

ON THE SUBJECT OF RECURRENT  
DISLOCATION OF THE SHOULDER

BY

MARIO BELGRANO, M.D. and RENATO GAMBIER, M.D.,  
Venice, Italy.

We have had the opportunity of reading in *Acta Orthopaedica* and in the *Journal of Bone and Joint Surgery*, particularly recently, several articles on the treatment of recurrent dislocation of the shoulder.

This is a lesion which has often stimulated orthopaedic surgeons to search for new methods and techniques.

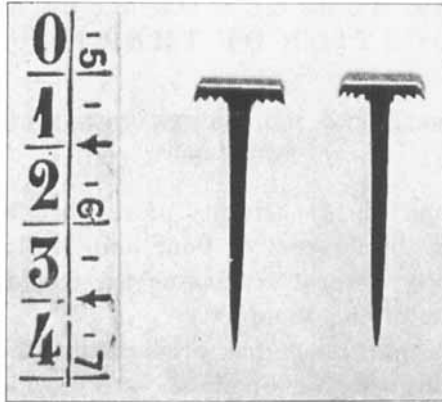
From capsular plications to tenosuspensions and operations on the coracoid process there is a long series of operative methods, none of which is certain or constant in its end-results. In fact, all these surgical interferences have constituted palliative remedies which neglected the essential cause of the condition, which is the detachment of the glenoid labrum.

This latter lesion was described many years ago by Broca and Hartmann; in 1923 Bankart pointed out its pathogenic importance, but few surgeons were willing to restore the integrity of the labrum and most continued to apply old and new methods of muscular and capsular plasty or of bone grafting. Some authors refused to admit the great frequency of the detachment of the labrum in recurrent dislocation of the shoulder joint. This is not surprising, because the lesion is only apparent when the labrum is fully exposed.

It is not our intention to trace, even briefly, the nature and treatment of recurrent dislocation of the shoulder, which is a subject well known to the readers of this review; but we should like to refer as briefly as possible to all that has been

done in Italy in this field, and to mention some ideas which the study of our cases has suggested to us.

Though some Italian surgeons have used their own methods of performing capsular plasty (*Putti*) or tenosuspension (*Pieri*), most have preferred to follow the current techniques



*Fig. 1.*

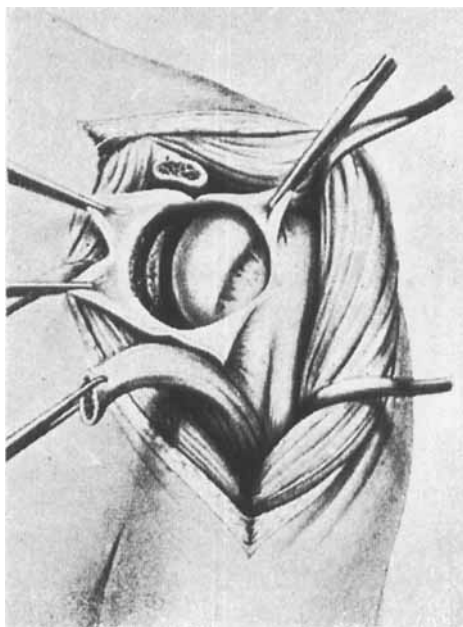
T-shaped nails used to fix the labrum to the glenoid edge.  
(Chiodini a forma di T per la fissazione del cercine).

of capsular plasties or of Oudard's or Eden's methods. Only Delitala abandoned the field of purely symptomatic therapy in order to treat the cause. Like Bankart this surgeon was able to confirm many times the detachment of the glenoid labrum from the rim of the glenoid, and he therefore attributed the recurrent dislocation to this lesion.

In 1930 he first sutured the detached labrum to the rim of the glenoid by means of silk sutures passed through holes made in the glenoid edge. He encountered considerable technical difficulties and therefore, in 1931, he abandoned the idea of suturing, and, instead, fixed the glenoid labrum to the scapula by means of two small stainless steel nails.

