88 - PHYSICAL THERAPY AND MULLIGAN TECHNIQUE AFTER BANKART SHOULDER INJURY SURGERY - A REPORT CASE

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Introduction:

The anatomy of the shoulder joints complex permits extensive range of motion. However, the high mobility could cause instability that increases the vulnerability of shoulder joint to tears, especially in the activities that include dynamic motion[1].

The stability of the glenohumeral joint is maintained by passive and active mechanisms[2]. The glenohumeral ligaments (GHLs), particularly the inferior one, are thought to be the major passive stabilizers of the joint; the glenoid labrum is believed to be important as a site for ligamentous attachment, not because it provides increased depth to the glenoid fossa and hence stability, as previously believed [2].

In general, cases of shoulder instability can be classified as atraumatic or traumatic[2]. Bankart insisted for many years that the essential lesion in recurring anterior instability was the anterior detachment of the capsule from the glenoid. with or without detachment of the glenoid labrum [3].

Traumatic instability is denoted by TUBS (traumatic, unidirectional, Bankart lesion, surgery). These patients are usually aged <30 years and develop recurrent instability after an initial traumatic dislocation. On examination, there is anterior apprehension in the position of instability with the arm in abduction and external rotation. These patients have rupture of the antero-inferior glenoid labrum (Bankart lesion) combined with stretching of the anterior capsule of the shoulder [4].

The Bankart lesion has been considered the essential lesion in anterior instability. Recently, however, many authors have reported other lesions responsible for anterior instability. These lesions include bony Bankart lesions, anterior labroligamentous periosteal sleeve avulsion lesions, and humeral avulsion of the glenohumeral ligament lesions.

The stabilization can be done by open or arthroscopic means, by a Bankart repair of the torn glenoid labrum combined with retensioning of the anterior joint capsule (capsular shift procedure) [4]. The ultimate goal of a successful rehabilitation programme after-stabilisation surgery is to reestablish functional stability throughout full painfree active range of movement (ROM) [5].

The Mulligan´s mobilization-with-movement (MWM) treatment techniques are gaining a reputation for use musculoskeletal conditions[6]. It´s a class of manual therapy techniques that is widely used in the management of musculoskeletal pain[7]. Mobilization-with-movement (MWM) involves a manual application of a sustained glide by a therapist to a joint while a concurrent movement of the joint is actively performed by the patient [8]. The most important feature of MWM is when indicated the treatment technique produces a total and immediate relief of pain during the treatment application[7],

In the present study, our goal was to evaluate the effect of Mulligan technique (MWM) and physical therapy after Bankart shoulder injury surgery.

Material and Methods:

This descriptive study is classified as a report case [9]. The subject is a man R. V. Z., 24 years old, which suffered a fall with shoulder impact playing a soccer game. This event caused an anterior dislocation in shoulder joint (FIGURE 1). After the incident the instability problems persisted and the recurrent dislocations were frequent.



FIGURE 1: X-ray of anterior dislocation in shoulder joint.



FIGURE 2: Computerized Cat Scan **Bankart Shoulder Injury**

After two years, he had returned to medical service referring very strong pain in this joint. Image exams were carried through and the radiological diagnostic showed a Bankart injury with superior glenohumeral ligament rupture, labrum injury and fracture of posterior face of the humerus head (FIGURE 2). The decision for the treatment was an opened reduction in internal setting of the injury for a screw, two anchors and bone rank (osseous graft) of the breaking.

The subject was evaluated by the Physical Therapy Team of Prevention and Physical Rehabilitation Clinic of UDESC. It was evidenced pain in palpation exam and associated to movements, reduction of shoulder range of movement (ROM), muscular weakness and a scar of the surgery.

During the muscular force tests, the muscular groups of right arm (RA) had obtained maximum gradation. It was observed degree 4 for shoulder flexion, greater pectoral and brachial triceps of left arm (LA). The abductor muscles and external rotators of shoulder had received graduation 3. The internal rotators were preserved.

The evaluation of active range of movement was carried through using a goniometer with the patient in the seated position. The obtained results demonstrated to range of movement modified in all the movements of the LA taking as base the RA (TABLE 1).

