DISRUPTION OF THE LATERAL CAPSULE OF THE SHOULDER

A CAUSE OF RECURRENT DISLOCATION

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Experimental work has shown that dislocation of the shoulder may involve disruption of the capsule from its lateral humeral attachment. We report two patients with recurrent dislocation due to this injury. Lateral repair gave good results. It is suggested that this injury be considered and looked for when glenoid labral injury is minimal or absent.

Turkel et al. (1981) demonstrated by experiments in cadavers that an intact inferior glenohumeral ligament prevented anterior dislocation of the shoulder. This ligament may fail by stretching, by detachment from the glenoid or, as part of the anterior inferior capsule, by detachment from the humerus. The result will be to allow anterior dislocation.

Both Nicola (1942) and Fahey and DeCosola (1947; cited by Moseley 1969) noted that detachment of the lateral capsule from the humerus occurred commonly in experiments on dislocation in cadavers. Nicola produced this with hyperabduction and lateral rotation; he also found that if impaction also occurred the force on the glenoid could result in a Bankart lesion. Fahey and DeCosola attributed the damage to hyperabduction. Despite these findings, lateral disruption of the humeral capsule has not been commonly reported at operations performed for instability.

We present two patients with recurrent anterior dislocation of the shoulder secondary to trauma; in both cases there had been disruption of the shoulder capsule from its inferior and lateral insertion to the humerus.

CASE REPORTS

Case 1. A 19-year-old right-handed man had had five dislocations of the right shoulder over a two-year period after an abduction and lateral rotation injury. He had no muscular wasting or weakness, no abnormal neurology,

no tenderness and a normal range of movement, but the apprehension sign was positive in abduction and lateral rotation. Pre-operative radiographs were normal.

At examination under anaesthesia, anterior dislocation and inferior subluxation could be produced without posterior instability. After a deltopectoral approach, the subscapularis was identified and dissected free from the capsule at the musculotendinous junction. Careful dissection revealed that extensive disruption of the capsule had occurred (Figs 1 and 2). Damage extended across most of the anterior surface of the neck of the humerus and the inferior aspect of the neck, where further stripping had markedly increased the size of the axillary recess of the capsule. There was thickened fibrous tissue at the margin of the capsular defect and also a small bony avulsion. The glenoid labrum was normal, but manipulation demonstrated that the humeral head could be partly displaced anteriorly through the defect and that tightening of the defect prevented this subluxation.

The defect was repaired by reattaching the main capsule to the neck of the humerus and the remains of the lateral capsule, and by repairing the subscapularis without overlap.

Eighteen months after this operation the patient had no weakness or instability, with a normal symmetrical range of movement.

Case 2. A 25-year-old right-handed man gave a two-year history of recurrent dislocation of the left shoulder, which dated from a fall on the outstretched arm.

He showed normal movement, strength and neurology but had a positive apprehension sign in abduction and lateral rotation, with an associated "clunk". There was mild generalised ligamentous laxity. The pre-operative radiographs revealed a Hill-Sachs lesion and a small avulsion from the humeral insertion (Fig. 3).

At examination under anaesthesia there was anterior and inferior instability, with a positive sulcus

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sign on stress and posterior subluxation. At operation there was a 3 cm antero-inferior defect in the capsule with complete stripping of the inferior capsule from the humeral neck. There was some degeneration of the labrum with a 1 cm flap tear in the posterior glenoid labrum and a 1 cm Bankart lesion inferiorly. The capsular defect and the Bankart lesion were both repaired. The inferior part of the humeral neck was roughened and drill-holes were placed to allow advancement of the inferior capsule superiorly and laterally. The superior flap was also advanced distally under the lower flap. The subscapularis was repaired and the wound closed in a standard fashion.

Recovery was uncomplicated and 17 months after operation there was no weakness, instability, apprehen-

Shoulder instability and its mechanics have been studied by selective cutting experiments. Turkel et al. (1981) implicated the inferior glenohumeral ligament as the main stabiliser against anterior dislocation. Injury to the labrum is common (85%) but is frequently absent if there is marked laxity of the capsule, as in many patients with multidirectional instability (Bankart 1938; Rowe, Patel and Southmayd 1978). In our first case, the detachment of the inferior axillary capsule made the inferior glenohumeral ligament incompetent; reattachment restored anterior and inferior stability. This lateral repair, as in the capsular shift reported by Neer and Foster (1980), would be expected to restore shoulder stability.

The infrequency of this finding may be explained by

Fig. 1

Fig. 2

Case 1. Diagram and operative photograph to show the disruption of the lateral capsule.

sion or dislocation. Muscle power and range of movement were normal.

DISCUSSION

In both these cases the rotator cuff was normal, the subscapularis was not torn or attenuated, and the glenoid and humeral head were not anteverted. Both patients had had recurrent dislocations, though one patient showed mild ligament laxity and the mechanism of injury was different in each patient. Neither patient had suffered hyperabduction injury. Under anaesthesia, inferior as well as anterior laxity was found, with, in addition, some posterior laxity in Case 2.

It can be difficult to dissect the subscapularis from the capsule; without experience penetration can easily occur. We now routinely detach the subscapularis from the capsule at the musculotendinous junction, by placing a Kelly clamp deep to the muscle fibres. We then cut obliquely down to the clamp through the edge of the tendon, easily avoiding capsular penetration. In both the patients we report, capsular disruption was quite extensive with clear evidence of stripping from the inferior aspect of the neck of the humerus.

failure at operation to expose the lesion, or to recognise it, or to appreciate that it may have healed. It is also possible that the mechanism of traumatic anterior dislocation differs significantly from that found by Nicola (1942) and by Fahey and DeCosola (1947) in their experiments.

Fig. 3

Case 2. Radiograph to show the bony fragment avulsed from the neck of the humerus.

If lateral capsular disruption or avulsion is seen at operation, the joint should be explored. If the labrum is seen to be well attached, then repair can be performed by closing the defect and aiming to secure good healing of the capsule to the bone, particularly inferiorly. If capsular laxity is not eliminated by pulling it laterally, then a transverse cut to create a "T" and an overlapping repair of the upper and lower components should be performed (Figs 4 and 5).

Conclusions. In cases of shoulder instability, the capsule

and its attachments to the humeral neck should be assessed. If, in the absence of ligamentous laxity, no glenoid damage is demonstrated, then the possibility of a lateral capsular disruption must be excluded. Our two patients had obvious lateral capsular defects with stripping of the inferior capsule from the bone. Repair of this defect may be performed by advancing the capsule with reattachment to the neck of the humerus.

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Fig. 4

Fig. 5

Diagrams to show the technique of T-plasty and drill-holes, allowing upward advancement of the inferior flap over the reattached superior flap. Laxity of the axillary pouch is eliminated.

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