

From the Central Out-patient Department of the Injured, Budapest.

PROGNOSIS OF PRIMARY DISLOCATION OF THE SHOULDER

By

BY KAZÁR & E. RELOVSZKY

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Frequency. The shoulder is the commonest site of dislocation. In a statistical analysis of 8056 cases of different dislocations *Sommer* found 45.3 per cent to be shoulder dislocations. At the Central Out-patient Department of the Injured of Budapest 110,000 patients were treated within a period of 3 years (1962-1964). Of the 2324 dislocations during this period, 1044 (44.9 per cent) were shoulder dislocations.

These 1044 dislocations occurred in 966 patients. Among these patients 760 had primary and 224 recurrent dislocation (18 patients were treated because of primary and recurrent dislocations). The incidence of recurrent dislocations was 27.2 per cent of the whole series (284 cases).

The age and sex distribution of patients with primary shoulder dislocations has changed somewhat during the last few years. Formerly dislocation was 4 or 5 times as common in men as in women (*Sommer*), but more recent figures give a ratio of 2:1 (*Burckle de la Camp, Rowe*). In our series the variation of the frequency with sex was still smaller (Table 1).

As to the age distribution, in earlier statistics dislocation was most common between 30-40 years (*Biebl*). In our series, as in the series of *Frank*, the frequency was highest between 51-70 years of age. According to *Rowe*, dislocation is equally common above 45 years as below this age. In our series the frequency after 50 was twice that below this age limit. The ratio between men and women below 50 years was 3:1, and 2:3 for patients above this age. The changes may be explained by the increasing duration of life, which means a higher percentage of elderly people, especially women.

The incidence of recurrent dislocation of the shoulder is higher than that of other joints. During the 1962–1964 period, 206 (21.3 per cent) patients were treated at our out-patient clinic because of recurrent dislocation. Our figure is very similar to Rowe's (20.4 per cent).

Table 1. Age and sex distribution of primary dislocation.

Years	-20	21-30	31-40	41-50	51-60	61-70	71-80	81-	Total
Men	29	45	66	65	88	85	24	6	408
Women	10	8	20	25	64	106	91	28	352
Total	39	53	86	90	152	191	115	34	760

Table 2. Intervals between primary dislocation and recurrences.

Years	-1	1-2	2-3	3-5	5-10	10-	Total number of cases
Number of cases	96	22	13	6	17	15	169

These figures do not reflect the true frequency of recurrences, because patients may have recurrent dislocation 10–20 years after the first one. A correct estimation of the frequency of recurrences following initial dislocation requires a systematic follow-up. Only a few reports are available on this subject and the frequencies given vary. *Biebl* reported recurrences in 6 per cent of 116 cases; *Bruckner*, 10 per cent of 111 cases; *McLaughlin*, in 21 per cent of 101 cases; *Gjöres*, in 16 per cent of 85 cases, and *Rowe*, in 38 per cent of 398 cases. In our group of patients (566 cases) followed up $1\frac{1}{4}$ – $4\frac{1}{4}$ years after the first dislocation, recurrences were noted in 48 (8.5 per cent). This number does not necessarily include all recurrences because redislocation may occur some years later. For this reason a further purpose of our investigations was to show the real risk of recurrent dislocation. Notes were therefore also made of the interval between the first and second dislocation in patients treated because of recurrent dislocation. Such redislocations were found in 169 patients (Table 2). Table 3 gives the number of recurrent dislocations in the series of 566 re-examined patients. On the basis of our calculation it is supposed that the rate of recurrent dislocation was 14 per cent in the patients who had their first dislocation in 1962, 11 per cent in the 1963 group, and 12 per cent in

Table 3. Numbers and percentages of recurrent dislocations of a series of primary dislocations treated during a 3-year period (1962-1964).*

Year of primary dislocations	Number of patients reviewed after primary dislocation	Number of recurrent dislocations up to 1966
1962	166	18 (11 per cent)
1963	189	15 (8 per cent)
1964	211	15 (7 per cent)
Total	566	48 (8.5 per cent)

* Date of review: February-June 1966.

the 1964 group. The true risk of recurrent dislocation is probably about 10-15 per cent. Considering the high frequency of shoulder dislocation this percentage is important.

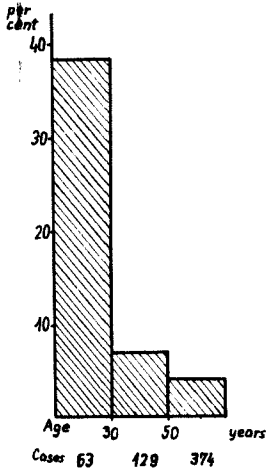
This frequency is all the more important because recurrent dislocations are believed to occur mainly in the relatively low age groups. According to *Ahrer* and *Biebl*, recurrent dislocation occurs until the age of 35; according to *Hohmann* and *Gjöres*, until the age of 40. *McLaughlin* and *Rowe* claim that recurrent dislocation is rare after the age of 40 years. Of our patients treated because of recurrent dislocation, 73.2 per cent were men, and 72.3 per cent were below 50 years. The ratio of the rate of recurrence below 50 years to that above this age was 5:1 in men, but 1:1 in women. In 196 recurrent cases the ages of the patients at the time of the first dislocation were known. The series contained 111 patients (57 per cent) below 30 years. 12.1 per cent of 760 patients with primary dislocation were below 30 years.

