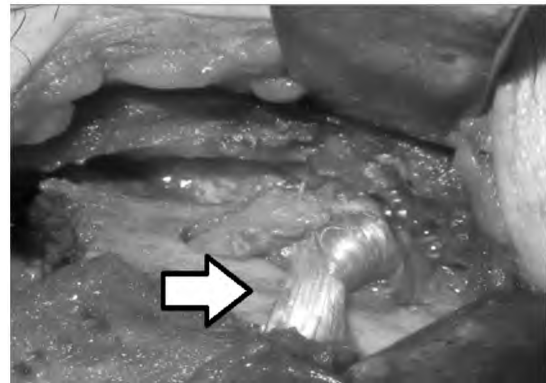


Fig. (7): A square knot fashion (white arrow).



Fig. (4): The graft was prepared by tabularizing each end with No.2 sutures.

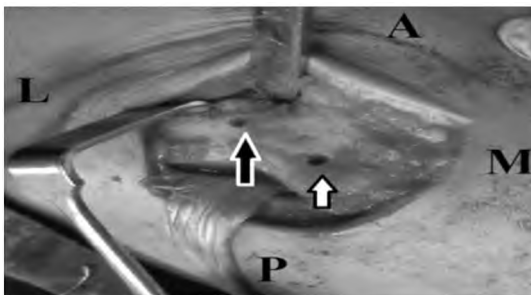


Fig. (5): 2 drill holes were prepared on the clavicle using 4.5mm drill bit. Lareral hole that represent trapezoid ligament footprint (black arrow), Medial tunnel that represent conoid ligament footprint (white arrow), L: Lateral, M: Medial, A: Anterior, P: Posterior.

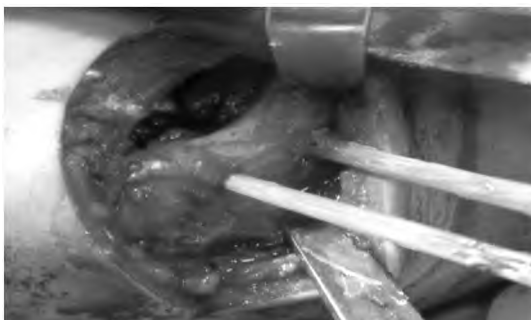


Fig. (6): The graft was passed from inferior to superior through the clavicle tunnels.

Discussion

As Classified by Rockwood it is generally accepted that types I and II acromioclavicular (AC) joint injuries are best managed conservatively, whereas types IV, V, and VI injuries generally require operative intervention, The ideal treatment for grade III injuries remains controversial [8].

To date, over 60 surgical procedures have been described to treat ACJ dislocation which reflects a general dissatisfaction with treatment options [9].

In our study 40 patients with 40 shoulders were diagnosed clinically and radiologically as Acromioclavicular joint dislocation underwent operative treatment of AC dislocation; 20 patient (group A) treated by modified Weaver-Dunn operation and the other 20 patient (group B) treated by anatomical reconstruction with Semitendinosus autograft.

In group A (modified Weaver-Dunn) 20 patients underwent modified Weaver-Dunn operation. The patients' age ranged from 20 to 55 years with mean age 38.3 years. The patients' gender are 4 females (20%) and 16 males (80%). Regarding the injured Side 13 Patients were right sided, 7 Patients were left sided. Regarding the grade of injury 10 patients (50%) were grade III and 10 patients (50%) were grade V Classified according to Rockwood's classification, The follow-up months ranged from 7 months to 20 months with mean follow-up 14.4 months. In the last follow-up According to constant score, 11 patients had excellent score (55%), 6 patients had good score (30%) and 3 patients had fair (15%) outcome. The mean CS improved postoperative to become 86.6 with 60.93% percentage of improvement. The mean preoperative coraco-clavicular distance was 18.75mm that reduced postoperative to become 11.2mm with 49.55% percentage of reduction. Radiographs at last follow-

up showed 7 patients had complete reduction, 11 patients had partial loss of reduction and 2 patients had complete loss of reduction.

In group B (Semitendinosus autograft) 20 patients underwent anatomical reconstruction of AC joint with autogenous semitendinosus graft, patients' age ranged from 18 to 55 years with mean age 33.75 years. The patients' gender are 5 females (25%) and 15 males (75%). Regarding the injured Side 8 Patients were right sided, 12 Patients were left sided. Regarding the grade of injury 11 patients (55%) were grade III and 9 patients were grade V (45%) Classified according to Rockwood's classification, The follow-up months ranged from 6 months to 18 months with mean follow-up 12 months. In the last follow-up according to constant score, 13 patients had excellent score (65%) and 7 patients had good score (35%) outcome. The mean CS improved postoperative to become 89.2 with 52.47% percentage of improvement. The mean preoperative coraco-clavicular distance was 17.15mm that reduced postoperative to become 10.6mm with 48.94% percentage of reduction. Radiographs at last follow-up showed 9 patients had complete reduction, 9 patients had partial loss of reduction and 2 had complete loss of reduction.

