



LOCKED NEGLECTED POSTERIOR DISLOCATION OF THE SHOULDER TREATED WITH MODIFIED MACLAUGHLIN PROCEDURE

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ABSTRACT

Background/Purpose- Posterior dislocation of the shoulder is rare injury, often missed and present late due to failure in early diagnosis and inadequate imaging. An impaction fracture of the anteromedial aspect of the humeral head, is present in almost all cases of chronic locked dislocations. We present the functional outcome of modified McLaughlin technique via transference of the subscapularis muscle attachment with the lesser tubercle. **Material and methods** -Thirteen patients with mean age 32 years (range, 22-44 years) with mean duration of presentation 4 months (ranged from 8 weeks to 6 months) were enrolled in study. Preoperative clinico-radiological evaluation including radiograph and CT scan were done in all patients. UCLA score was used to evaluate functional outcome. **Result-** Our UCLA score improved from mean 21 preoperative to mean 30 in postoperative period at mean followup of 40 months. Excellent to good results were observed without any postoperative complication. **Conclusion-** Modified McLaughlin technique using standard screw fixation of the lesser tubercle graft in patients with neglected locked chronic posterior shoulder dislocation is safe and reproducible procedure with good functional outcome.

KEYWORDS : neglected posterior shoulder dislocation; Modified McLaughlin technique; UCLA score; reverse Hill Sachs lesion

INTRODUCTION

Posterior dislocation of the shoulder is rare injury, constituting only 2% to 4% of all shoulder dislocations (1,2). In most cases, it occurs secondary to violent trauma, seizures, or electric shock (3).

Most of these dislocations are missed and often present late due to failure in early diagnosis and inadequate imaging and also due to less pain and deformity at time of initial presentation. If untreated, it may progress to severe joint dysfunction leading to chronic instability, osteonecrosis, and osteoarthritis (2).

The condition is considered chronic when it is diagnosed more than 6 weeks after the initial dislocation (4,5,6). A reverse Hill-Sachs lesion, which is an impaction fracture of the anteromedial aspect of the humeral head, is present in almost all cases of chronic locked dislocations (7).

Surgical treatment is required in almost all cases of locked dislocations as closed reduction is often associated with failure and iatrogenic fracture of humeral neck/shafts. However, the surgical treatment is decided by percentage of bone loss/impaction in reverse Hill Sachs lesion. Various techniques such as the disimpaction and bone grafting of the fracture, lesser tubercle transfer (Modified McLaughlin procedure), proximal rotational osteotomy and arthroplasty has been described in literature (8,9,10).

The present study reports the functional outcome of modification of the McLaughlin technique via transference of the subscapularis muscle attachment with the lesser tubercle in chronic neglected posterior dislocation of shoulder.

Materials and Methods

Thirteen patients presented to our institutions with neglected locked posterior shoulder dislocation and a reverse Hill-Sachs lesion between June 2014 and November 2017 were enrolled in our study. The study group included 8 men and 5 women. Mean patient age was 32 years (range, 22-44 years). Mean duration of time of injury and presentation was 4 months (ranged from 8 weeks to 6 months). Physical examination included painful limited external rotation. The right shoulder was affected in 10 patients, and the left shoulder in rest of them.

. Mode of injury includes fall from height in 6 patients; motor vehicular accident in 5 patients, epileptic seizure for 1 patient, and electric shock for 1 patient. Mean follow-up was 40 months (range, 28-68 months).

A thorough preoperative physical and neurological evaluation was done in all patients. None of the patients had neural injury at time of presentation. Range of motion was documented with average forward flexion was 60° (range, 50°-90°). External rotation was restricted due to locked humeral head at posterior glenoid margin. All patients underwent preoperative plain shoulder radiographs as well as computed tomography scans. The mean size of the reverse Hill-Sachs lesion was 30% from the humeral head (range, 20%-35%) (Figure 1).

