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TRIPLE OSTEOTOMY OF THE PELVIS IN TREATMENT OF HIPJOINT DYSPLASIA IN CHILDREN

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Abstract. The article analyzes the results of treatment of 18 patients (22 joints) treated for residual hip dysplasia. The patients' age ranged from 7 to 14 years. Among the sick there were 6 boys, 12 girls. The patients were examined using clinical, X-ray and computed tomography methods with the construction of a three-dimensional model hip joint. The results of surgical treatment were assessed as excellent, good, satisfactory and unsatisfactory. Excellent treatment results were obtained in 4 patients. Good results were observed in 10 patients. Satisfactory results were observed in 4 patients.

Keywords. triple osteotomy, dysplasia, hip joint, coxarthrosis.

I. Introduction.

Despite the progress achieved in the diagnosis and treatment of hip dysplasia, the problem of treating residual hip dysplasia remains one of the most urgent in pediatric orthopedics. 20-50% of degenerative-dystrophic diseases of the hip joint result from residual dysplasia of the hip joint. Coxarthrosis of dysplastic genesis accounts for 60-80% of all cases of coxarthrosis [3].

A study of the literature shows that, regardless of the initial state of the joint, with increasing age of children, there is an increase in unsatisfactory and a decrease in positive outcomes. To date, the problem of surgical treatment of residual manifestations of congenital hip dislocations in older children and adolescents remains very urgent [5].

According to the established tradition, the leading methods of surgical correction of instability of the hip joint in children of the older age group and adolescents have become interventions on the proximal femur, that is, its "fit" under the dysplastic, incorrectly oriented acetabulum, while later determining the "fate"

of the joint is the state of the acetabular component [2]. With dysplastic coxarthrosis, in 80% of cases, the leading component of dysplasia is pelvic, therefore osteotomy of the femur is unable to restore normal biomechanical relationships in the hip joint [4]. Pelvic osteotomies must meet the following conditions: the congruence of the articular surfaces must be restored, the femoral head must be covered with articular hyaline cartilage, the biomechanics of the hip joint must not be disturbed, and the intra-articular pressure must not increase. The possibilities of reconstruction of the hip joint are significantly reduced after synostosis of the bottom of the cavity, which occurs at 10-12 years old. In these cases, the mobilization of the entire acetabular region is required, which is impossible without the simultaneous carrying out of suprauterine, pubic and sciatic osteotomies. In adolescence and young age, acetabular transposition after triple pelvic osteotomy is the most justified from a clinical and biomechanical point of view [1]. The complexity of the task is that the acetabular defects formed at this age: thickening of the bottom, deficiency of head coverage with a decrease in the slope of the

cavity, often close to the vertical location of the entrance to the cavity, violation of sphericity, insufficient depth of the cavity, discrepancy between its size and shape of the femoral head, initial signs of deforming coxarthrosis [6].

Purpose of the study. To study the results of using triple pelvic osteotomy in the treatment of residual hip dysplasia.

Material and methods. Our report is based on an analysis of the results of treatment of 18 patients (22 joints) treated for residual hip dysplasia. The patients' age ranged from 7 to 14 years. Among the sick there were 6 boys, 12 girls. Examination of the patients was carried out using clinical, X-ray and computed tomography methods with the construction of a three-dimensional hip joint models. The patients underwent the following surgical interventions after preliminary preparation, 9 patients underwent triple osteotomy of the pelvis according to the method proposed by Sokolovsky A.M., one patient underwent triple osteotomy with mini-arthrotomy, another 8 patients underwent triple osteotomy of the pelvis in combination with subtrochanteric corrective osteotomy of the femoral bones. Triple osteotomy of the pelvis according to the method of Sokolovsky A.M. be made from one anterior Peterson approach. During the operation, only two muscles are completely dissected: m.sartorius and m.iliopectus. The most difficult stage of the operation is the sciatic osteotomy. With osteotomy of the ischium, the depth of the wound increases, which complicates the osteotomy, as indicated by the author himself. In cases where the cervico-shaft angle is greater than 145° , the angle of antetorsion is greater than $45-50^\circ$, the isolated variant of the triple pelvic osteotomy is unable to compensate for changes in the proximal femur. In these cases, it was necessary to combine a triple osteotomy of the pelvis with a subtrochanteric osteotomy of the femur. In such cases, for osteotomies of the ischium used the technique proposed by N.M. Belokrylov, that is, they passed between the osteotomized fragments of the femur, which greatly improves the view of the ischium and makes this stage of

the operation safer. Osteotomy of the iliac and pubic bones without detachment of the periosteum can significantly reduce blood loss and reduce the invasiveness of the operation. In patients who underwent triple pelvic osteotomy with subtrochanteric corrective osteotomy of the femur after rotation of the acetabular fragment between the iliac fragments, autograft taken from the subtrochanteric region to improve the consolidation of bone fragments. The application of the principles of respect for tissues, the use of medical wax and the rational use of hemostatic drugs, the refusal of periosteal detachment can minimize blood loss during the operation. The duration of the operation ranged from 1 hour 20 minutes to 2 hours 50 minutes.

Results: Since this technique has been applied recently and we have relatively little numerical material for research, the assessment of the radiometric results of the operations performed is preliminary. The Wiberg angle before the operation was on average 12° , after the operation it averaged 26° . The degree of bone coverage before the operation was on average 0.72, after the operation in all patients it was 1. The average value of the angle of vertical correspondence before the operation was 71.5° , after the operation it was 86° . When assessing the range of motion in the operated joints after 6 months of observation, the range of motion was restored in all patients, determined prior to surgery. The results of surgical treatment were assessed as excellent, good, satisfactory and unsatisfactory. Excellent treatment results were obtained in 4 patients. Good results were observed in 10 patients. Satisfactory results were observed in 4 patients.

Conclusions: The results of the use of triple pelvic osteotomy show high resolution of triple pelvic osteotomy in the treatment of residual hip dysplasia. In cases where large changes are observed in the proximal femur, it is advisable to combine a triple osteotomy of the pelvis with a corrective osteotomy of the femur. We consider it expedient to further introduce triple pelvic osteotomy in the surgical treatment of residual hip dysplasia.

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