Acta orthop. Scandinav. *XXXV*, 132–137, 1964.

From the Orthopaedic Clinic, Linköping, Sweden (Head: Ragnar Magnusson, M.D.)

OBSERVATIONS OF OPERATIVE TREATMENT OF RESIDUAL DISLOCATIONS OF THE SHOULDER

By

STIG WILLNER

Occasional dislocations of the shoulder occur primarily in older persons—the age group 50–60, while residual dislocations are to be found almost without exception in younger persons between the ages of 20–30, and in the latter case usually in men. The residual dislocations are in most cases found to be anterior—according to *Neugebauer* up to 98 per cent.—Our material, 42 cases, consists entirely of anterior dislocations of the shoulder. The initial dislocation in the residual cases is caused by a trauma, in several cases a surprisingly slight one. This has given rise to the thought that these patients must have one or more predisposing factors which facilitate the dislocation. This has, however, not yet been fully clarified.

But there is general agreement that the predisposition of the residual cases is due to certain changes of the joint when first dislocated. In 1890 *Broca & Hartman* spoke of the gleno-labral detachment as a deciding factor. Its occurrence is frequent and *Adams* mentions its appearance in 85 to 90 per cent. Another finding, observed in radiography, is the fracture of impression situated on the dorso-lateral sector of the humerus. This fracture is considered by many to be the essential lesion. (According to *Adams*, a frequency of 80–85 per cent.) Injuries and stretching of the capsular ligament also seem to reduce the stability of the joint. Another finding observed in the arthrography of these patients is the depression of the anterior rim of the cavity—a lesion arising only simultaneously with detachment of the labrum. This observation has been made by many—it is mentioned by *Adams* in 1948 and later by several others. (*Alvik 1*951 and *Moseley* 1961 in his book on residual dislocations of the shoulder.) However, according to certain researchers

it occus only sporadically whereas others consider it more a consequence of the dislocation than a predisposing factor.

A follow-up of operated residual dislocations of the shoulder during a ten year period at the Orthopaedic Clinic—Centrallasarettet in Linköping (Sweden)—has allowed us to study the above mentioned operative finding and we have tried to put it into relation to information from records gathered from a) journals kept during the actual period of treatment and b) question-forms sent by us to these patients (autumn 1961). Our material consists of 42 operated cases; we have received thorough answers from 31 patients. All operations were performed according to the Eden-Hybinette method with a bone-graft intraarticularly fixed in a periosteal pocket in front of the anterior cavity rim. A slight modification was made—instead of the usual comma-formed graft a straight wedge-formed one was used. Stress is laid upon the fact that the upper part of the graft is level with the intact cavity rim. The bone-graft has healed in all cases.

TABLE 1

	Many dislocations > 5	Few dislocations < 5
Cases with significant depression of the edge of the cavitas glen	31	4
Slight depression	1	3

TABLE 2

	Easily dislocated	Not easily dislocated
Cases with significant depression of the edge of the cavitas glen	17	3
Slight depression	0	4

TABLE 3

	Able to reduce the disloc. himself	Unable to reduce the disloc. himself
Cases with significant depression of the edge of the cavitas glen	13	6
Slight depression	1	3

Of our 42 operated patients 10 were women, 32 men. Their average age at the time of the initial dislocation was 22; for men 21, for women 24. The youngest was a girl of 5—the oldest a man of 49. Of the 31 cases which we have been able to follow-up during a period of 1–10 years there have been no recurrences. Of the 31 patients examined after the operation 22 stated that they felt no pain, stiffness or soreness of the shoulder after the operation. They had all been able to resume their regular work, various recreations and sports. 8 had minor irritations or disturbances which occurred, however, extremely sporadically. They were occasionally due to "new" and strenous movements, but did not affect their working capacity or hamper them in any way. The general complaint that of a relatively mild pain and soreness, was of a temporary nature. Only in one of the cases—a man aged 49 at the time of the initial dislocation—was there a more pronounced pain and soreness with exertion—foremost heavy lifting. Of the 9 cases with subjective symptoms of irritation, 2 had not regained full range of shoulder movement compared with the undamaged shoulder. External rotation and movements backwards were limited in only 1 of the other 22 cases subjectively free from disturbances. This impairment, however, was insignificant— and according to the patient—of no importance.

Finally I should briefly like to discuss our examination of the occurrence of the depression of the bony glenoid rim. In our material of 42 operated cases a more or less significant depression was noted in 39 cases. There is no data on 2 of the remaining 3 and in the third case both the glenoid labrum and cavity were intact. In 4 of the 39 patients the lesion was very slight—though fully able to be diagnosed. In the remaining 35 cases the lesion was both noticeable and palpable. The lesion was described as serious in 7 cases—it then stretched down to the joint cavity. We found that the patients who had a significant depression, had, in their records, more dislocations of the shoulder than those whose depression was slight (Table 1). We also found that the shoulder was more easily dislocated if there was a significant depression than if there was a slight lesion (Table 2). A third observation was that it was easier for patients with a significant lesion of the cavity to reduce their dislocation themselves than for those with a very slight lesion (Table 3). It would be of great interest to see if the lesion of the cavity occurred at the time of the initial dislocation and then remained stationary, or if the depression increased with new recurrent dislocation. We have, however, not yet been able to find a satisfactory answer to this question. It appears, however, as if the lesion of the cavity in patients operated

upon within a relatively short period of time after the initial dislocation, is of the same extension and severity as in those who have had their injury for several years. This could be interpreted thus; a lesion of the anterior rim of the cavity occurred simultaneously with detachment of the gleno-labrum at the initial dislocation of the shoulder. It could perhaps also be considered a fracture of impression similar to the one of the dorso-lateral sector and of the same origin. We have not found any convincing arguments for this theory.

