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ABDUCTION CONTRACTURE OF THE SHOULDER

A Report of Two Patients

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Two cases of winged scapulae due to fibrosis of the deltoid muscle are reported. The fact that these two patients were healthy and well prior to injections suggests that intramuscular injection is the causative factor. Treatment by simple division is satisfactory.

Key words: contracture; deltoid muscle; fibrosis; intramuscular injection; winged scapulae.

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Contracture and limitation of major peripheral joints due to adjacent intramuscular fibrosis has been reported with increasing frequency. Altered knee motion caused by quadriceps fibrosis has been well described and documented. However, only ten patients with fibrosis of the deltoid muscle leading to abduction contracture of the shoulder have been reported (Bhattacharyya 1966, Hill et al. 1967, Goodfellow & Nade 1969, Wolbrink et al 1973, Branick et al. 1976). We are presenting two additional cases and our experience with this peculiar deformity.

CASE REPORTS

Case 1. A 9-year-old girl was seen with prominence and winging of both scapulae. The deformity was accidentally detected by an elementary school teacher who found that the patient had difficulty in bringing both of her arms to the torso. She had always been well except for mild upper respiratory infections during childhood. The history also revealed that she had received quite a number of intramuscular injections into both deltoid regions with each transient illness. Inspection showed prominent scapulae in the standing position, with a depressed groove at the junction of the intermediate and posterior parts of the deltoid muscle (Figure 1A). A hard band-like structure was palpable in the depressed groove between the acromion and the deltoid tubercle of the humerus. The range of motion of both shoulders was free except for a bilateral 20° abduction deformity, i.e. loss of ability to bring the arms to the sides of the trunk (Figure 1B). Winging of the scapulae was exaggerated on shoulder adduction. Significant abnormality of the shoulder joints was not seen roentgenographically.

Bilateral exploration of the deltoids showed a fibrous band in the intermediate part of each muscle. The band originated at the scapular spine and acromion, extending to the tendinous insertion of the humerus. Transverse division of the fibrous band and gentle graduated adduction of the arm immediately relieved the abduction deformity. Microscopic examination showed fibrosis. Postoperative mobilization of the shoulder

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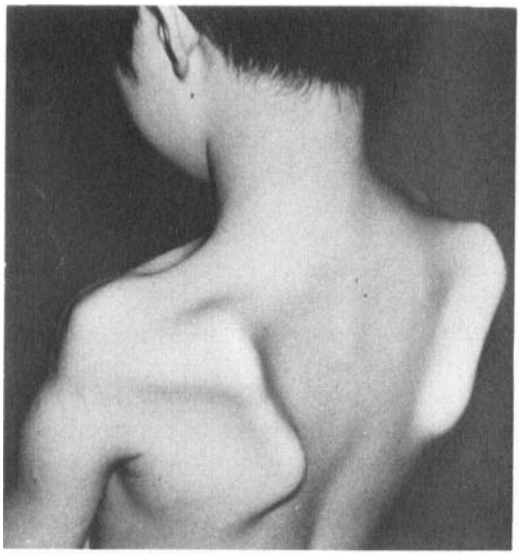

Figure 1A. The winging of the scapulae with depression of the deltoid is clearly shown.

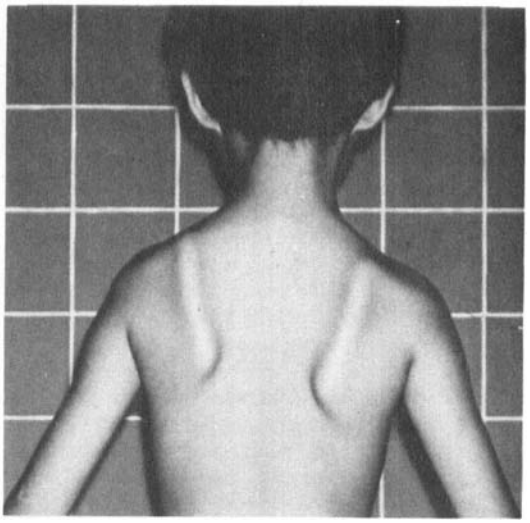

Figure 1B. The patient is unable to bring the arms to the torso.

