

# Individual Research Methods for the Diagnosis of Hip Dysplasia

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**Abstract** The problems are caused by the high incidence of hip joint diseases in children (0.3-0.5%), difficulties in diagnosis and a significant percentage of unsatisfactory treatment results. The term "hip dysplasia" refers to abnormal, delayed, perverted development that can lead to subluxation and dislocation of the femoral head. Many orthopaedists and surgeons use the term "dysplasia" in a collective sense, including all anomalies - from radiologically barely perceptible underdevelopment of the roof of the joint without displacement of the femoral head to a true dislocation.

**Keywords** High incidence of hip joint diseases, Hip dysplasia, Frontal inclination

## 1. Introduction

Diagnosis and structural features of the dysplastic hip joint are devoted to. In a number of studies, the features of hip joint development from birth to 5 years have been studied, radiological signs of dysplasia have been identified, angular and linear measurements of hip joint elements have been performed, characterizing its stability and numerical indicators typical for certain age groups, which made it possible to identify deviations from the normal development of the hip joint and identify individual characteristics of articular components in each case. The reasons for this lie in the fact that the development of the degenerative-dystrophic process leads to significant violations of statics and locomotion, the severity of which depends on the prescription and severity of the disease. The strength of the hip joint muscles, especially the abductors, is sharply reduced. Due to the duration of the disease, other parts of the musculoskeletal system are involved in this process, with the formation of complex adaptive and compensatory rearrangements of not only functions, but also anatomical relationships. The changes that have occurred are estimated to limit the fulfillment of the requirements of daily life by 36%, professional activity by 67%, and social functions by 25%. So, by the time of the operation, the patient has a long-existing complex of musculoskeletal pathology. The situation is further complicated by the fact that the majority of endoprostheses are not created individually, but as a universal serial product. The great value of the method, which makes it possible to determine the underdevelopment of not only bone, but also soft tissue

and cartilaginous components of the joint [1,3,5,7].

**The aim of the study** was to study the course of the hip dysplastic process and predict the treatment outcomes of children with dysplasia, hip subluxation and dislocation. Despite the successes achieved in the diagnosis and treatment of congenital hip pathology and the mass of proposed methods of conservative and surgical treatment, the dynamics of hip joint development depending on treatment methods has not been sufficiently studied, and criteria for predicting the course and outcomes of this disease have not been determined. There is no clear information about the age limits of conservative and surgical treatment and their impact on hip joint development. Therefore, it is important to study them using multifactorial objective research.

## 2. Results and Analyses

Underdevelopment of the acetabulum in dislocation and subluxation. It indicated the presence of undulation of the contours of the upper edge of the acetabulum in normal one-year-old children. With congenital dislocation of the hip, a similar phenomenon is detected at 3-4 years of age, and later ossification is noted. The acetabulum loses its ability to develop further in conditions of dysplasia. Along with acetabulum dysplasia, there is a violation of its spatial orientation - frontal inclination. With hip dysplasia and congenital hip dislocation, there are disorders of the proximal femur. I found that the rotation of the entire proximal femur, called torsion, exacerbates the pathology. The cause of pathological torsion of the proximal femur is considered to be a change in the function of m. Ilio-psoas.

Their material has shown that if by the time treatment for congenital hip dislocation is completed, antetorsion of more than 45 ° persists. in 90% of cases, anterior subluxation occurs. An increase in the cervical-diaphyseal angle in dysplasia and

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congenital hip dislocation has been noted. It is believed that walking is an important factor in the normal development of the cervical-diaphyseal angle. Studying the X-rays of children treated in a diverting splint, we noticed that most of them had an increase in LSD on both the sick and healthy sides. He explained the mechanism of the increase in the cervical-diaphyseal angle by the weakness of the middle and small gluteal muscles, as well as the horizontal location of the epiphyseal growth zone of the femoral head. When the growth zone of the large trochanter is irritated, elongation and valgus deformation of the femoral neck are formed, and when the ossification point of the head is destroyed, the neck thickens and assumes a varus position. Normally, in all people of different ages, until the head growth zone is completely closed, its growth plate in the frontal plane is perpendicular to the mechanical axis of the trunk load, despite the difference in the size of the pelvic and hip bones. Corrective operations at the proximal end of the thigh must achieve its perpendicular position to the axis. It is believed that a flat depression leads to an increase in the cervical-diaphyseal angle. I noticed that the value of the cervical-diaphyseal angle gradually decreases starting from the age of one year. After ossification of the epiphyseal cartilage, valgization ends, and varicose veins last a lifetime [7,9,11].

Deformity of the femoral head and its underdevelopment were noted. In cases of high dislocations, the size of the ossification core significantly lags behind the norm, the shape of the femoral head may change, over the years it takes the form of a "drop" of the cap on one side, shortening and widening of the femoral neck are noted. Hip head hypoplasia in hip dysplasia increases its sensitivity to various types of injuries, including reduction, with the subsequent development of the dystrophic process. Most researchers associate the development of the dystrophic process with impaired blood supply to the femoral head as a result of vascular injury during reduction and reduced stability of the dysplastic joint. A number of authors point to the onset of compression of the femoral head as a result of prolonged, non-physiological hip position due to decentration, subluxation of the head, immobility due to prolonged immobilization, as well as significant repositioning trauma, especially with simultaneous forcible reduction. Most authors note the phasicity of the course of the dystrophic process, distinguishing from three to eight phases. The dystrophic process can develop both during the treatment of dysplasia, hip dislocation, and in the long term, which confirms the need for medical examination of children with hip dysplasia. Histological examination revealed foci of destruction, fragmentation of the ossification core. Hip joint tissues under the influence of adverse factors, such as simultaneous reduction, prolonged immobilization in a forced position. Micro- and macroscopic examination revealed that the dystrophic process of the femoral head proceeds without the phenomena of aseptic necrosis [2,4,6,8,10].

