ABDUCTION CONTRACTURE OF THE HIP IN CHILDREN

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Nine cases of abduction contracture of the hip in children from contracture of the gluteus maximus muscle are reported. Division of the aponeurosis gluteus maximus over the greater trochanter always permitted full adduction.

Contracture of children's muscle, either congenital or produced by medical treatment, is not uncommon. Since the publication of Hněvkovský's work (1961), numerous reports of such cases have appeared. Most of them, however, were concerned with contracture of the quadriceps muscle (Gammie, Taylor and Urich 1963; Gunn 1964; Karlen 1964; Lloyd-Roberts and Thomas 1964; Williams 1968; Euliano 1970; Chiu, Furuya and Arai 1974). A few papers have described contracture of the deltoïd (Bhattacharyya 1966; Hill, Liebler, Wilson and Rosenthal 1967) and of the gluteus medius muscles (Wolbrink, Hsu and Bianco 1973).

At the second meeting of the Asian Association of Paediatric Surgeons* the author presented thirty-six cases of various types of muscle contracture treated in the past five years in the southern part of Taiwan. The muscles affected were the quadriceps, deltoïd, triceps and gluteus maximus. There were multiple contractures in one case. Moreover there were four pairs of siblings suffering from contractures of identical muscles or of different muscles.

The purpose of this paper is to report nine cases of abduction contracture of the hip caused by tightness of the gluteus maximus muscle, a condition not previously reported. There were six boys and three girls, aged from six to thirteen years (Table 1). Seven patients had bilateral involvement, and two had contracture on one side only. Most of the patients had associated contracture of other muscles. The children in Cases 1 and 8 were siblings, and their other brother had bilateral contracture of the rectus femoris. The boy in Case 9 had a sister who had a contracture of the left quadriceps muscle released by operation elsewhere.

CASE REPORT

Case 6—A Chinese boy aged six years was brought because he was not able to sit or squat properly. His mother had noticed this problem when he was two years old. He was otherwise healthy. He had never had injections in the buttock area. He stood straight normally and could bend the hips freely, but when he sat he had to open his legs widely (Fig. 1). Indeed he abducted the legs to such an extreme degree that they became a straight line—a posture that cannot be assumed by a normal person. There was a deep visible skin groove and a palpable tight band on both sides, running from the gluteus maximus to the greater trochanter.

TABLE 1

<table>
<thead>
<tr>
<th>Case number</th>
<th>Age (years)</th>
<th>Sex</th>
<th>Side</th>
<th>Associated contracture</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9</td>
<td>Male</td>
<td>Bilateral</td>
<td>Right rectus femoris</td>
</tr>
<tr>
<td>2</td>
<td>7</td>
<td>Female</td>
<td>Bilateral</td>
<td>Bilateral deltoïd. Left rectus femoris</td>
</tr>
<tr>
<td>3</td>
<td>13</td>
<td>Male</td>
<td>Bilateral</td>
<td>Right rectus femoris</td>
</tr>
<tr>
<td>4</td>
<td>13</td>
<td>Female</td>
<td>Left</td>
<td>Left rectus femoris</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
<td>Male</td>
<td>Bilateral</td>
<td>Bilateral rectus femoris</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>Male</td>
<td>Bilateral</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>9</td>
<td>Male</td>
<td>Left</td>
<td>Left vastus intermedius</td>
</tr>
<tr>
<td>8</td>
<td>11</td>
<td>Female</td>
<td>Bilateral</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>7</td>
<td>Male</td>
<td>Bilateral</td>
<td>Right triceps humeri</td>
</tr>
</tbody>
</table>

Operation—Under general anaesthesia and with the hip flexed, a 10-centimetre incision was made over the lower part of the groove. The tendons of the gluteus maximus and tensor fasciae latae were severed transversely just over the greater trochanter. The flexed hip was easily brought to full adduction. The gluteus medius was normal. There was no other contracture. No plaster was applied; active motion of the limb was encouraged soon after operation. The boy was able to sit up on the fourth day after operation and to walk on the sixth day. Three months later he was able to sit and squat almost normally (Fig. 2).

DISCUSSION

Multiple muscular contractures in children have seldom been reported. Nevertheless, two-thirds of the patients in this series had one or more associated contractures.

* Part of this report was read at the second meeting of the Asian Association of Paediatric Surgeons, Taipei, Taiwan, March 11, 1974.

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The quadriceps is by far the most commonly involved; then comes the gluteus maximus.

Gluteus maximus contracture gives the patient a very peculiar and characteristic appearance. The muscle is an extensor of the hip in the standing position but in the sitting posture it helps abduction. Thus contracture causes difficulty in adduction of the hip in the sitting position.

Wolbrink and colleagues (1973) described a similar deformity in a Chinese girl who had associated contracture of the deltoid muscle, and attributed this to the tight fibrous band in gluteus medius. On the other hand, gluteus medius contracture after poliomyelitis causes abduction contracture in standing, but permits full adduction on sitting.

Operation is easy and effective. It is very important to sever the gluteus maximus tendon over the greater trochanter completely to bring the flexed hip to full adduction. There is no need to cut the fibrous tissue in the muscular part of the gluteus maximus, because this will not yield complete adduction. There is no need for any immobilisation or physical therapy. The range of movement obtained on the operation table will be retained.

There has been much speculation about the aetiology
of the contracture. The injection theory has wide support. Whereas intramuscular injection can result in some degree of contracture it is likely that many cases are congenital in origin. Many of the patients in the present series did not have injections to that particular muscle. Quadriceps contracture in identical twins has been reported (Fairbank and Barrett 1961; Chiu and colleagues 1974). The occurrence of contracture in four pairs of siblings in the present series is highly suggestive of a genetic cause.

REFERENCES