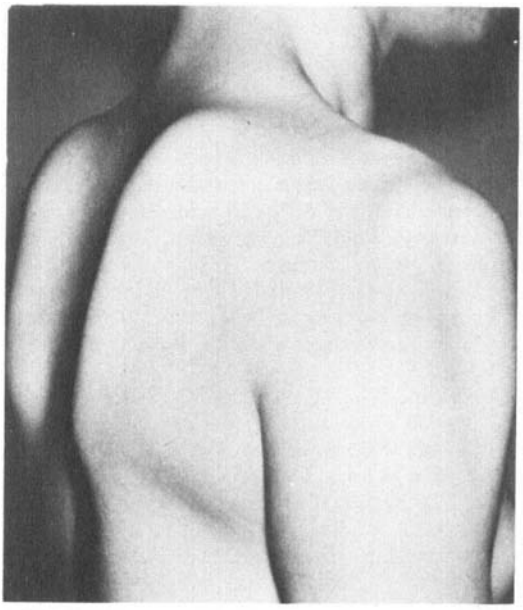

Figure 2A. The groove in the mid-portion of the deltoid is evident.

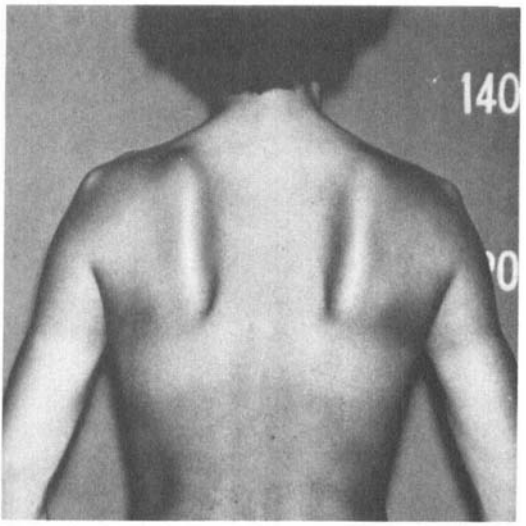

Figure 2B. The patient cannot bring her arms to the chest wall and the medial borders of the scapulae are prominent.

began as soon as the patient was able to tolerate it. Follow-up at 2 years showed the abduction deformity was absent in both shoulders and there was full range of motion.

Case 2. A 43-year-old housewife was seen with a 1-year history of winging of both shoulder blades which disturbed her sleep because of pain in the area of the medial angle of both scapulae. About 1 year prior to the initial examination she gradually noticed difficulty in bringing her arms to the side of her body. She had had repeated intramuscular injections in both deltoid muscles for the past 2 years for a purported chronic anemia. No similar deformity was noted in the other family members. On examination a groove over the middle deltoid extending from the acromion to the deltoid tubercle of the humerus was noted (Figure 2A). There was also accompanying winging of the scapulae (Figure 2B) which was most prominent on adduction of the arm and disappeared upon elevation of the arm to approximately 60°. Adduction of the arms was blocked by a fibrotic band at 30° of fixed abduction. The range of motion of the shoulders was otherwise normal.

Exploration of the deltoid muscles revealed a tight band extending from the acromion to the humerus. Simple division of this band did not fully correct the deformity in either shoulder. By gentle adduction of the arms several tight fibrous bands were palpable in the middle portion of each deltoid muscle. Release of the contracture was possible only after division of the bands. A portion of the fibrous tissue was resected and microscopic examination showed degeneration of the muscle fibres and fibrosis. No immobilization was carried out after surgery. The shoulders two years later were, for all intents and purposes, normal.

DISCUSSION

Abduction contracture of the shoulder and winging of the scapulae is a clinical entity due to fibrosis of the deltoid muscle. Since the original report of three cases in 1965 (Sato et al.), an additional seven cases have been published (Bhattacharyya 1966, Hill et al. 1967, Goodfellow & Nade 1969, Wolbrink et al. 1973, Branick et al. 1976). This deformity is comparable to that of quadriceps fibrosis (Gunn 1964). Several causative factors suggested from the reports include developmental defect (Wolbrink et al. 1973), congenital progressive fibrosis (Bhattacharyya 1966), and injection (Gunn 1964, Branick et al. 1976).

Intramuscular injections are given frequently by local practitioners in this society. One of the present authors (YSH) has also collected 24 cases of fibrosis of the gluteus muscle (Hang 1978), resulting in an abduction, external rotation and extension hip deformity. This allied disorder has been seen with increasing frequency. The two cases reported here, together with recent observations of patients with gluteal fibrosis, strongly suggest that repeated intramuscular injections may be an important causative factor. The absence of a similar affection in other family members in these two patients more or less precludes a genetic origin.

Simple division of the fibrotic band is adequate, although excisional resection of the band has been recommended by others (Bhattacharyya 1966, Hill et al. 1967, Wolbrink et al. 1973). This clinical entity is amenable only to surgery and the results are satisfactory. We believe the condition exists more commonly than has been documented.

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