A simple approach to the problem of recurrent dislocation of the shoulder

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Historical background

Recurrent dislocation of the shoulder is well known since the time of Hippocrates when he mentioned the possibility of recurrence after dislocation of the shoulder. His clever aim in the management of dislocation by cauterization and immobilization of the joint in adduction and internal rotation for prolonged periods helped in prevention of recurrence.

Jossel in 1880 [1] studied and dissected four patients with recurrent dislocation of shoulder after death and his main conclusion predisposing to recurrence were as follows:

(1) Rupture of the posterolateral portion of the rotator cuff from the greater tuberosity.
(2) Greatly increased capsular volume.
(3) Diminution of the articular surface of the joint because of fracture of the glenoid cavity of the head.

Following these autopsies by Jossel, many surgeons resected the head as a definitive treatment for this disorder.

In 1882, Kuster [2] described in his publications the posterolateral defect in the resected heads.

In 1887, Caird [3] from Edinburgh published his very illuminating paper in which he described in wonderful details the posterolateral defect and the detachment of the capsule and the labrum.

Broca and Hartmann [4] in 1890 published two articles in which they described in detail the detachment of the anterior glenoid labrum with the periosteum of the scapular neck and the posterolateral defect in the head. They also stressed that the so-called partial anterior dislocation or subluxation was really an intracapsular dislocation and was produced by the head forced from behind and displaced directly forward, shearing off the labrum and periosteum, and in this case the displacement of the head is within an apparently intact capsule. The periosteal stripping seems related to a special type of dislocation that is caused by direct force. It is not related to the usual dislocation that is produced by indirect force, that is forced abduction and rotation.

Since then, all publications on that subject discussed mainly the operative procedures.

Bardenheuer [5] introduced capsulorrhaphy.

Thomas [6] then followed up his series of patients treated by capsulorrhaphy through an anterior approach. His results were satisfactory.

Arthrodesis of the joint was performed by Albert [7], but this radical procedure was abandoned. Muller [8] attempted to prevent recurrence by repair of external rotators.

Hilderbrand [9] deepened the glenoid socket. In 1906, Perthes [10] stated that the operative techniques should be directed to the repair of the underlying lesion, considered by him as being either the detachment of the capsule and spinati tendons from the greater tuberosity or the detachment of the glenoid labrum from the anterior bony rim. He used staples in two patients to repair the detachment of posterosuperior portion of the rotator cuff and in one patient to repair the detachment of the glenoid labrum. His follow-up of the patients showed no recurrence.

Clairment and Ehrlich [11] introduced myoplasties and they used the posterior third of the deltoid.

Finisterer [12] used coracobrachialis and short biceps. Both these procedures were abandoned because of the high recurrence rate.

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Check-ligament operations using fascia and tendons were introduced by Henderson [13]; these were also followed by recurrence in a good percentage.

Bankart [14] followed Perthes concept and wrote his first publication in 1923 in which he stressed that the essential lesion was a detachment of the glenoid labrum. He also stated that the type of dislocation that became recurrent differed from the dislocation that did not, in that it was caused by a direct force from behind and was a direct anterior dislocation.

The introduction of radiography showed and raised again the importance of posterolateral defect of the head.

Eden [15] from Germany and Hybbinette [16] from Sweden accepted the idea that the notch or the defect was the significant lesion and introduced the use of a bone graft anteriorly to produce a block to the locking.

Shoulder monographs then began to appear since their use by Hermodson [17] in 1934, Leguit [18] in 1942, Mosely [19] in 1945, and de Palm [20] in 1950.

For treatment of this disorder, there are three groups of operations in use.

(1) Repair of the anterior capsular mechanism and its variants:

   (a) Bankart's operation.
   (b) Mosely technique.
   (c) Eyre–Brook operation.
   (d) Putti–Platt procedure.
   (e) Gallie operation.
   (f) Subscapularis transplant by the Magnuson–Stack procedure.

(2) Bone block operations:

   (a) Eden and Hybbinette operation.
   (b) Speed and Moordenbos operation.
   (c) Bristow operation.

(3) Fascia and tendon suspension procedures:

   (a) Nicola operation.
   (b) Henderson's operation.

Revising all these operations, a fat tissue appears at once showing that successful operations always fulfill two things:

(1) Building a barrier in front of the humeral head whether this barrier is formed of soft tissue or bone.
(2) Limiting external rotation of the shoulder.

