

---

Klinika Ortopedii Dziecięcej. Instytut Pediatrii. Akademia Medyczna w Lublinie  
Kierownik: prof. dr hab. n. med. Ignacy Wośko

Tomasz KARSKI

## Our Philosophy in the Early and Late Treatment of Congenital Hip Dysplasia

Nasza koncepcja wczesnego i późnego leczenia wrodzonej dysplazji biodra

### INTRODUCTION

Congenital hip dysplasia is mainly due to the influence of pathological forces of the so-called "ultrapositions". According to Dega (2) it belongs to a group of malformations — *vitium secundae formationis*. Also Hensinger (5) and Howorth (6) suggested that it should be termed "congenital deformation" rather than "congenital malformation". Genetically conditioned hip dysplasia occurs in 20% of children (5, 6), 5.6% (4), 18% in boys and 20% in girls (1). Etiological differences influence the method and the time of the therapy.

### EPIDEMIOLOGICAL INVESTIGATIONS

In the years 1986—1989 1200 newborns aged 1—6 days in three newborns' departments in Lublin were examined by the author. In the whole group there were noticed: 86.12% of normal hips, 6.22% of loose hips (with negative Barlow sign), 1.22% of unstable hips (with positive Barlow sign), 3.32% of hips with a slight contracture of adductor muscles but with stable hips, 3.12% of children with cerebral palsy. So only 1.22% of hips were really endangered by hip dysplasia.

### ANATOMIC VARIABILITY

The borderline between normal and dysplastic hips in newborns is difficult to define as the stability of hips changes virtually every day and so the norm has a wide range. Hip development depends directly on a child's age and the ways of nursing. For example the author saw loose hips in the children at the age of 3—5 days, to become stable in the following few days. In our 1—6 day-old newborns, excluding children with noticeable contracture of adductor muscles caused by cerebral palsy, no significant limitations of hip abduction observed.

Clinical symptoms of hip dysplasia appear as the child grows up. Clear limitation of abduction becomes very characteristic as a symptom of dysplasia from the 4th—6th week of life on.

## CLINICAL TYPES

In infants, two types of the malformation can be distinguished on the basis of clinical and ultrasound or radiological symptoms.

Type 1 — hip dysplasia with significant arrest of the roof growth with normal or almost normal abduction (dysplasia of "loose hips").

Type 2 — dysplasia with significant limitation of abduction, due to contracture of adductor muscles (3, 8). The arrest of the development of the roof's ridge is secondary and proportional to the child's age. According to the author's observations and to literature data, the second type of malformation should be called "secondary dysplasia in the syndrome of contractures". In such a syndrome we can observe torticollis on the same side, hip abductor contracture on the opposite side (9), feet deformities and other deformities.

## USEFUL DIAGNOSTIC CLINICAL SYMPTOMS

The asymmetry of skin folds in femur in a child lying on its back is not of great diagnostic significance. However, the asymmetry of skin folds in the area of buttocks and femurs in a child lying face down with flexed legs informs us very distinctly about the centration of the hip. The crease between buttock and femur in children with dysplasia is short and shallow (Fig. 1). This feature is helpful in the diagnosis and evaluation of the progress in the therapy.



Fig. 1. A child lying face down. The crease between buttock and femur on the right side is short and shallow and indicates worse centration of the dysplastic right hip

Another clinical symptom we use in the evaluation of the stabilization of the hip joint is mutual comparison of the abduction, medial rotation and lateral

rotation. If medial rotation is greater than lateral rotation, this means that the hip is primarily loose or loose in effect of the incorrect therapy.

### TREATMENT

The paper does not present the actual clinical material but rather the philosophy of our therapy of hip dysplasia.

#### Principles of the therapy of loose and unstable hips in newborns

As far as 1-3-5-day-old newborns are concerned, treatment and prophylaxis are similar or identical. Unstable hips in flexion and abduction undergo stabilization in a few days. Treatment, then, can consist in putting the child face down, wrapping in abduction position, use of baby slip, and sometimes Pavlik splint. The author finds no special difference between these appliances in this age because it is not the apparatus that cures, but the position in both abduction and flexion itself. It is especially worth recommending to keep the child face down even up to 16 hours a day. After full stabilization of the hip other physiological ways of keeping the child in abduction position are recommended, for example using abduction pants called "baby chick", until the roof's restoration is visible on the ultrasound or X-ray picture.

#### Principles of the treatment of hip dysplasia in infants

The method of treating dysplastic hips without displacement is simple. Abduction, during the treatment, should be gradually and gently enlarged. Splint treatment (Weickert, Pavlik or Koszla) should be at times interrupted to allow warm baths and to offer the legs the opportunity for physiological movement. Later, we advise physiological abduction positions such as holding the child with his legs apart, putting him face down with abducted legs or making him crawl on all fours. One should remember, however, that maximal abduction is harmful in that it leads to secondary joint looseness or *osteochondrosis capitis femoris*.

Infants with luxated but reponible hips and with severe contracture of adductors are in our Clinic treated first on the "over head extension" for the period of 3—6 weeks. We do not perform the reposition of such hips immediately and we rather do not use Pavlik splint in the beginning of the treatment in these children.

For about three years we have been introducing the reposition-redression manoeuvre in children with dysplastic hips. It consists in repeated gentle pressure over the greater trochanter or sacrum area of a child lying face down with flexed legs (Fig. 2). This manoeuvre should be repeated by the mother many times a day.



