

CONGENITAL DISLOCATION OF THE HIP: CLINICAL AND PARACLINICAL INVESTIGATIONS

Violeta Oriță, Marius Bucur Constantinescu, Beatrice Frumușeanu, Mihaela Golumbeanu

ABSTRACT

Congenital dislocation of the hip is a part of a large spectrum of disorders of the hip's development that can appear in different forms at different ages (DDH – development dysplasia of the hip). Dislocation is defined as a complete displacement of a joint with no contact between the acetabulum and femoral head. Other entities are subluxation defined as displacement of a joint with the same contact between the articular surfaces and dysplasia refers at the different development of the acetabulum. The factors that predispose to DDH are ligamentous laxity, prenatal positioning, postnatal positioning, racial predilection, hormonal and genetic elements. Congenital dislocation of the hip may be associated with other anomalies: torticollis, metatarsus adductus, talus valgus, oligohydramnios. Paraclinic investigation includes radiography, MRI and ultrasounds, each one with a positive diagnosis.

Key words: congenital dislocation of the hip, early age of diagnosis, radiography.

INTRODUCTION

This study analyses a group of 124 patients diagnosed with congenital dislocation of the hip and hospitalized in the Orthopaedics Department of „Grigore Alexandrescu” Children Emergency Hospital. The children are aged 0 – 3 years, the period of the study is 2002 – 2010. the study refers to patients with no other anomalies (arthrogyposis, cerebral palsy). This patients come from all regions of the country.

CASE APPROACH

1) Anamnesis:

- Heredocolateral history: if there are in the family cases of congenital dislocation of the hip or other congenital anomalies.
- Physiological personal history: problems at birth: the breech presentation, twin or multiple pregnancy, oligohydramnios due to premature rupture of the membranes or other causes, the first born is female, the weight at birth, the premature delivery.
- The clinical sign that make parents take their children to the hospital: asymmetrical thigh folds and inguinal folds, popliteal creases, inequality of lower limbs (apparent shortening of the femur), the “ click “ that the mother feels sometimes, when the children’ hip moves, the child’s limping gait when he starts walking, the excessive lumbar lordosis, the foot’s position (talus valgus frequency rare torticollis or metatarsus varus).

2) Clinical examination

A small number of patients included in the study are early aged and I felt very rarely the Barlow’s sign (attempts to subluxate or dislocate the femoral head) and Ortoland’s sign (attempt to reduce a dislocated hip).

The majority of the patients are aged over one year and the signs that I found are: inequality of lower limb (

2 – 3 inches, Galeozzi signs is positive), the child walks with gluteus medius lurch (Trendelenburg test is positive) the affected side appears shorter than the normal extremity and the child will toe-walk on the affected side, with each step the pelvis will drop as the dislocated hip adducts and the child will lean over the dislocated hip). When the dislocation is bilateral, the Trendelenburg sign is difficult to recognize.

Other clinical manifestations are: excessive lordosis, limitation of the hip’s movement (the abduction caused by adduction contracture of the hip – felt at palpation). Internal and external rotation of the dislocation hip may be normal.

3) Imaging investigation

All patients make pelvis X-rays and the markers that I follow are:

- Hilgenreiner’s line (line through the upper margin of the triradiar cartilage);
- Perkin’s line (vertical line from the most lateral ossified margin of the acetabulum roof);
- The position of the ossified nucleus of the femoral head (normally it is located in the inferior- median quadrangle – Ombredane’s Quadrangles);
- Shenton’s line (it is normal or broken);
- The acetabular index (an angle formed between Hilgenreiner’s line and a tangential line connecting the lateral ossified margin of the acetabulum’s roof);
- The center-edge angle (an angle formed at the juncture of Perkin’s line and a line connecting the lateral margin of the acetabulum to the center of the femoral head).

The pelvis X-rays are very important because the femoral head position (up or down) influence the therapeutic attitude.

The acetabular index helps to decide if you can make the pelvis osteotomy at the same time with surgical reduction of the hip's dislocation or not.

A small number of patients benefits of MRI for hip's anatomic visualization (ischemic process of the femoral

head and neck; acetabular aversion trauma of the femoral head).

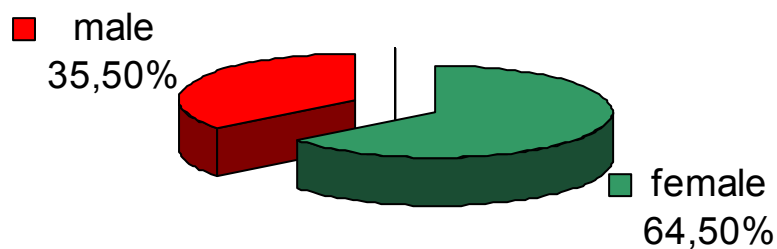
Another small number of patients does hip ultrasounds.