In the perimeter evaluation, the patient presented small reduction of circumference in all the left superior extremity as shows TABLE 3. For the gauging of this item the patient was in the seated position using as reference the interdigitates joints between head of the lateral radius and epicondile of humerus.

After the evaluation the physical therapy diagnosis was established: muscular weakness of left arm, left shoulder limitation of movement, decreased muscular mass, reduction of functionality and pain.

The main problem related by the patient was pain and movements limitation of shoulder.

After the evaluation a treatment plan was traced with following objectives: to restore the right of movement of the left shoulder, to fortify the muscles of the LSM and to return to the normal function of this member.

To reach these objectives, the following physical therapy was adopted: The sessions initiated with stretching exercises of great muscular groups of arms, followed by scapular mobilization and MWM for the shoulder.

For this technique, the participant was seated and the therapist stood beside the participant on the opposite side to the affected shoulder. One hand was placed over the scapula posteriorly while the thenar eminence of the other hand was placed over the anterior aspect of the head of the humerus. A posterior gliding force was applied to the humeral head. The participant was then asked to raise the affected arm in the plane of the scapula to the point of pain onset while the therapist sustained the gliding force to the humeral head, with care to avoid the sensitive coracoid process. Three sets of 10 repetitions were applied with a rest interval of 30 s between each set[14].

After this, the followed strength training of shoulder complex muscular groups was carried through: external rotators, abductors, pectoral, flexors and extensors. To complete the session, proprioceptive training was realized.

The instruments for these activities were small balls of tennis, elastic bands of different tensions, halters and Swiss ball.

The appointments with the patients were realized two times a week, with 50 minutes of duration and after 10 sessions, the reevaluation of the condition was established.

Presentation and Discussion of the Results

The initial protective phase addresses restrictions imposed by the surgical procedure and aims to minimise the effects of immobilisation. The goals are to diminish pain and swelling, maintain passive range of motion (within limits set by the surgeon), improve proprioception and optimise muscle recruitment, with specific emphasis on the dynamic stabilizers [5].

After treatment with physical therapy and Mulligan technique was observed improvement in the ROM of shoulder, mainly in flexion and abduction as shown TABLE 1.

	Right Arm	Left Arm Before	Left Arm After
Flexion	168º	70º	118 º
Extension	80º	50º	72 º
Abduction	168º	60º	110 º
External Rotation	70º	18º	20 º
Internal Rotation	60º	40º	45 º

TABLE 1: Range of Movement of Left Arm Before and After

The ultimate goal of a successful rehabilitation programme after-stabilisation surgery is to reestablish functional stability throughout full painfree active range of movement. To achieve this the therapist must consider several factors and their role in functional stability including proprioception, the rotator cuff, scapula stabilisers and the kinetic chain[5]. After the plan of physiotherapy treatment considered in this study, the patient presented increase of the force of abductors and external rotators, as table 2.

	Right Arm	Left Arm Before	Left Arm After
Flexion	5	4	4
Pectoral greater	5	4	4
Abductors	5	3	4
Triceps brachial	5	4	4
External Rotators	5	3	4
Internal Rotators	5	5	5

TABLE 2: Force of Left Arm Before and After

During the primary event, when the shoulder is subjected to maximal abduction, external rotation and extension, the rotator cuff is unable to keep the humeral head centered in the glenoid fossa and does not resist to external forces, being then shifted to the back of the glenoid. Most of times, it remains below the coracoid. Capsuloligament injuries, if present, will occur in the weakest point (fatigue point) located in the inferior capsule and in the glenoid labrum, thus characterizing the Bankart injury[10].

In the perimeter reevaluation, the patient presented increase in the circumference of the left superior extremity the treatment as shows TABLE 3.