The good results obtained from the Eden-Hybinette method should also support the opinion that the main factors for the residual dislocations of the shoulder are to be found in the anterior part of the cavitas glenoidale, in other words, in the detachment of the labrum glenoidale and the lesion of the cavity. The principle of the above mentioned method is, as we know, a reinforcement of the anterior part of the cavity.

It is therefore evident that the depression of the bony rim plays a far greater part in the understanding of the rather complex matter of the dislocation of the shoulder than has earlier been believed.

SUMMARY

Following the first traumatic dislocation, recurrent dislocations take place in a number of cases. Opinions differ as to the genesis of such dislocations. An observation made by several surgeons but not directly connected with the cause of the recurrent shoulder joint dislocations is that the anterior rim of the cavity is pressed down and that this can be so pronounced that it reaches down to a level with the bottom of the cavity.

A follow-up examination was made of a surgical series of recurrent shoulder dislocations. Here it was found that the greater the number of dislocations recorded in the case history, the more pronounced was the downward pressure of the anterior rim of the cavity. A more marked downward pressure was observed to a larger extent in patients who could reduce their shoulder joints themselves.

The author considers that the downward pressure of the anterior rim of the cavity is a decisive factor in the manifestation of recurrent shoulder joint dislocations.

RESUME

Après une première luxation de nature traumatique, il se produit des récidives dans bien des cas. Les avis sont partagés sur la genèse de

celles-ci. Une chose a été observée par bien des médicins sans être mise en rapport direct avec la cause des luxations récidivantes de l'épaule, c'est la pression vers le bas du bord antérieur de la cavité qui peut être si prononcée qu'il atteint le niveau du fond de la cavité.

Un réexamen de malades opérés pour luxations récidivantes de l'épaule a fait ressortir que plus le nombre des luxations est élevé dans l'anamnèse, plus la pression vers le bas du bord anterérieur de la cavité est prononcée. Une pression plus marquée a été constatée chez les malades pouvant eux-mêmes remettre leur articulation de l'épaule en place.

L'auteur estime que la pression vers le bas du bord antérieur de la cavité a été un facteur décisif pour l'apparition des luxations récidivantes de l'articulation de l'épaule.

ZUSAMMENFASSUNG

Nach der ersten traumatisch bedingten Luxation treten in einem Teil der Fälle rezidivierende Luxationen auf. Über die Genese der zuletzterwähnten bestehen geteilte Meinungen. Ein Umstand, der von mehreren beobachtet wird, der aber nie in direkte Verbindung mit der Ursache für die rezidivierende Schultergelenksverrenkung gebracht wird, ist die Hinunterpressung des vorderen Randes der cavitas glenoidalis, die so ausgeprägt sein kann, dass sie den Boden der Cavitas erreicht.

Eine Nachuntersuchung eines operierten Materiales von Schultergelenksverrenkungen wurde vorgenommen. Anlässlich dieser fandt man, dass je häufiger Luxationen in der Anamnese angegeben werden desto mehr ist die Hinunterpressung des vorderen Cavitasrandes ausgeprägt. Eine besonders ausgeprägte Hinunterpressung wurde in grösserem Ausmasse bei Patienten beobachtet, die ihre Verrenkung selbst reponieren konnten.

Der Verfasser ist der Meinung, dass die Hinunterpressung des vorderen Cavitasrandes ein ausschlaggebender Faktor bei der Entstehung der rezidivierenden Schultergelenksverrenkung ist.

REFERENCES

1. *Adams, J. C.:* Recurrent Dislocation of the Shoulder. J. Bone Jt Surg. *30-B*: 26, 1948.
2. *Alvik, I.:* 3 tillfäller av habituell skulderluksasjon operert a.m. Hybinette. Nord. Med. 45: 96, 1951.

3. *Bankart, A. S. B.:* Discussion on Recurrent Dislocation of the Shoulder. J. Bone Jt Surg. *30–B*: 46, 1948.
4. *De Palma, A. F.:* Surgery of the Shoulder. 1950.
5. *Lavik, K.:* Habitual Shoulder Luxation. Acta orth. Scandinav. *4*: 251,1961.
6. *Moseley, H. F.:* Recurrent Dislocation of the Shoulder. 1961.
7. *Neugebauer, H.:* Willkürliche Schulterluxation nach vorne, rückwärts und unten. Arch. orthop. Unfall-Chir., 53. Band, 2. Heft, 142, 1961.