In our study, we saw a trend towards better results after semitendinosus tendon graft over modified Weaver-Dunn procedure as every measured variable favored, although not on a significant level.

An interesting finding was that elongation of the new transferred ligament over time occurred despite of good intraoperative reduction and augmentation of reduction. One explanation could be that a transferred ligament needs a longer period of protection, Furthermore, the clinical outcome was not affected by partial degree of postoperative subluxation.

This is consistent with the results of Weinstein et al., [10] that found partial loss of reduction did not appear to influence the overall result, but a complete loss leads to worse results.

This is consistent with the results of Tauber et al., [11] reported that anatomic reduction is not absolutely necessary for good functional outcome, possible explanation for this finding could be that even an elongated reconstructed ligament results in enough improved stability of the clavicle to relieve symptoms and improve shoulder function.

An interesting observation was the lack of correlation between preoperative grade of injury

and final clinical outcome after surgical reconstruction. Coracoclavicular calcification was found in 3 patients; 2 in group A and 1 patient in group B. Presence of calcification had no impact on Constant score in the present series.

There were 3 superficial infections in the 2 groups, one case was polytrauma patient and undergo vascular and skin grafts and the other 2 patients had uncontrolled diabetes, all cases respond to antibiotics without need for surgical debridement

No serious complication in the donor knee could be observed, with only a mild hyperesthesia of the infrapatellar branch of the saphenous nerve in 2 patients in group B.

A limitation in the study is that short follow-up period to make good assessment about long term results of both methods and further effect on shoulder function.

Based on the results of our study, both surgical techniques provided a functional improvement, which was significantly higher in favor of the ST graft. The use of Semitendinosus tendon graft for coracoclavicular ligament reconstruction resulted in stable augmentation, good clinical outcome without the need of a second operation.

This is consistent with the results of Tauber et al., [11] whose study include Twenty-four patients (mean age, 42 years) with painful, chronic Rockwood type III through V acromioclavicular joint dislocations were subjected to surgical reconstruction. In 12 patients, a modified Weaver-Dunn procedure was performed; in the other 12 patients, autogenous semitendinosus tendon graft was used. Clinical evaluation was performed using Constant score after a mean follow-up time of 37 months. Preoperative and postoperative radiographs were compared.

The mean Constant score improved from 70 ± 8 points to 81 ± 8 points in the Weaver-Dunn group, and from 71 ± 5 points to 93 ± 7 points in the semitendinosus tendon group ($p < .001$). The results in the semitendinosus tendon group were significantly better than in the Weaver-Dunn group ($p < .001$). The radiologic measurements showed a mean coracoclavicular distance of 12.3 ± 4 mm in the Weaver-Dunn group, compared with 11.4 ± 3 mm in the semitendinosus tendon group. Concluded that: Semitendinosus tendon graft for coracoclavicular ligament reconstruction resulted in significantly superior clinical and radiologic outcomes compared to the modified Weaver-Dunn procedure [11].

Costic et al., [7] tested a reconstruction technique using an ST imitating the anatomic course of the conoid and trapezoid ligaments. Although they observed inferior stiffness and ultimate load compared with the intact CC ligaments, the anatomic reconstruction using ST approximated the stiffness characteristics of the native CC ligament complex far better than the standard Weaver-Dunn procedure.

Tauber et al., [12] between 1996 and 2003, 12 patients (7 men, 5 women) underwent revision surgery for reconstruction of chronic AC joint dislocation with semitendinosus autograft after failure of other surgical interventions. All patients were followed-up clinically and radiographically after a mean of 49.5 months (range, 26-96 months). Preoperative and intraoperative records were available for all patients. Their average age was 51.2 years (range, 29-63 years). The right shoulder was involved in 8 patients (67%) and the left was involved in 4 (33%). The dominant side was affected in 8 patients. The primary diagnosis was AC joint dislocation Rockwood type III in 6 patients, type IV in 4, and type V in 2. The mean Constant score improved from an average 61.3 points (range, 41-69 points) before revision surgery to an average 76.4 points (range, 46-91 points) at follow-up. Improvements were statistically significant ($P < .01$). One patient showed prominent superior migration of the distal end of the clavicle without any clinical discomfort. All patients but 1 were very satisfied ($n = 5$) or satisfied ($n = 6$) and would undergo the same surgery again.

Mardani et al., [13] Studied 18 patients (16 men and 2 women) with semitendinosus autograft. The mean age was 33.4 ± 11.2 ($p > 0.05$), there were 5 patients with Type 3 and 13 cases with Type 5 injury ($p > 0.05$). The mean time between the injury and surgery was 5.5 ± 3.1 days. According to the Constant scores taken at 1 year follow-up, excellent in 66.7%, good in 27.7% and fair in 5.6% the mean Constant shoulder scores were 92 ± 2 .

The Zanca view radiographs taken at the final follow-up visit showed a complete reduction of the AC joint in 12 (67%) and five patients (28%) had 25% subluxation. Subluxation of more than 25% was observed in only one patient (5%).