Hence, if these two things are fulfilled by a simple procedure, this will be better than indulging into those difficult and complicated procedures.

Simple approach for recurrent dislocation of the shoulder

In this procedure, the subscapularis tendon with the capsule underneath is plicated on itself and in doing so it creates a soft tissue barrier in front of the head and limits external rotation.

Operative technique

Incision is performed as in Putti–Platt operation. The coracoid process is osteotomized and it is retracted well medially with the muscles attached to it to expose a good deal of the subscapularis with its tendon.

The tendon is dissected well along its upper and lower border and separated up until its insertion.

A fold of the tendon is raised about 3.5 cm medial to the insertion by a deep mattress suture, which passes through the whole thickness of the muscle and capsule (Fig. 1). This fold is raised and pulled laterally while the shoulder is internally rotated.

Another mattress suture is passed deeply through the lateral side of the raised fold about 1.5 cm medial to the insertion through the tendon and the capsule and directed medially after passing into the joint to come out through the anterior surface of the subscapularis about 2 cm medial to the tip of the fold (Fig. 2).

This is tied while the joint is in internal rotation. The fold is pulled as lateral as possible to be stitched to the periosteum on the lesser tuberosity and in some cases when the tendon is lax enough the fold could be stitched to the transverse ligament. Other stitches are taken to hold all the borders of the fold (Fig. 3). The wound is closed as usual.

Figure 1

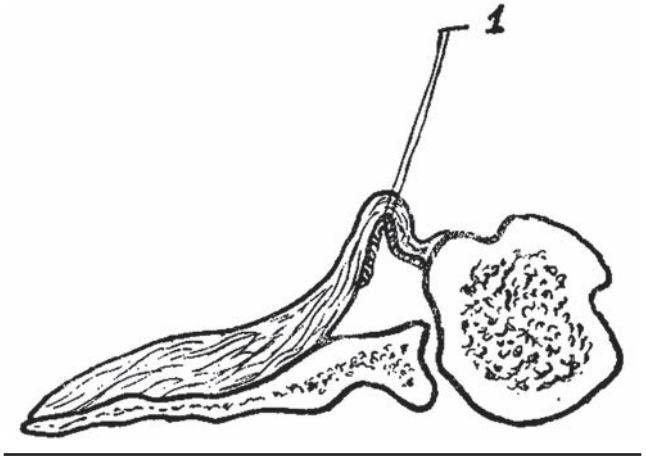


Figure 2

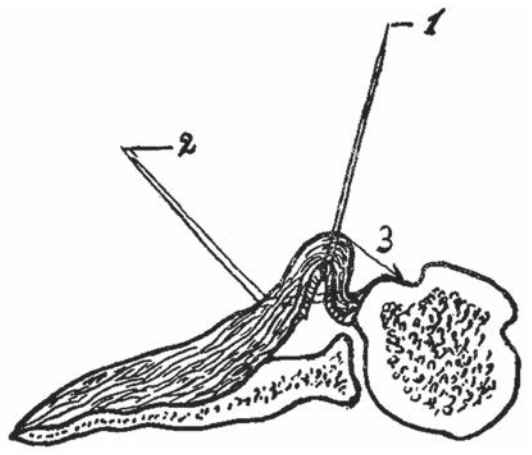
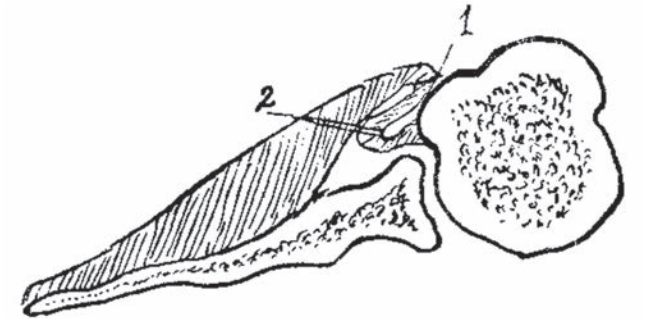


Figure 3



Conclusion

This procedure, besides its simplicity, fulfills the aim of any successful operation. The plication of the subscapularis, besides limiting external rotation, creates a soft tissue barrier in front of the head.

The simplicity of this procedure warrants trying it in all patients with recurrent dislocation of shoulder, as the time of operation is reduced, bleeding is markedly less, and the joint is not opened.

Acknowledgements

Conflicts of interest

There are no conflicts of interest.

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