FLEXION CONTRACTURE OF THE SHOULDER JOINT FROM FIBROSIS OF THE ANTERIOR PART OF THE DELTOID MUSCLE

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A twenty-year-old English woman complained that her right shoulder was higher than the left and that she could not use her right hand behind her back. The deformity had been noticed at about the age of three years by an aunt. She attended hospital in Ireland and practised exercises intermittently for nearly seven years without improvement. There was no history of injection or of trauma to the shoulder. At the age of eleven years she suffered a fracture of the right clavicle in a fall, but this had no effect on the shoulder deformity. She gave no relevant family history, was in good health and had no other deformity.

On examination, with the arms by her sides the right scapula was markedly elevated and rotated forwards (Fig. 1); but when the arms were raised forward above the horizontal the scapula assumed its normal position (Fig. 2). When the arms were abducted the right
scapula was forced medially to such an extent that its vertebral border lay to the left of the midline (Fig. 4). There was no fixed spinal deformity and the bones of the shoulder girdle were normal in size and shape, apart from the deformity of the old fractured clavicle. A tight band was palpable in a sulcus in front of the shoulder joint within the anterior part of the deltoid muscle.

*Operation and progress*—At operation (November 1966) an incision was made in the anterior axillary skin fold and the anterior part of the deltoid muscle was exposed. A fibrous band 1.5 centimetres thick was found extending from the clavicle to the deltoid tubercle of the humerus and replacing most of the anterior part of the deltoid muscle (Fig. 6). A few finer bands lay in the adjacent soft tissues. After excision of the band, shoulder movements became almost normal immediately.

A month after operation there was a full range of shoulder movement. With the arms by her side the right scapula was only slightly raised above the level of the other side (Fig. 3) and with the arm abducted the right scapula now adopted a normal position (Fig. 5). A year later she reported that recovery was complete.
Histopathology of the excised specimen demonstrated fragments of skeletal muscle and highly orientated collagenised fibrous tissue.

COMMENT

A search of the literature has failed to discover a similar case, although there are reports of patients with abduction contracture of the shoulder joint. Reference to that uncommon condition and to a method of assessing which elements of the pectoral girdle contribute to the deformity was made by Cellarius (1948) and by Lerch (1949). Sato, Honda and Inoue (1965) and Bhattacharyyya (1966) each described three patients in whom the cause was a contracture of the intermediate part of the deltoid muscle. A similar condition occurring in the quadriceps muscle has been described by several authors (Fairbank and Barrett 1961; Hněvkovský 1961; Csink and Imrie 1963; Gammie, Taylor and Urich 1963; Gunn 1964; Karlen 1964; Lloyd-Roberts and Thomas 1964; Williams 1968). All cases occurred in children and young adults and appeared to be slowly progressive until treated.

There seems little doubt that the contracture in our patient had been present from an early age. Yet the radiographs revealed no secondary deformity of the bones of the shoulder girdle and there was almost complete return of a full range of movement immediately the fibrous band was excised. This was the case also in those patients with abduction contracture of the joint reported by Bhattacharyyya (1966).

One might have expected that a contractural deformity of such long standing would have been irreversible in adult life, or would at least have required division or stretching of the anterior joint capsule for its correction (compare subscapularis contracture in Erb's palsy). The probable explanation is that the anterior capsule avoided secondary shortening because the joint's freedom to rotate laterally was unimpeded by the fibrous band.

REFERENCES


