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RECURRENT DISLOCATION OF THE SHOULDER TREATED BY TRANSPOSITION OF THE TENDON TO PECTORALIS MINOR

A Follow-Up of Fifteen Patients

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Recurrent dislocation of the shoulder is practically always a forward dislocation but may occasionally be backward. Distinction is made between a traumatic type and one of unknown cause. In the former type there is an adequate trauma as cause, but this is not always so in the latter type. The transition between the two types is fluid as the trauma may be very mild so it is reasonable to ask in these cases, too, whether there was a disposition for dislocation. This reservation should be borne in mind when it is stated that 94 per cent of all cases are of the traumatic type (Rowe 1962).

In these cases, the cause is an injury to the joint capsule and/or joint head at the first dislocation. The glenoid lip may be torn from the anterior border of the glenoid cavity, or there may be a defect in the joint capsule which does not heal, or there may be a defect at the back of the head of the humerus.

In the second type, the picture is marked by a slack joint capsule or weak shoulder musculature.

After a while, dislocation may arise on only slight trauma or from special movements of the shoulder joint such as putting on a coat, swimming, throwing, etc., and external rotation in particular produces dislocation. A number of operations such as Bankart's operation, Putti-Platt's operation, Magnuson and Stack's operation, and Gallie-Le Mesurier's operation are based on limiting the capacity of the shoulder joint for external rotation. The incidence of relapse following these operations is said to be under 7 per cent (Cave 1958).

Several of these methods are regarded as being technically rather

laborious. Dickson & O'Dell (1952) introduced an operation in 1952 which was technically easier. From phylogenetic studies in apes and investigations on human foetuses, they found that the internal rotators of the upper arm were gradually weakened in relation to the external rotators. Originally, pectoralis major and pectoralis minor were together as one common muscle which attached to the humerus, or pectoralis minor could be found as an independent muscle attached together with pectoralis major on the humerus. Dickson & O'Dell believed that by moving the attachment of the pectoralis minor from the coracoid process to the humerus, they would convert the muscle into an internal rotator and thus achieve the muscle balance which these patients lacked. The stability of the shoulder joint would thus be increased. They also reported that Seib (1938), on dissection of 1,000 shoulders, found that pectoralis minor deviated from its attachment to the coracoid process in 15 per cent, and that in 1 per cent it was attached to the humerus.

The operation is carried out by making the incision in the deltoid-pectoralis sulcus. The tendon of pectoralis minor is dissected free and separated from the coracoid process by chipping a small splinter of bone from the process. A non-absorbable suture is attached to the tendon which is then freed so that it can be transferred to its new position without difficulty. Immediately proximal to the tendon of pectoralis major, an opening is chiselled in the cortex of the humerus shaft just big enough to allow the bone splinter from the coracoid process to be passed through. The suture in the pectoralis minor tendon is led out through two boreholes lateral to the chiselled "trap door" and knotted. The pectoralis minor tendon is fixed to the major tendon with a few sutures. Internal rotation makes it easier to draw the pectoralis minor tendon into place and fix it. After closing the wound, the arm is immobilized with a Velpeau bandage for 4 weeks and thereafter placed in a sling for a further 4–8 weeks. At this time, the patient starts active exercises with the arm. Forcing of external rotation should be avoided. Complete rehabilitation is generally achieved in the course of 8–12 weeks after operation.

PERSONAL MATERIAL

Material from Martina Hansen's Hospital and Rikshospital Surgical Department B has been studied in order to get an impression of what this operation can offer. In all, 17 patients were operated by this method in the course of 1961–1967. Two patients could not be contacted as one had left the country and the other had no

fixed address. Thus 15 patients were followed up. Their age and sex distribution is shown in Table 1.

Table 1

	Men	Women
Under 20 years	1	1
20–50 years	6	4
Over 50 years	2	1
Total	9	6

Three had heavy physical work, 6 had office work or were students, 4 were housewives, and two were not working for causes other than their shoulder disorder.

All 9 men and 4 women must be reckoned to have had habitual dislocation of the shoulder of the traumatic type, whilst an 11-year-old girl had weak musculature and unilateral dislocation and a 32-year old woman had bilateral dislocation without definite preceding trauma. She was operated on only one side. All patients had had repeated dislocations and clinical histories lasting from 46 years to 5 months.

Apart from the 11-year-old girl, forward dislocation occurred in each case.

There were no complications following any of the operations. Follow-up took place after 1–6 years. In the majority of cases this was carried out by means of a questionnaire which was filled out by the patients. Six of the patients had had dislocation after the operation. Four reported that they had had only one dislocation and with minimal trauma. One had had a dislocation while lying in bed two years after her operation. Another was sitting when the shoulder dislocated. The two who had several dislocations after the operation also said that they had resulted from small injuries. One of them had the first relapse in association with a ski fall. One patient was well for 5 years after operation before she dislocated again. The two with repeated dislocations were a 23-year-old woman architect and a 53-year-old man who had a disability pension, for reasons other than his shoulder condition, and did not work. Of the 9 who had not had any relapse, 3 were not very satisfied because they had limited movement and pains after work, or they felt that the arm was weaker than before operation.

CONCLUSION

The operation for habitual shoulder dislocation reported by Dickson & O'Dell in which the tendon of pectoralis minor is transferred to the humerus is technically simple, but 2 of 15 patients had repeated re-dislocations and 4 had single relapses. The material is too small to draw any conclusions as to whether there are special conditions which predispose to re-dislocation but age, sex, and nature of work do not seem to have any significance.

SUMMARY

The author reports a material of 17 patients who were operated for recurrent shoulder dislocation by transposition of the attachment of the pectoralis minor from the coracoid process to the humerus, as reported by Dickson & O'Dell.

Fifteen of these patients were successfully contacted by means of a questionnaire. Four had had an isolated recurrence after operation and two had had repeated re-dislocations.

Of the 9 who had not had a recurrence after operation, 3 were dissatisfied because of pain in the operated shoulder and because the arm felt weaker than before the operation.

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