The Treatment of Congenital Dislocation of the Knee with the Pavlik Harness

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Summary. We have used the Pavlik harness in the treatment of congenital dislocation of the knee in six knees in five patients, with satisfactory results. We believe that the muscles in the thigh which cross both the hip and knee joints, the rectus femoris and hamstrings, play an important role in the spontaneous reduction of the joint. Full correction is not always obtained, our results are comparable with those described by other authors. We consider that the advantages of using the harness are that a spontaneous correction can be obtained, maximal correction can be obtained after three months of treatment and the method is safer than others used.

Résumé. Le harnais de Pavlik a été utilisé pour traiter la luxation congénitale du genou chez cinq malades (6 genoux), avec des résultats satisfaisants. On peut penser que les muscles de la cuisse qui croisent à la fois la hanche et le genou, droit antérieur et ischio-jambiers, jouent un rôle important dans la réduction spontanée de la luxation. Bien qu’une correction complète n’ait pas toujours été obtenue, les résultats de cette série sont comparables à ceux qui ont été présentés par d’autres auteurs. Les avantages du harnais de Pavlik sont les suivants:
- une réduction spontanée peut être obtenue,
- la correction maximale peut être atteinte après 3 mois de traitement,
- cette méthode est moins agressive que d’autres types de traitement.

Key words: Congenital dislocation of the knee, Pavlik harness

Congenital dislocation of the knee (C.D.K.) is a rare musculo-skeletal anomaly recognisable at birth. Treatment by conservative methods includes early manipulative reduction followed by cast immobilisation, physiotherapy, serial casts and skeletal traction. If conservative treatment is not sufficient to correct the deformity, open reduction is recommended. Great care must be taken to avoid the use of excessive force in knees with lateral instability. It is often difficult to reduce the dislocated knee accurately [3, 4].

The Pavlik harness is widely used and accepted in the treatment of congenital dislocation of the hip (C.D.H.) in Japan. In the treatment of C.D.H. with the Pavlik harness spontaneous reduction is obtained frequently and the incidence of aseptic necrosis of the femoral head is very low [6, 7]. The first report of the treatment of C.D.K. with the Pavlik harness was made by Ando [1]. The authors have used the Pavlik harness in 6 knees in 5 patients with satisfactory results. The purpose of this paper is to present our cases and to discuss the mechanism of reduction with the harness.

Materials and Methods

The Pavlik harness was used in the treatment of 6 knees in 5 patients between 1978 and 1980. All the patients were female and their ages ranged from 1–8 months. The right side was involved in 3 cases, the left side in 1 and both sides in another.

In 4 cases, conservative methods other than the Pavlik harness had been used first.

Results

Table 1 shows the results of treatment. Full flexion was possible in 4 knees after 1–2 months of treatment with the Pavlik harness. The other 2
knees did not gain a full range of motion but more than 120° of flexion was achieved.

Case Reports

Case 1
A 1½-month old girl was referred to us because of a right C.D.K. and right C.D.H. The pregnancy and delivery were uneventful. Her knee hyperextended to 60° and flexed to 55°. Radiographs showed anterior displacement of the tibia in relation to the femur. Treatment was begun immediately with serial plasters but discontinued after six weeks because of dermatitis around the involved knee. At the age of 4 months her knee flexed to 90° and treatment for the C.D.H. was started with the Pavlik harness. To our surprise full flexion of the knee became possible within 5 weeks after of application of the harness. Her dislocated hip was reduced manually under general anaesthesia at 11 months of age. She started to walk at 16 months and now has no clinical problems with either her knee or hip.

Case 2
A 3-months old girl was admitted with a diagnosis of right C.D.K. and right C.D.H. At birth it was noted that her right knee was held in an hyperextended and externally rotated position. She had been treated elsewhere with a splint in extension from 7 days old. When first seen her right knee hyperextended to 40° and flexed to 90°. The medial hamstrings were displaced anteriorly in relation to the femoral condyle in hyperextension, and they resumed their normal position with a palpable click when the knee was brought into flexion. The Pavlik harness was used and full flexion of her right knee was possible after two months. Closed reduction of her right hip was carried out under general anaesthesia at the age of 8 months. At 3 years old her right hip and knee were both clinically and radiologically normal.

Case 3
A girl was noted at birth to have a right C.D.K., bilateral C.D.H. and club foot. At birth she was a breach presentation and there had been a threatened abortion in the third month of pregnancy. She weighed 2,310 g and spent her first days in an incubator because of asphyxia and jaundice. Before referral to us she had undergone treatment from the second week of life with plaster casts to correct the foot and right knee. At 1 month the Pavlik harness was applied in order to treat the hips and a plaster cast applied to above the knee. When she was referred to us aged 8 months her right knee hyperextended to 10° and flexed to 70°, showing marked valgus deformity and lateral...