	Above of the reference			Below of the reference		
	5 cm	10 cm	15 cm	5 cm	10 cm	15 cm
Right arm	28	30	31	28	26	22
Left arm Before	26	28	28	27	25	21
Left arm After	26	28,5	30	28	26,5	22

TABLE 3: Perimeter Evaluation Before and After

Kim *et al* [5] compared the clinical results of early motion versus conventional immobilization after arthroscopic Bankart repair in a selected patient population. Patients undergoing accelerated rehabilitation resumed functional movement faster and returned earlier to their functional level of activity. Furthermore, patients in the accelerated rehabilitation group demonstrated decreased postoperative pain and patient satisfaction was higher.

More attention has been given recently to anatomic repairs that correct at the same time ligament laxity and glenohumeral ligament avulsions [10]. Currently, suture anchors are employed because they simplify the procedure. Once the defect is repaired and muscle insertions are performed, the proprioceptive fibers will remain functional, and the amplitude of movement is rapidly achieved. Long-range studies report encouraging results regarding sports rehabilitation, with a recurrence rate of approximately 3 to 5%[10].

According to VASCONCELOS et al (2003), of all operated patients in his study, only one did not return to work. This patient had a loss in the amplitude of movements and complained of pain and apprehension. This poor result was associated to the early withdrawal of physiotherapeutic rehabilitation activities and the frustrated attempt to return to sports activities[10].

Studies using MWM techniques on the elbow and ankle have show them to be effective in reducing pain as measured by visual analogue scale (VAS) and pressure pain threshold (PPT) and increasing joint range of movement (ROM)[11]. In a study that investigated the efficacy of spinal flexion MWM techniques in terms of ROM and pain scores in subjects with LBP, there were statistically significant differences in spinal ROM but not in pain[12].

Some studies have showed the efficiency of the initial effects of MWM, however measuring of time-course is yet unknown [11,13]. The predominant explanation provided for this rapid pain relieving effect is mechanical in nature and based on the proposed existence of bony positional faults and the ability of MWM to correct these faults. The evidence from the pain science studies that have attempted to characterize the hypoalgesic effect has indicated that it may be non-opioid in nature as well as exhibiting features that are complex and widely distributed to other systems, such as the motor and sympathetic nervous systems [6].

The return to sports, with or without the previous competitiveness levels, involves more complex factors such as the severity of the trauma, previous injuries, postoperative complications, sports modality, physiotherapeutic monitoring, and motivation [10].

Conclusion

At the end of the study, some considerations can be made. Generally the use of techniques of Mulligan associated with conventional physical therapy can have good results in post-operative patients with Bankart injury, if added.

While the number of sessions has been lower than the desired initially, the results showed primarily in painfree range of motion. This fact may be linked to the exercises to ROM improvement and MWM techniques. The Perimeter results and strength tests showed modest strength training fact that probably linked to the small number of sessions.

Finally, new studies are suggested with largest number of sessions and patients in order to determine with more accuracy the efficiency of these techniques together.

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PHYSICAL THERAPY AND MULLIGAN TECHNIQUE AFTER BANKART SHOULDER INJURY SURGERY - A REPORT CASE

ABSTRACT:

The aim of this study was to evaluate the effect of Mulligan techniques and physical therapy in post operative Bankart shoulder injury surgery patient. The subject presented reduction of the active range of movement, mainly of flexors and abductors of shoulder, reduction considerable of force of abductors and external rotators, beyond reduction of muscular mass according to perimeter analysis. The appointments with the patients were realized two times a week, with 50 minutes and after 10 sessions, the reevaluation of the condition was established. After the application of the Mulligan techniques and physical therapy, had an increment of the range of movement of flexors (70° for 118º) and of abductors (60º for 110°), as well as of the force of abductors (3 for 4) and external rotators (3 for 4). In the reevaluation perimeter, it was observed concomitantly, an increase of the muscular mass. The physical therapy allied Mulligan techniques had collaborated for the improvement of the patient having become more functional the left superior member proving the necessity of the treatment conservative after surgical intervention.