The tendency of dislocations to recur in the lower age groups has been reported by *McLaughlin* 1950, *Rowe* 1956. In our material every second patient below 20 years and every third in the 20-29 year group had a recurrence. The corresponding rate for patients aged 30 or more was 1 out of 15 to 30. Judging from these figures, recurrences are

Table 4. Age distribution of recurrent dislocations.

Years	-20	21-30	31-40	41-50	51-60	61-70	71-80	81-	Total
Primary dislocations	28	35	62	67	125	149	78	22	566
Recurrent dislocations	13	11	4	5	4	6	4	1	48

Figure 1. Age distribution of recurrences.



much more common in patients below 30 years (Table 4). The significance was estimated by X^2 test: $P < 0.001$. Figure 1 gives the distribution of the groups of patients.

Duration of immobilisation. According to *Watson Jones*, immobilisation for a period of 3–4 weeks prevents recurrences. The relation between duration of immobilisation and incidence of recurrence in the present series is given in Table 5.

Table 5. Recurrences grouped according to duration of immobilisation after primary dislocation.

Duration of immobilisation	0–7 days	8–14 days	15– days	unknown
Number of primary dislocations	121	342	64	39
Number of recurrences	19	22	3	4
Percentage of recurrences	16	6	4.5	10

Recurrent dislocation occurred in every sixth patient in whom the shoulder was not immobilised or immobilised for 3–7 days. Among patients whose shoulder was immobilised for 8–14 days, only every sixteenth had recurrent dislocation. The number of shoulders immobilised for a longer period was too small to warrant any conclusion. Since these groups did not differ substantially regarding the patients' ages, it appears that the incidence of recurrent dislocation varies with the duration of immobilisation ($P < 0.001$). The results are summarised in Figure 2.

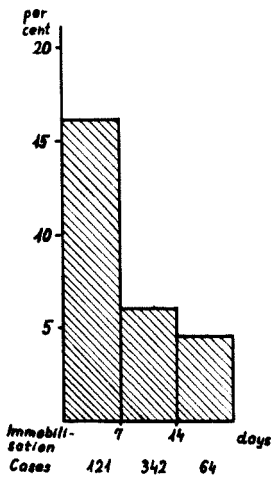


Figure 2. Recurrences grouped according to duration of immobilisation after primary dislocation.

Occurrence of contracture. It is well known that the shoulder is susceptible to contracture. It is of special importance in the older age groups. In our series of primary dislocations 408 cases were evaluated in this respect at the end of the treatment (Table 6). The results are given in Figure 3. Limitation of movement was significantly correlated with the patients' ages ($P < 0.001$).

Table 6. Limitation of movement in relation to the age at end of treatment.

	-30 years	31-50 years	51- years	Total
Number of primary dislocations	48	110	250	408
Number of patients with at least				
90° limitation	1	16	94	111
Percentage	(2)	14	37	27

DISCUSSION

Opinions differ as to the cause of recurrent dislocation. Many authors stress the importance of hereditary factors, constitutional weakness or dysplasia of the joints. It is known that in some cases the first dislocation occurs after an apparently trivial trauma. It was reported in 4 per cent in *Gjöres'* series, in 4.2 per cent of our series. (Recurrent dislocations occurred in 69 per cent after trivial trauma). In our series among 535 cases of primary dislocations, substantial trauma produced

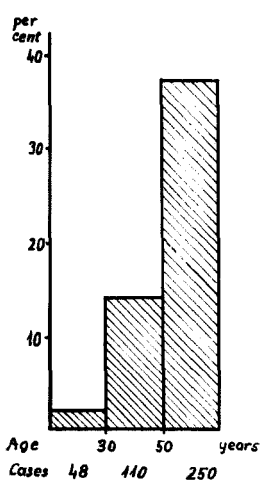


Figure 3. Age distribution of contracture of shoulder joint.

a recurrent dislocation in 40, and trivial trauma in 27 cases produced a recurrent dislocation in 8.

According to *Bankart*, the injury followed by recurrences may differ in type from the remainder. The mechanism of injury was studied by *Rowe* in a large number of cases, but he could not confirm *Bankart's* hypothesis. *Ehalt* also assumed some intermediate type, besides the two types of dislocation (anterior and inferior).