The excellent results obtained by this method led him to describe his technique to the Venetian Medical Surgical Society in 1937.

The essential points are the following: through a skin incision 8 cm. long running from the coracoid process down between the deltoid and pectoral major, we isolate and excise with a sharp osteotome the tip of the coracoid process, and pull it downwards: the humerus is externally rotated and the



*Fig. 2.*

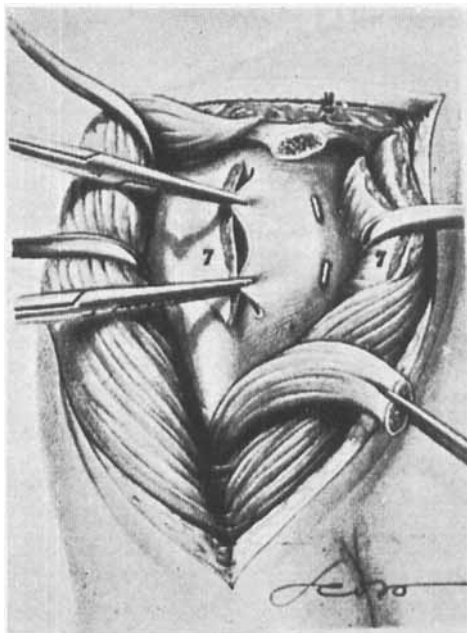
Glenoid labrum detached from the bony glenoid edge.

(Sketch from *Delitala*.)

(Cercine glenoideo disinserito dal labbro glenoideo della scapola.)

tendon of the subscapularis is carefully detached. By dissection 2 cm. away from the long head of the biceps we expose the capsule and incise it longitudinally; the glenoid surface, the labrum and the capsule are carefully explored. Then one or two small T-shaped nails are driven through the outer surface of the glenoid, firmly fixing the capsule and labrum to the bony edge which has first been scraped with a gouge.

The hole in the capsule is sutured; the tendon of the subscapularis and the tip of the coracoid process are reattached, and the soft tissues are sutured. The wound is dressed and immobilised, preferably with a plaster cast in medium ab-



*Fig. 3.*

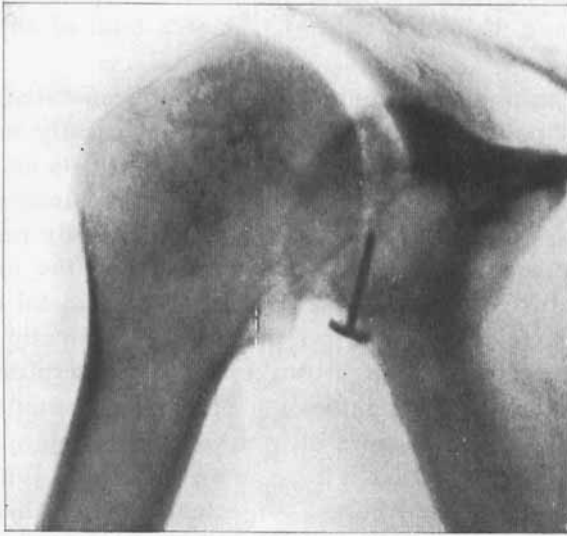
The capsule has been fixed by two T-shaped nails. The capsular wound and the subscapularis (7) will be later sutured. (Sketch from *Delitala*.)  
(La capsula è stata fissata con due chiodini a T. L'apertura capsulare ed il sottoscapolare (7) verranno poi suturati.)

duction for a month. Physiotherapy and gradual mobilisation of the joint follow. (Figs. 2-3.)

In a recent work Delitala has claimed permanent good results with this method used on 30 patients with habitual dislocation of the shoulder; many of them have been examined many years after operation. This undoubtedly confirms that the real cause of the recurrence consists in the detachment of the capsule. Its repair represents the only really anatomical

and physiological operation which eliminates the possibility of recurrence.