Fig. 2. A child lying face down. Gentle pressure over sacrum area improves centralization and stabilization of the hips. This manoeuvre must be performed very softly

#### TROUSERS WITH SPONGE ABDUCTION IN WALKING CHILDREN (7)\*

For 6 years our Clinic has been using abduction triangle made of sponge for walking in abduction (Fig. 3). It enables us to treat dysplasia in older, already walking children. We use the sponge triangle with such an angle which puts the let square with the dysplastic roof. In this position the head of femur presses the bottom of acetabulum and the ridge of the roof is relieved. Therefore it has better chances for development.

Children walk in these trousers for 6 months and in severe cases for 12—18 or more months. Parents agree to a long treatment because the child can avoid operation and the treatment itself is easy to apply. Children can walk, run, climb beds or armchairs, they can also walk on the ground in the open air, for instance in the country.

#### Conclusions

1. In newborns of the Lublin region the author found only 1.22% of hips really endangered by hip instability. Nevertheless, hips in these children undergo stabilization very quickly and very easily.

2. The diagnosis and treatment should begin with the first days of the child's life as at that time centralization and stabilization of the hip is very easy.

\* Submitted in the Polish Patent Office under the no P-254038.

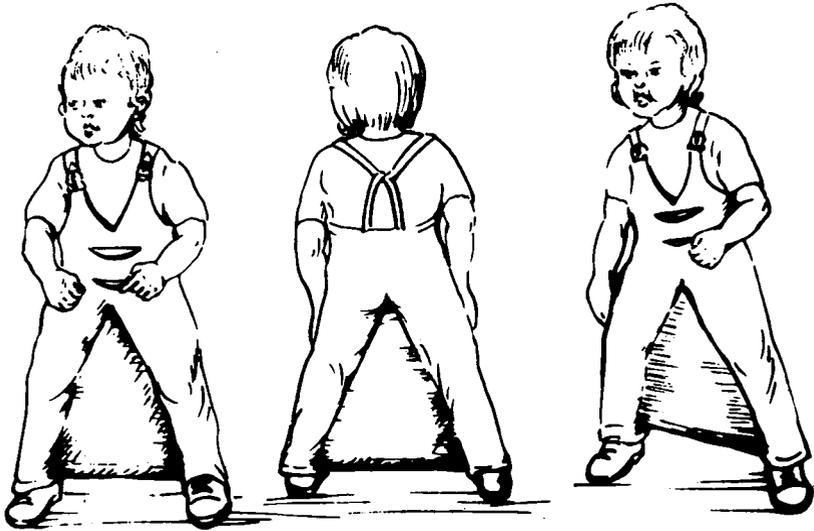


Fig. 3. A child walking in abduction position

3. In newborns treatment should be gentle and should employ physiological ways of flexion and abduction (i.e. putting the child's face down, applying Pavlik splint, etc.).

4. For children over one year with dysplasia inveterata we recommend trousers with the abduction triangle made of sponge.

5. In cases with adductor contracture at subluxated hips it is necessary to prevent osteochondrosis by hospitalizing the child and applying "over-head extension" for 2—4 weeks.

#### REFERENCES

1. Cyvin K. B.: Congenital Dislocation of the Hip Joint. *Acta Paediatr. Scand.*, Suppl. 263, 1977.
2. Dega W.: Badania z dziedziny etiologii wrodzonego zwichnięcia biodra. *Chir. Narz. Ruchu* 5 (2), 144, 1932.
3. Green N. E., Griffin P. P.: Hip Dysplasia Associated with Abduction Contracture of the Contralateral Hip. *J.B.J.S.* 9, 1273, 1982.
4. Heikkilä E.: Congenital Dislocation of the Hip in Finland. An Epidemiologic Analysis of 1035 Cases. *Acta Orthop. Scand.* 55, 125, 1984.
5. Hensinger R. N.: Congenital Dislocation of the Hip. *Clinical Symposie* 31, 1, 1973.
6. Howorth B.: Development of Present Knowledge of Congenital Displacement of the Hip. *Clin. Orthop.* 125, 68, 1977.
7. Karski T.: Zastosowanie spodni abdukcyjnych w leczeniu zastarzałej dysplazji stawu biodrowego. *Przegl. Tech. Ortop. i Rehab.* 2, 17, 1986.
8. Karski T.: Muskuläre Hüftabduktionskontrakturen bei älteren Kindern Ursachen und Behandlung. *Beitr. Orthop. Traumatol.* 34 (9), 476, 1987.
9. Mau H.: Zur Ätiopathogenese von Skoliose, Hüftdysplasie und Schiefhals im Säuglingsalter. *Zeitschrift f. Orthop.* 5, 601, 1979.

## STRESZCZENIE

Podano wyniki badań epidemiologicznych wrodzonego zwichnięcia biodra, typy kliniczne dysplazji u niemowląt oraz zasady leczenia tej wady u noworodków i niemowląt. W leczeniu dysplazji u dzieci już chodzących zaleca się stosowanie trójkąta gąbkowego wszytego do spodni. Chodzenie w „spodniach odwodzących” stwarza pomyślne szanse rozwoju dysplastycznego dachu przez odciążenie jego krawędzi. Takie leczenie, przedłużone często do 6—12, a nawet 18 mies., eliminuje potrzebę operacyjnej naprawy biodra.