All patients underwent surgical intervention with a modified McLaughlin procedure as described by Hughes and Neer [11,12]. A beach-chair position under general anaesthesia was used in all patients. The deltopectoral interval was developed and the biceps tendon identified as a landmark for the lesser tubercle and rotator interval. The superior and inferior edge of the subscapularis tendon was marked and circumflex vessels were ligated. After opening the rotator interval osteotomy of the lesser tubercle was performed starting from the bicipital groove, from lateral to medial extending to the defect of the humeral head. The lesser tubercle with the attached subscapularis was lifted to expose the joint (Figure 2). The humeral head reduction was achieved by placing an elevator into the defect and levering the head into the glenoid. Once the reduction was obtained, the lesser tubercle with the attached subscapularis tendon was fixed into the humeral head defect using two cannulated cancellous screws. (Figure 3)

The wound was closed in layers over the drain to prevent any hematoma formation. Immediate post-operative radiograph was taken to confirm concentric reduction and screw position (Figure 4). The shoulder was kept in arm pouch/ arm sling in 30° abduction and neutral rotation for 6 weeks. From 2 weeks to 6 weeks, patients were allowed only passive external rotation exercises without internal rotation. From 6 to 12 weeks, physical therapy was initiated, including passive, active assisted, and progressively active range of motion and exercises to strengthen the rotator cuff.

Results

No perioperative or postoperative complications occurred in any of the patients. A modified UCLA(13) scoring system was used to evaluate clinical and functional outcomes . The median of the preoperative scores was 21 (range 20–25) which was unsatisfactory .it reaches to 30 (range 20–35) at a mean follow up of 40 months which was considered satisfactory. If we About subcm follicles. classify the group ,7 patients had excellent results (range, 30-35 points) .These patients had a clinically stable shoulder function with no pain and near-normal shoulder motion . 4 patients had good functional outcome (range, 26-30 points). These patients had a stable shoulder with mild pain. Two patients had fair results and moderate joint stiffness (20-25 points). None of patient has redislocation during follow-up period. The range of shoulder motion was 165 of forward flexion (range 140–170), 75 of external rotation (range 55–80), 50 of internal rotation (range 35–55) and 135 of abduction (range 110–155).

DISCUSSION

Locked posterior shoulder dislocation is often misdiagnosed in 60% to 80% cases(14) . The most frequent reason for misdiagnosis is that anteroposterior (AP) radiographs are usually normal. Also, paucity of pain and deformity may be misdiagnosed for other pathologies of shoulder like frozen shoulder , rotator cuff tears etc A detailed history of seizures or electric shock must always be sought as a part of detailed evaluation . The axillary lateral view is crucial for the diagnosis. It may be difficult to obtain a axillary view due to painful limited external rotation, hence modified axillary lateral or a lateral scapular view may aid in the diagnosis.

A routine AP radiograph may also demonstrate the “vacant glenoid sign” and the “light bulb” sign to aid in the diagnosis [15]. (Figure 5). A CT scan is essential to confirm the diagnosis, especially to estimate the size of the anteromedial bone defect of the humeral head.

McLaughlin who described an operation in which he managed the reverse Hill–Sachs head defect by filling it with the subscapularis tendon [6]. Various modification to the original technique were described by different authors as mentioned in literature(9,16,17). Hawkins et al(16)modified the technique by harvesting the lesser tubercle with the attached subscapularis tendon and fixing it in the head defect with a screw instead of subscapularis alone. Charalambous et al [18] technique involves plication of the subscapularis tendon into the humeral head defect by means of suture anchors. McLaughlin described the transfer of subscapularis for a defect between 20% and 40%. The subscapularis tendon is secured into the defect through drill holes in the bone(6). In patients involving more than 50% of the articular surface or duration of injury is more than 6 months or when the humeral head is very osteoporotic, a hemiarthroplasty is recommended [19,20]. Since all of our patient have bone defect less than 40 percent with duration 6 month or less , we did modified McLaughlin procedure in all our cases .

Our UCLA score improved from mean 21 preoperative to mean 30 in postoperative period at mean followup of 40 months .similar results have been reported by various other authors (21,22)

Screw breakage or loosening as hardware problems,(18,23) has been described in literature and some authors have recommended the use of sutures anchors instead of screws(24)

In our study, fixation with two screws was equally effective without any hardware problem. Cost could be an issue while using suture anchor specially in developing countries.

CONCLUSION

This study described a modification of McLaughlin technique standard screw fixation of the lesser tubercle graft in patients with neglected locked chronic posterior shoulder dislocation. The results are reproducible with excellent to good functional outcome in most of the patients

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