What are the advantages of Delitalá's operation over that of Bankart? First of all, the quicker and easier technique. This



*Fig. 4.*

X-ray of the shoulder after capsular fixation by a T-shaped nail.  
(Radiografia della spalla dopo fissazione della capsula con un chiodino a T.)

has been indirectly acknowledged by some other authors, who, confronted with the technical difficulties of Bankart's operation, tried to simplify the suture of the hole by using first suitable instruments (*Lambert* and *Howitz*) and recently a small stirrup-shaped metal nail (*Toffelmeyer, Downing*) with which the capsule was easily and securely attached. In this way they applied the technique which Delitala had already used in 1931. One might object that the insertion of a metal nail close to the shoulder-joint cannot be free from danger and might cause some reaction, necessitating removal of the nail later. This has not happened in 5 of our cases which have been

examined recently, though many years had passed since the operation. Delitala has only once been obliged to remove the nails, in that case because they were not made of stainless steel.

The function of the joint was completely restored in nearly every case, except for a slight limitation of external rotation in 2 cases, and of abduction in 4, out of a total of 35 operated cases.

Radiographic examination of both the operated and the normal shoulder, which was done systematically in our re-examinations, allowed us to observe in 2 patients an aggravation of the hypertrophic arthritis which was already present before the operation, and which was undoubtedly responsible for the moderate limitation of abduction of the arm. How much of this was due to the presence of the metal nail, and how much to the natural evolution of the arthritic process? We have searched without success in the literature to see whether there was an indication of such a complication in the patients operated on with Bankart's technique. It seems rational to assume that a repeatedly dislocated joint (from 20 to 30 times in our 2 cases) subjected to the further trauma of operation is open to aggravation of the degenerative process already present: by the same token this exacerbation should be more likely with Bankart's technique in which the trauma of arthrotomy is aggravated by the intra-articular drilling, than with Delitala's technique, where the labrum is attached extra-articularly.

Before concluding this short note we should like to mention some particulars, arising from the study of our cases, which we think are not without interest.

Firstly, concerning the way in which trauma causes the first dislocation: among 7 of our patients operated on for habitual dislocation of the shoulder only 2 cases gave a history corresponding to the traumatic mechanism described by Bankart. So we cannot accept his dogmatic statement when he claims that every dislocation which becomes habitual has its first accident by this particular mechanism.

In 2 later cases we did not reattach the labrum to the glenoid for the simple reason that the labrum was not detached; but close to it there was a large laceration of the capsule. The fact that such a hole in the capsule was unable to close itself again spontaneously as usually happens, allowing recovery from the habitual dislocation, was due, in our opinion, to the peculiar position of the lesion, in the region of the transition between the true capsule and the fibrocartilage.

Finally, in another case, careful examination of the labrum showed it to be detached from the edge of the glenoid near a tear in the middle of the capsule. If we had confined ourselves to the first lesion seen and neglected to explore the labrum for a defect we would undoubtedly have, by the plastic reduction of the capsule, increased the detachment of the labrum and, as a result, enlarged the exit for the humerus.

Our personal experience and study of the more recent articles on habitual dislocation of the shoulder lead us to state the following points in conclusion:

- 1) the cause in almost all cases is the detachment of the glenoid labrum from the scapular rim.

In exceptional cases it is possible to have a tear of the capsule where it is contiguous to the labrum itself; such a tear is not susceptible to spontaneous cicatrization because of its particular anatomical structure.

- 2) The traumatic lesion that determines the lesion responsible for habitual dislocation of the shoulder may be different from that indicated by Bankart.
- 3) Further, when lacerations of the capsule are found the glenoid labrum should always be carefully inspected.
- 4) Attachment of the glenoid labrum to the glenoid by means of small stainless steel nails, performed by Delitala since 1931, is the operation to be preferred for its quick and simple technique and for the slight trauma it involves.

## SUMMARY

After a brief outline of the main surgical and radiographic features of recurrent dislocation of the shoulder, and of the numerous surgical methods which are still being used in its treatment, the authors discuss especially the pathogenic theories of *Bankart* and *Delitala* and the surgical technique which they recommend.