KEYWORDS: Mulligan Techniques, Physical Therapy, Bankart Injury

THÉRAPIE PHYSIQUE ET TECHNIQUE DE MULLIGAN APRÈS CHIRURGIE DE DOMMAGES D'ÉPAULE DE BANKART - UN CAS DE RAPPORT

RESUME:

Cette étude a pour objectif d'évaluer l'effet des Mulligan technique et physioterapie un patient dans le post opératoire Bankart épaule blessure chirurgie. Le patient a présenté la réduction de l'amplitude des mouvements actifs, principalement des ravisseurs et fléchisseurs de l'épaule, de la réduction considérable de la force des ravisseurs et les rotateurs externes, au-delà de la réduction de la masse musculaire selon périmètre de l'analyse. Après l'application des techniques et Mulligan physioterapie, avait une augmentation de l'amplitude des mouvements de fléchisseurs (70 ° à 118 °) et des ravisseurs (60 ° à 110 °), ainsi que de la force de ravisseurs (3 à 4) Et externes rotateurs (3 à 4). Dans le périmètre de réévaluation, il a été observé concomitamment, soit une augmentation de la masse musculaire. La physioterapie alliées Mulligan techiniques avait collaboré à l'amélioration de la patiente étant devenu plus fonctionnel le membre supérieur gauche prouvant la nécessité du traitement conservateur, après une intervention chirurgicale.

MOTS CLES: Mulligan Techiniques, Physioterapie, Lesión de Bankart.

TERAPIA FÍSICA Y TÉCNICA DE MULLIGAN DESPUÉS DE LA CIRUGÍA DE LESIÓN DEL HOMBRO DE BANKART - UN CASO DEL INFORME

RESUMEN:

La puntería de este estudio era evaluar el efecto de la técnica de Mulligan y de la terapia física en paciente operativo de la cirugía de lesión del hombro de Bankart del poste. La actual reducción sujeta de la gama del movimiento activa, principalmente de flexores y de abductores del hombro, de la reducción considerable de la fuerza de abductores y de rotores externos, más allá de la reducción de la masa muscular según análisis del perímetro. Las citas con los pacientes fueron observadas dos por una semana, con 50 minutos y después de 10 sesiones, la nueva evaluación de la condición fue establecida. Después del uso de las técnicas de Mulligan y de la terapia física, tenía un incremento de la gama del movimiento de los flexores (70° para 118º) y de los abductores (60º para 110°), tan bien como de la fuerza de los abductores (3 para 4) y de los rotators externos (3 para 4). En el perímetro de la nueva evaluación, fue observado concomitante, un aumento de la masa muscular. La terapia física alió las técnicas de Mulligan había colaborado para la mejora del paciente que llegaba a ser más funcional el miembro superior izquierdo que probaba la necesidad del conservador del tratamiento después de la intervención quirúrgica.

PALABRAS CLAVES: Técnicas De Mulligan, Terapia Física, Lesión De Bankart

FISIOTERAPIA E TÉCNICA DE MULLIGAN APÓS CIRURGIA NA LESÃO DE BANKART - UM ESTUDO DE CASO

RESUMO:

O objetivo deste estudo foi avaliar o efeito da Fisioterapia e de uma técnica de Mulligan no pós-operatório de um paciente com a lesão de Bankart. O sujeito do estudo apresentava redução da amplitude de movimento ativa principalmente de flexão e abdução do ombro, redução considerável da força de abdutores e rotadores externos, além da redução da massa muscular de acordo com a análise de perimetria. O tratamento foi realizado duas vezes por semana com 50 minutos de duração, seguindo por 10 sessões. A reavaliação estabeleceu as novas condições do sujeito. Após as aplicações das técnicas de Mulligan e da Fisioterapia, houve um aumento na amplitude de movimento de flexão (70º para 118º) e de abdução (60º para 110º), bem como para a força de abdutores (3 para 4) e rotadores externos (3 para 4). Na reavaliação da perimetria, foi observado concomitantemente, um aumento da massa muscular. A fisioterapia associada à técnicas de Mulligan colaborou para a melhoria do paciente tornando-se mais funcional o seu membro superior esquerdo provando a necessidade do tratamento conservador após a intervenção cirúrgica.

PALAVRAS-CHAVE: Técnica de Mulligan, Fisioterapia, Lesão de Bankart.