

Correspondence

Trapezius-transfer for shoulder paralysis

6 patients with brachial plexus injuries followed for 1 year

Sir—Mr. Mir-Bullo and coworkers (1998) achieved an excellent functional outcome after trapezius-transfer in patients with brachial plexus palsy. After 1 year the shoulder abduction in 6 patients had improved from average 13° (0°–30°) preoperatively to 76° (50°–100°) postoperatively, and the shoulder flexion from 18° (0°–40°) to 78° (45°–110°).

These results are better than those in a larger series of patients in the literature (Aziz, 27 patients, Rühmann, 31 patients) (Rühmann et al. 1998, Aziz et al. 1990) with an average abduction and forward flexion of approximately 40°. In our hospital up till now trapezius-transfer has been performed in 67 cases, and the results are comparable to our series of 31 patients.

To explain this, we have tried to find differences in the operative technique used.

The acromion should be transferred to the humerus below the greater tuberosity of the humerus and fixed with screws. The point of fixation to the humerus is a decisive factor concerning the extent of postoperative function, especially regarding abduction and forward flexion. However, distalization is limited by the restricted degree of mobilization of the trapezius. The radiograph in the article (Figure 2) shows the acromion not really distal to the greater tuberosity. This means that the intraoperatively achieved tension of the transferred muscle cannot be the reason for the superior function. The patients' preoperative condition may have been better, as assessed by the good function of other muscles in the region of the shoulder and arm. This may explain the better outcome.

We also found that the multidirectional shoulder instability had been reduced by the procedure. Most of the patients considered this increase in stability of the shoulder joint very important.

Although we achieved good results with the trapezius-transfer, and muscle transfer operations are better in terms of passive function (Aziz et al.

1990), lower complication rates and shorter duration of the operation (Karev 1986, Aziz et al. 1990), the shoulder arthrodesis should be integrated in a therapy concept for secondary operations after brachial plexus palsy. In our experience, the advantage of a shoulder arthrodesis is the greater increase in powerful active function, with approximately 70° (30°–90°) abduction and forward flexion (Jäger and Wirth 1977, Cofield and Briggs 1979, Chuinard and Kinnard 1980, Richards et al. 1985, 1988, Pronk 1989, Rouholamin et al. 1991). In our opinion, an arthrodesis should be performed on those patients who have physically demanding work and still good function in the elbow and hand. Some other indications for shoulder arthrodesis exist when the joint (posttraumatically impaired shoulder joint), functional (passive abduction considerably less than 80°), and/or the neurological-muscular situation (insufficient degree of function of the associated muscle transfer) exclude muscle transposition. The main requirement for shoulder arthrodesis is an intact active scapulothoracic mobility. The trapezius, levator scapulae and serratus anterior muscles must have sufficient strength to offer resistance against the rotation and elevation of the scapula, i.e., at least 75% of normal function must be present (Vastamäki 1987, Richards et al. 1988, Rouholamin et al. 1991).

In fact, the trapezius-transfer was described by Mayer in 1927, but not initially. To our knowledge, Hoffa (1891), Lewis (1910) and Lange (1911) published their experiences with the transposition of the trapezius-muscle to compensate the loss of deltoid function earlier.

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