A surgical and radiographic analysis of the cases operated upon according to the *Delitala* technique caused the authors to doubt some of *Bankart's* statements concerning the causative traumatic mechanisms, and to state a few points of the greatest importance for the success of the treatment.

The authors stress particularly the merits of the *Delitala* operation, which combines the utmost technical simplicity with the notable advantage that the glenoid labrum is attached to the scapula extraarticularly.

## RESUME

Après un bref exposé sur les principales observations chirurgicales et radiographiques de la dislocation récurrente de l'épaule et des nombreuses méthodes chirurgicales qui sont toujours appliquées à son traitement, les auteurs discutent notamment des théories pathogéniques de *Bankart* et *Delitala* et de la technique chirurgicale qu'ils recommandent.

Une analyse chirurgicale et radiographique des cas opérés d'après la technique de *Delitala* donnent aux auteurs certaines doutes sur les indications de *Bankart* par rapport aux mécanismes traumatiques causateurs et les amènent à établir quelques points de la plus haute importance pour le succès du traitement.

Les auteurs relèvent en particulier les mérites de l'opération de *Delitala*, d'une part pour sa technique extrêmement simple, d'autre part parce qu'elle présente l'avantage notoire d'attacher le labrum glénoïde à l'épaule par voie extra-articulaire.

## ZUSAMMENFASSUNG

Nach einer kurzen Darstellung der wichtigsten chirurgischen und röntgenologischen Charakteristika der rezidivierenden Schulterverrenkung und der zahlreichen chirurgischen Methoden, die zu ihrer Behandlung noch im Gebrauch sind, erörtern die Verfasser insbesondere die Theorien ihrer Pathogenese von *Bankart* und *Delitala* und die chirurgische Technik, welche diese Autoren empfehlen.

Eine chirurgische und röntgenologische Analyse der nach der *Delitala*'schen Technik operierten Fälle erweckte bei den Verfassern Zweifel an einigen Angaben *Bankart*'s über die verursachenden traumatischen Mechanismen und veranlasste sie, einige Punkte von grösster Bedeutung für den Erfolg der Behandlung im einzelnen darzustellen.

Die Verfasser heben die Vorzüge der *Delitala*-Operation ganz besonders hervor, welche die äusserste technische Einfachheit mit dem bemerkenswerten Vorteil vereinigt, dass das Labrum glenoidale mit der Scapula extraartikular verbunden wird.

## BIBLIOGRAPHY

- Agerholm-Christensen*: "Recurrent dislocation of the shoulder". Acta Orthop. Scandin. 16, 143, 1946.
- Bankart*: "The pathology and treatment of recurrent dislocation of the shoulder joint". Brit. Journ. of Surg. 26, 23, 1938.
- Belgrano and Gambier*: "Considerazioni sulla patogenesi e sul trattamento della lussazione abituale di spalla." Acta Chirurgica Patavina v. III—1947.
- Delitala*: "La base anatomo-patologica della luss. ab. di spalla". Giornale Ven. Scienze Med. 6, 380, 1937.
- "Il fondamento anatomo-patologico e la cura della luss. ab. di spalla". Chir. Org. Movim. 31, 299, 1947.
- De Marchi*: "Sul trattamento della luss. ab. di spalla". Giorn. Ven. Scienze Med. 3, 127, 1944.
- Downing*: "A simplification of Bankart's capsulorrhaphy for recurrent dislocation of the shoulder". Journ. Bone and Joint Surg. 28, 250, 1946.
- Lambert-Horwitz*: "Three instruments designed to facilitate the Bankart

operation for recurrent dislocation of the shoulder". Journ. Bone and Joint Surg. 28, 641, 1946.

*Myers*: "Experience with capsulorrhaphy for recurrent dislocation of the shoulder". Journ. Bone and Joint Surg. 28, 253, 1946.

*Thomasen*: "Recurrent dislocation of the shoulder". Acta Orthop. Scandin. 15, 206, 1944.