Many authors emphasize irreversible anatomical changes produced by the first injury. According to *Joessel*, the joint cavity is increased three-fold in habitual dislocations. *Thomas* assumes the development of a bag on the capsule after the first injury and that the caput humeri dislocates into it on recurrent dislocation. *Hermodson* suggests that primary dislocation causes an irreversible defect in the posterior-lateral surface of the head. *Diethelm and Hilscher* claim that this defect is pathognomic. *Adams, Hills and Sachs, Palmer & Widén* have very often found this type of lesion in patients with recurrent dislocation. *Rowe* has found this defect in 57 per cent after recurrent dislocation, in 38 per cent after primary dislocation, but also in about 10 per cent of healthy persons. On the basis of these findings this defect might play a predisposing role. Some of the authors attach great importance to the rupture of the labrum (*Bankart's injury*) which, according to *Adam's* data, can be found in 87 per cent of the cases with recurrent dislocation.

Watson Jones and others (*K. Speed, Nicola, Moseley*) feel that recurrence is due to unsatisfactory treatment. After dislocation the

shoulder is usually immobilised for only a short period (not more than one week). It is obvious that ligamentous injury of the knee or the ankle will be followed by instability if the joint is not immobilised satisfactorily. *Watson Jones* stresses that the shoulder is built up in the same way and that if it is not immobilised satisfactorily, dislocation may recur. Recurrent dislocation may therefore, perhaps, not be an unavoidable consequence of the injury but the result of inadequate treatment.

Our results are in agreement with *Watson Jones*' hypothesis. However, in the treatment of dislocation immobilisation for 3–4 weeks is not advisable in all cases. In an elderly patient the most important problem is the contracture of the shoulder and not the recurrent dislocation. It is therefore advisable not to treat old and young patients in the same way. In old age it seems wise to immobilise the shoulder for a short period and to apply functional treatment to prevent contracture. In younger persons (up to 30 years) immobilisation for at least 3 weeks, suggested by *Watson Jones*, appears indicated.

SUMMARY

The authors investigated the further course of shoulder dislocation in a series of patients (760 primary and 284 recurrent dislocations) treated at the Central Out-patient Department of the Injured of Budapest. They found an increase in the number of primary dislocations among elderly patients and mostly among women during the last decades.

They found a rate of recurrence of 8.5 per cent, but added that the true figure is probably as high as about 10–15 per cent. The recurrence of dislocations is significantly more common below 30 years of age. The frequency of recurrent dislocations is significantly lower when the joint is immobilised for an adequate period. In elderly patients contracture after the immobilisation of the joint is the most serious risk.

On the basis of their results they advise an immobilisation for 3 weeks, if the patient is younger than 30 years, but for a short period if he is above 50 years of age. In this latter age-group early physiotherapy is advisable.

RESUME

Les auteurs ont étudié le pronostic des luxations de l'épaule. Les études furent basées sur une série de malades: 760 luxations primaires et 284 récidives. Tous ces malades ont été traités à la Polyclinique Centrale pour les accidentés de Budapest. Les auteurs ont trouvé que les luxa-

tions primaires étaient plus nombreuses chez les personnes âgées et surtout chez les femmes, tandis que les récives étaient plus nombreuses au-dessous de 30 ans. La différence des manifestations au-dessous et au-dessus de 30 ans est très significative. Les auteurs ont trouvé 8,5 p. 100 de récives parmi les luxations primaires. Ils calculent que la proportion réelle doit être 10–15 p. 100.

Avec la prolongation de l'immobilisation, le rapport des récives a été diminué. Chez les personnes âgées le danger le plus redoutable, c'est la contracture de l'épaule.

En raison de ces résultats les auteurs recommandent une immobilisation – si le malade est au-dessous de 30 ans – d'au moins trois semaines, tandis que chez ceux au-dessus de 50 ans, ils recommandent une immobilisation d'une semaine au plus, avec application le plus tôt possible de la kinésothérapie.

ZUSAMMENFASSUNG

Auf Grund eines dreijährigen Krankenmaterials (1962–64) der Unfallsstationen zentral Budapest (760 erste und 284 wiederholte Luxationen) untersuchten Autoren die Prognose der Schultergelenkverrenkung. Sie fanden, dass die Verhältniszahl der älteren, vor allem der Frauen in den letzten Jahrzehnten, sich erhöht hat. Sie fanden insgesamt in 8,5 Prozent der ersten Verrenkungen eine wiederholte Luxation. Gemäss ihrer Kalkulation ist aber das Verhältnis aller wiederholten Verrenkungsfälle zwischen 10 und 15 Prozent.

Eine wiederholte Luxation kommt öfter in Alter unter 30 Jahren vor. Der Unterschied zwischen Altersgruppen unter und über 30 Jahren ist stark signifikant.

Mit Verlängerung der Ruhigstellung vermindert sich bedeutend die Verhältniszahl der wiederholten Luxationen. In höherem Alter ist aber nach Ruhigstellung die Kontraktur die Hauptgefahr.

An Hand ihrer Ergebnisse empfehlen Autoren bei Patienten unter 30 Jahren eine Ruhigstellung für mindestens 3 Wochen, dagegen über 50 Jahren nach einer kurzdauernden Ruhigstellung eine frühe aktive Bewegungsbehandlung.

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