4) The distribution based on sex, age and unilateral/bilateral dislocation

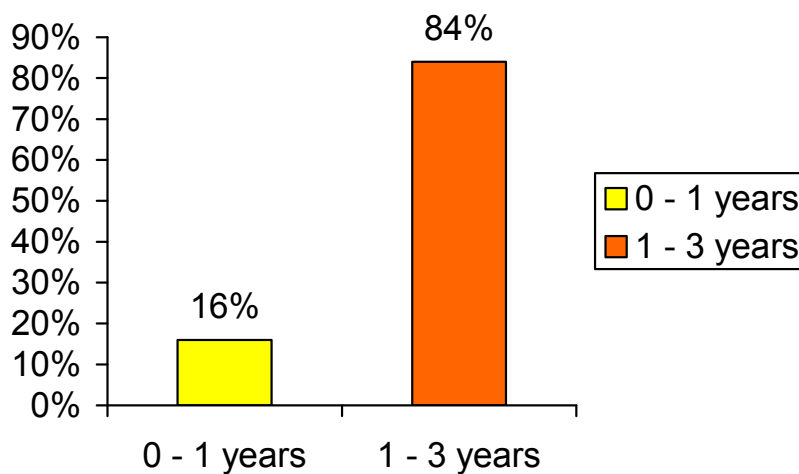
Total patients : 124

Sex	female	80
	male	44
Age	0 - 1	20
	1 - 3	104
Involvement	unilateral	92
	bilateral	32

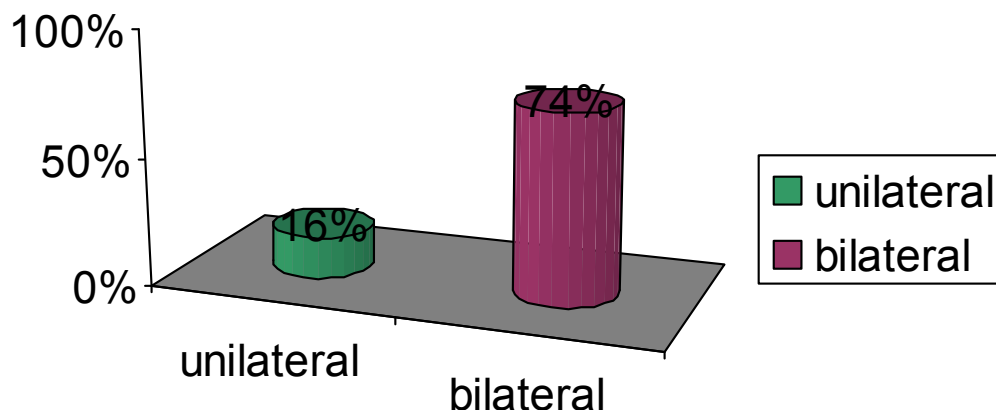
Distribution based on sex



Distribution based on age



Distribution based on involvement



SURGICAL TREATMENT

All patient have benefits after surgical reduction of hip's dislocation, but for some of them the approach is medial (perpendicular incision on the adductors; identify the capusule and then localise how the femural head moves the hip) and on other patients i spermormed Smith-Peterson approach (uses the interval between sartorius and the tensor fascia lata). In medial approach the estetics are axcellent.

In 60% of cases I proceed by pelvic osteotomy (Salter, Pemberton, Butee) and I use as a guide the acetabular index (if it is higher than normal 20° I proceed with osteotomy, if it is appropriate to normal, I do not proceed with osteotomy), the patients' age and the acetabular anteversion.

After surgery, at X-rays control I notice that some of the patients without osteotomy need it now and we performed it in another surgical time.

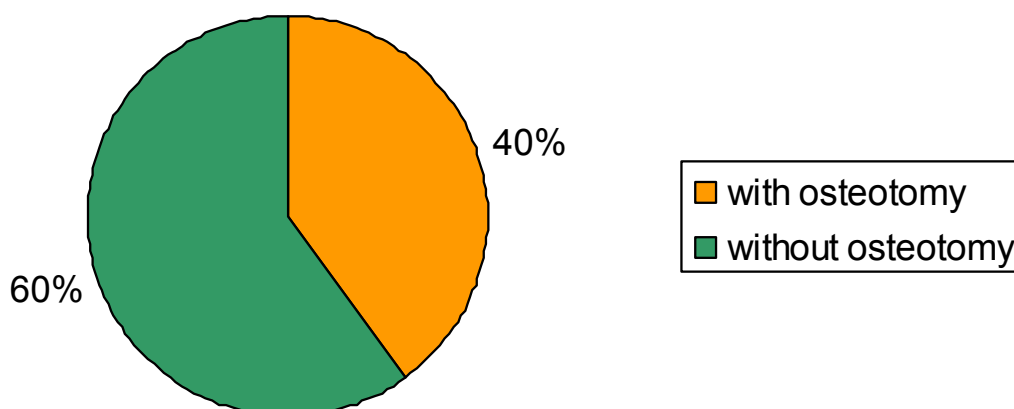


Fig 1. Initial pelvis X-ray



Fig. 2. Postoperative pelvis X-ray (without pelvis osteotomy)

