PARALYTIC DROP FOOT AND GLUTEAL FIBROSIS
AFTER INTRAMUSCULAR INJECTIONS

MAREK NAPIONTEK, KRZYSZTOF RUSZKOWSKI

From the Karol Marcinkowski University of Medical Sciences, Poznań, Poland

Eight children with paralytic drop foot after intramuscular injections later developed gluteal fibrosis. Sciatic palsy, presenting as equinovarus or equinus deformity, was diagnosed on average 3.8 months after the intragluteal injections, but gluteal fibrosis was not diagnosed until 5.1 years after the injections. In three patients the equinovarus recurred after surgical correction due to persistent muscle imbalance and the effect of the external rotation contracture of the hip.

Sciatic nerve injury manifesting as paralytic drop foot, and gluteal fibrosis manifesting as external rotation and abduction contracture of the hip, are well-recognised complications of intragluteal injections in infancy. Both complications in the same patient have not previously been reported. The coincidence may lead to the failure of treatment of the equinovarus deformity of the foot.

PATIENTS AND METHODS

We reviewed the records of eight children (seven boys and one girl) admitted to our institute between 1976 and 1991 for surgical treatment of equinovarus or equinus deformity of the foot who also had gluteal fibrosis. The right foot was affected in every case, and the gluteal fibrosis was bilateral in seven cases. The other child (case I)
had gluteal fibrosis on the left and a snapping hip due to contracture of the iliobial band on the right. In two patients the diagnosis of gluteal fibrosis had been made before their admission for foot surgery, in four patients at the time of admission and in two some years after surgery. Details of the patients are given in Table I.

RESULTS

All the children had received intramuscular injections of antibiotics into the buttocks for bacterial infections in infancy. In seven of the patients the diagnosis of sciatic nerve injury and paralytic drop foot was made at an average of 3.8 months after the injections. In one patient (case 8) the diagnosis was not made until the patient was admitted for foot surgery.

Gluteal fibrosis was diagnosed much later, at an average of 5.1 years after the injections. The clinical features were external rotation and abduction contractures of the hip.

Four children required more than one surgical procedure on the foot due to recurrence of the equinus or equinovarus deformity.

DISCUSSION

Many authors have attributed sciatic nerve palsy in infancy to the mechanical or chemical effects of intragluteal injections (Combes et al 1960; Zwierczowska and Zwierczowski 1977; Kędzierska-Polakowska, Staszewska and Piesik 1979; Zwierczowski and Zwierz-

nerve injury and paralytic drop foot and gluteal fibrosis was made at an average of 3.8 months after the injections. In one patient (case 8) the diagnosis was not made until the patient was admitted for foot surgery.

Gluteal fibrosis was diagnosed much later, at an average of 5.1 years after the injections. The clinical features were external rotation and abduction contractures of the hip.

Four children required more than one surgical procedure on the foot due to recurrence of the equinus or equinovarus deformity.

Table I. Details of eight patients with paralytic drop foot and gluteal fibrosis

<table>
<thead>
<tr>
<th>Case</th>
<th>Sex</th>
<th>Delay in diagnosis after injections</th>
<th>Gluteal fibrosis (yr mth)</th>
<th>Foot treatment</th>
<th>Age (yr mth)</th>
<th>Procedure</th>
<th>Hip treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M</td>
<td>6 days</td>
<td>2 3</td>
<td>ETA*</td>
<td>2 3</td>
<td>7 8</td>
<td>Elongation of gluteal muscles†</td>
</tr>
<tr>
<td>2</td>
<td>M</td>
<td>2 months</td>
<td>1 1</td>
<td>ETA and Japas osteotomy†</td>
<td>1 1</td>
<td>4 9</td>
<td>Gluteus maximus elongation</td>
</tr>
<tr>
<td>3</td>
<td>M</td>
<td>8 months</td>
<td>8</td>
<td>ETA</td>
<td>1 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>M</td>
<td>6 months</td>
<td>3 7</td>
<td>ETA</td>
<td>3 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>M</td>
<td>Uncertain</td>
<td>2 6</td>
<td>ETA</td>
<td>12 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>F</td>
<td>6 months</td>
<td>8 11</td>
<td>ETA and posterior capsulotomy of ankle</td>
<td>4 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>M</td>
<td>14 days</td>
<td>7 0</td>
<td>ETA and posterior capsulotomy of ankle</td>
<td>3 1</td>
<td>6 8</td>
<td>Gluteus maximus elongation</td>
</tr>
<tr>
<td>8</td>
<td>M</td>
<td>Uncertain</td>
<td>7 0</td>
<td>Japas osteotomy</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* elongation of tendon Achillis
† Japas osteotomy, a V-osteotomy of the tarsus for cavus deformity
‡ elongation of gluteus maximus and partial release of gluteus medius

ment with electrostimulation, exercises, plaster casts and orthoses, and lengthening of the tendon Achilles is usually necessary. In some cases, other surgical procedures are also required (Table I).

In our cases the sciatic palsy was usually diagnosed shortly after the nerve injury but the external rotation and abduction contracture of the hip developed gradually and was not usually recognised until several years later. This corresponds to the observations of Hang (1979) who found that gluteal fibrosis developed two to three years after the damaging injections.

After surgical correction of the deformities of the foot and despite the use of a brace when walking and splints at night, three of our patients (cases 1, 2 and 6) had recurrence of equinovarus deformity and required (or will require) further surgical correction. Recurrence may be explained by the persistent muscle imbalance between the paralysed dorsiflexors and evertors and the functioning plantar flexors and supinators, but in our

THE JOURNAL OF BONE AND JOINT SURGERY
opinion the external rotation deformity at the hip also contributes. To compensate for the external rotation of the limb, children learn to adduct and supinate the foot while walking, an action made possible by the normal strength of the plantar flexors and supinators (Fig. 1). The one patient (case 7) in whom only forefoot equinus recurred, had normal invertor, evertor and plantar flexor muscles but the tibialis anterior was completely paralysed.

Conclusion. In children with injection-induced sciatic nerve palsy, the coincidence of gluteal fibrosis should be taken into consideration early, although it may not become apparent until much later. The external rotation and abduction contracture at the hip should be corrected as early as possible, especially when the drop foot is associated with strong supinator muscles.

We wish to thank W. Marciniak, MD, PhD, Head, Department of Paediatric Orthopaedics, K. Marcinkowski University of Medical Sciences of Poznań, and G. W. Simons, MD, Chief, Department of Orthopaedic Surgery, Children’s Hospital of Wisconsin, Milwaukee, for reviewing the manuscript.

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

REFERENCES