Mazzocca et al., [14] compared a more anatomic 2-bundle reconstruction using a free ST graft of both the trapezoid and conoid ligament with a modified Weaver-Dunn procedure. They found the anatomic CC reconstruction to confer less anterior and posterior translation and to allow resemblance of the intact state and restoration of the physiologic function of the AC and CC ligaments.

Mazzocca, 2010 [9] studied 17 patients is presented with AC dislocation underwent anatomical reconstruction with semitendinosus graft. Sixteen patients were available for follow-up examinations and completion of surveys. Average follow-up for this series is 21 months (range, 6-61) patients demonstrated significant improvement Constant score improved from 66.6 to 94.7.

Nicholas et al., [15] used a semitendinosus allograft for the treatment of both acute and chronic type V AC joint dislocation and reported excellent functional and radiologic outcomes in 9 patients, most of them highly active and athletic.

In a controlled laboratory study, whereby reconstruction using coracoacromial ligament transfer with or without augmentation, and a semitendinosus tendon were subjected to loading cycles. Only the semitendinosus tendon survived both clinically this should translate to a strong and stable biologic option for acromioclavicular joint reconstruction [16].

As shown from this discussion, our study were equal to other studies in mean constant score, postoperative activity level and postoperative reduction.

Conclusion:

Based on the results of this study, both surgical techniques provided a functional improvement, which was significantly higher in favor of the ST graft. The use of Semitendinosus tendon graft for coracoclavicular ligament reconstruction resulted in stable augmentation, good clinical outcome without the need of a second operation.

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دراسة مقارنة بين استخدام وتر العضلة شبه الوترية وإستخدام تكنيك ويفر ضد المعدل للعلاج الجراحي لخلع المفصل الأخرى الترقوى

مقدمة : يعمل المفصل الأخرى الترقوى كرابط بين الهيكل المحورى والهيكل الزائدى وتشكل إصابة هذا المفصل ما يقرب من نصف إصابات الكتف الناتجة عن ممارسة الرياضة. غالباً ما تقع إصابات المفصل الأخرى الترقوى فى صغار البالغين نتيجة السقوط المباشر على الكتف مما يؤدي إلى يتبعه تمزق الأربطة الأخرى الترقوى وفقدان الاستقرار الأفقى للمفصل. مع زيادة القوة، تتمزق الأربطة الغرابية الترقوى مع حدوث إزاحة للجانب الخارجى للترقوة وفقدان الأستقرار الرأسى للمفصل وخلعه كلياً نتيجة لذلك.

استخدمت طرق جراحية متعددة لعلاج خلع المفصل الأخرى الترقوى تتضمن التثبيت بواسطة المسامير الغرابية الترقوى، التثبيت داخل المفصل الأخرى الترقوى باستخدام سلاك معدنية، نقل الرباط الغرابية الأخرى إلى الجزء الخارجى من الترقوة والمعروفة بـ (ويفر دن المعدل) وإعادة البناء التشريحي للمفصل.

هدف العمل : الهدف من هذه الدراسة هو مقارنة وتقييم النتائج السريرية والإشعاعية لإستخدام وتر العضلة شبه الوترية فى إعادة بناء الرباط الغرابية الترقوى مقابل إجراء استخدام تكنيك ويفر ضد المعدل فى علاجها المعدل لخلع المفصل الأخرى الترقوى.

الطرق والوسائل : فى هذه الدراسة تم عمل دراسة مقارنة على أربعين حالة مرضية تعانى من خلع المفصل الأخرى الترقوى تم تشخيصهم بواسطة الفحص الإكلينيكي والأشعة خلال العامين الماضيين وتم تقسيمهم إلى مجموعة (١) وتشمل عشرون حالة تم استخدام تكنيك ويفر ضد المعدل فى علاجها، ومجموعة (٢) وتشمل عشرون حالة أخرى تم استخدام وتر العضلة شبه الوترية فى إعادة بناء الرباط الغرابية الترقوى.

استخدمت الأشعات للتشخيص قبل العملية، تحديد درجة الخلع ، والتصنيف طبقاً لروكود مباشرة بعد العملية وفى المتابعة النهائية. نتيجة كونساتنت للتقييم الإكلينيكي ما قبل العملية وفى المتابعة النهائية.

النتائج : النتائج فى كل من الطريقتين محفزة حيث أن الغالبية العظمى من المرضى شهدوا تحسناً ملحوظاً على مستوى حركة الكتف والوظيفة طبقاً لنتيجة كونساتنت للتقييم مع أفضلية للطريقة المستخدم بها وتر العضلة شبه الوترية. لم يكن هناك للفرق فى الجنس أو الناحية المصابة أو الدرجة قبل العملية أثر على نتيجة العملية أو المضاعفات الناتجة عنها والمرضى الذين تم علاجهم.

الخلاصة والاستنتاج : كلتا الطريقتين فعالة جداً فى علاج خلع المفصل الأخرى الترقوى الحاد والمزمن من الدرجة الثالثة وحتى السادسة مع التأكد على أهمية البرنامج التأهيلي اللاحق للعملية كما اعتبرت المضاعفات أدنى ما يكون.