A number of stability indices have been proposed to assess the spatial relationship between the proximal femur and the acetabulum. The most important are: the orientation of the

mechanical axis of the femoral neck, which makes it possible to differentiate dislocation, subluxation, and decentration of the femoral head in the cavity; the angle of vertical alignment determines the stability of the hip joint in the vertical plane; the degree of bone coverage of the head by the roof characterizes the stability of the hip joint in the frontal plane. The degree of coverage of less than 2/3 indicates instability of the joint in the frontal plane due to lateroposition of the head, or insufficient development of the roof of the acetabulum. The magnitude of the pathological torsion of the proximal femur determines the stability of the joint in the horizontal plane.

The arthrogram shows the cartilaginous head, the arch of the acetabulum with a limbus, the bottom of the acetabulum, the capsule of the joint, its turns, and the attachment points of the capsule to the acetabulum and femoral neck. The relationship between the cartilaginous head of the femur and the acetabulum is determined. It is possible to determine the condition of the soft tissue and cartilaginous elements of the hip joint. According to the literature, the best treatment results for congenital hip dislocation, up to complete cure, can be obtained with early functional treatment from the newborn period. However, it is known that 10-20% of cases, even with early functional treatment, end in failure. The majority of clinicians attribute the failures of this treatment method to the age of initiation of treatment and the anatomical and topographic conditions of the subsequent development of the hip joint. With treatment initiated in the first half of life, the roof of the acetabulum develops in 96% of cases, from one to two years - in 55%, and over two years - in 20%. In the last twenty years, in our country and abroad, the treatment of children with congenital dislocation with "overhead" traction, which was proposed.

### 3. Conclusions

However, when the hip dislocation is corrected, it causes an increase in the angle of antetorsion. There are devices designed specifically to eliminate excessive femoral antetorsion. They provide for the fixation of the limb in the hip joint during internal rotation, which contributes to the centralization of the femoral head in the acetabulum. But this position also contributes to an increase in antetorsion due to the head resting against the posterior edge of the cavity and the formation of twisting forces at the ends of the femur.

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### REFERENCES

- [1] Abdulkhabirov M.A., Popov V.V., Dedov S.Y. Congenital hip dislocation. Textbook., Moscow, 2002, 46 p.
- [2] Gankin A.V., Alborov O.I., Chochiev G.M. Reconstruction of the supraacetabular region using bone-periosteal-muscular plastic surgery in the treatment of hip joint pathology. Relevant. issues of childhood injuries and orthopedics. Collection of abstracts, Moscow, 2001, pp. 60-62.

- [3] Gafarov H.Z. Treatment of children and adolescents with orthopedic diseases of the lower extremities. Kazan, Tatar Book Publishing House, 1995. 383 p.
- [4] Krasnov A.I. Diagnosis and tactics of surgical treatment of deformities of the proximal femur after ischemic head necrosis in the conservative treatment of congenital hip dislocation in children. Relevant. issues of childhood injuries and orthopedics. Collection of theses., Moscow, 2001, pp. 91-92.
- [5] Litenetskaya O.Y. Early diagnosis and treatment of congenital dislocation of the femur in children of the first 6 months of life. Dissertation for the degree of Candidate of Medical Sciences, Moscow. 2005, 112 p.
- [6] Musikhina I.V., Bogosian A.B., Tenilin N.A. Supraventricular osteotomy as a method of treatment of dysplastic coxarthrosis in adolescents. Relevant. issues of childhood injuries and orthopedics. Collection of abstracts., Moscow, 2001, pp. 112-113.
- [7] Fishchenko P.Ya., Trofimova Yu.A., Bositykh V.G. The effect of conservative treatment on the course of hip dysplasia. Current issues of pediatric traumatology and orthopedics. Proceedings of the scientific and practical conference, Voronezh, September 2004, pp. 294-295.
- [8] Gill TJ, Sledge JB, Muller ME: Total hip arthroplasty with use of an acetabular reinforcement ring in patients who have congenital dysplasia of the hip. *J Bone Joint Surg 80A*: 969-973, 1998.
- [9] Wagner H: Experiences With Spherical Acetabular Osteotomy for the Correction of the Dysplastic Acetabulum. In Weil UH (ed). *Acetabular Dysplasia. Skeletal Dysplasias in Childhood*. Vol. 2. Berlin, Springer-Verlag 131-145, 1985.
- [10] Wedge JH, Wasylenco MJ: The natural history of congenital disease of the hip. *J Bone Joint Surg 61B*: 334-338, 1979.
- [11] Weinstein SL: Natural history of congenital hip dislocation (CDH) and hip dysplasia. *Clin. Orthop* 225: 62-76, 1987.