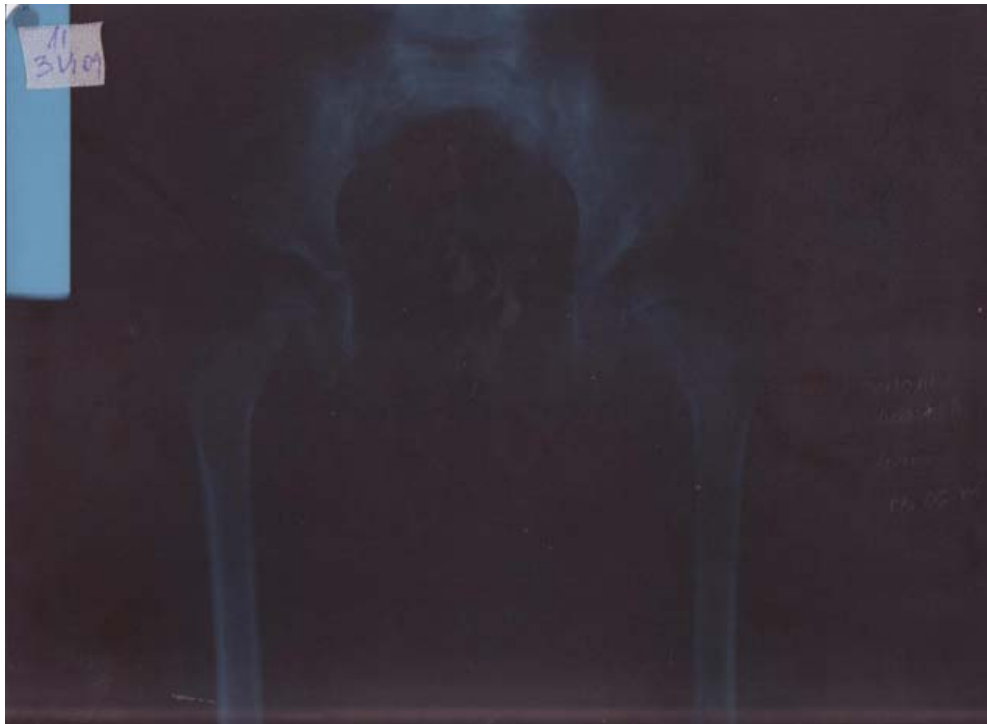


Fig. 3. Initial pelvis X-ray**Fig. 4. Postoperative pelvis X-ray (with pelvis X-ray)**

POSTOPERATIVE CARE

The patient is immobilized in a one-and-one-half spica cast for 4 – 6 weeks, then a pelvic type cast for 4 weeks (long-leg plaster connected by one bar to the hip in abduction and internally rotated), the cast allows flexion and extension of the hip (avoids the stiffness).

For 1 – 2 years, at night, the patient uses a cuff with bar of abduction, the period depends on the acetabular and femoral head's development (X-rays control). For good results the compliance of family is very important. Kinetotherapy is necessary for maintaining the muscle tone and the hip's movement.

CONCLUSIONS

Congenital hip's dislocation represents a medical emergency. The precocious diagnosis and the proper treatment avoid the traumas, the mental impact on the patient and family and the social accommodation.

It turns out that for some patients the opened reposition of the head in the acetabulum (on medical way or in anterolateral Smith-Peterson) it is not enough, being necessary also the osteotomy. That is why it has to be well thought by the surgeon, depending on the clinical and paraclinical informations, imagistic investigations, what patients benefit of the osteotomy so that it could be performed at the same time with the luxation's reduction, in the way avoiding a psychic and surgical stress of the patient and also of the surgeon, in the case that the osteotomy it is necessary (X-ray periodic controls, the acetabulum does not develop enough, big head, covered partially).

The family's compliance is very important, especially in cases of long plastered immobilizations, scarcity of care (bathing, dressing).

For well results it is necessary a team work between patient, family, orthopaedics surgeon, radiologist and kinetotherapist.

ACKNOWLEDGEMENTS

This paper is supported by the Sectoral Operational Programme Human Resources Development (SOP HRD) 2007-2013, financed from the European Social Fund and by the Romanian Government under the contract number POSDRU/107/1.5/S/82839.

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