

TRIPLE PELVIC OSTEOTOMY IN THE TREATMENT OF CONGENITAL DISLOCATION OF THE HIP IN CHILDREN

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ABSTRACT:

The article presents an analysis of the results of treatment of 18 patients (22 joints) treated for residual hip dysplasia. The age of the patients ranged from 7 to 14 years. There were 6 boys and 12 girls among the patients. The patients were examined using clinical, radiological and computed tomographic methods, and a three-dimensional model of the hip joint was constructed. The results of surgical treatment were evaluated as excellent, good, satisfactory, and unsatisfactory. Excellent 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.

RELEVANCE:

Despite advances in the diagnosis and treatment of hip dysplasia, the treatment of residual hip dysplasia remains one of the most pressing problems in paediatric orthopaedics. 20-50% of degenerative-dystrophic hip disorders result from residual hip dysplasia. Dysplastic coxarthrosis accounts for 60-80% of all coxarthrosis cases.

A review of the literature shows that regardless of the initial condition of the joint, with increasing age of the children there is an increase in poor outcomes and a decrease in positive ones. To date, the problem of surgical treatment of residual manifestations of congenital hip dislocation in older children and adolescents remains very urgent. Traditionally, the leading methods of surgical correction of hip instability in older children and adolescents have been interventions on the proximal femur, that is, its "fitting" to a dysplastic, misaligned

acetabulum, whereas the condition of the acetabular component determines the "fate" of the joint in the future. In 80% of cases of dysplastic coxarthrosis, the pelvic component is the leading dysplastic component, so osteotomies of the femur cannot restore the normal biomechanical relationship in the hip joint. Osteotomies of the pelvis must meet the following conditions: congruence of the articular surfaces must be restored, the femoral head must be covered by articular hyaline cartilage, the biomechanics of the hip joint must not be disturbed, and the intra-articular pressure must not increase. The reconstruction possibilities of the hip joint are significantly reduced after the socket bottom synostosis, which occurs at 10-12 years of age. In these cases, mobilisation of the entire acetabular region is required, which is impossible without simultaneous suprapubic, pubic and sciatic osteotomies. Transposition of the acetabulum after a triple pelvic osteotomy is the most clinically and biomechanically feasible in adolescence and young adulthood. The challenge is that the acetabulum defects formed at this age: thickening of the bottom, lack of coverage of the femoral head with decreased inclination of the socket, often close to vertical location of the socket entrance, sphericity disorder, insufficient socket depth, discrepancy in size and shape to the femoral head, initial signs of deforming coxarthrosis.

OBJECTIVE OF THE STUDY:

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

MATERIAL AND RESEARCH METHODS:

Our study is based on an analysis of the treatment outcomes of 18 patients (22 joints) treated for residual hip dysplasia. The age of the patients ranged from 7 years to 14 years.

There were 6 boys and 12 girls among the patients. The examination of the patients was carried out using clinical, radiological and computed tomographic methods with the construction of a three-dimensional model of the hip joint. Patients underwent the following operative interventions after preliminary preparation, 9 patients underwent triple pelvic osteotomy according to the method proposed by Sokolovsky A.M., one patient had triple osteotomy supplemented with a mini-arthrotomy, another 8 patients had triple pelvic osteotomy performed in combination with a femur corrective osteotomy. Triple pelvic osteotomy according to the Sokolowski A.M. technique is performed from a single anterior Peterson access. In the course of the operation only two muscles are completely dissected: m.sartorius and m.iliopsoas. The most difficult stage of the operation is an osteotomy of the sciatic bone. With an osteotomy of the sciatic bone, the depth of the wound increases, making it difficult to perform the osteotomy, as the author himself points out. In cases where the neck-diaphyseal angle is greater than 145° and the anteversion angle is greater than $45-50^{\circ}$, an isolated triple pelvic osteotomy cannot compensate for changes in the proximal femur. In these cases, it was necessary to combine a triple pelvic osteotomy with a thigh osteotomy. In such cases, the technique proposed by Belokrylov N.M. was used for sciatic osteotomy, i.e. passing between the osteotomised fragments of the femur, which greatly improves the view of the sciatic bone and makes this stage of the operation safer. By performing osteotomies of the iliac and pubic bones without periosteum detachment, the blood loss is significantly reduced and the trauma of the operation is reduced. In patients who underwent triple pelvic osteotomy with hip corrective osteotomy, after rotation of the acetabular

fragment between the fragments of the iliac bone, an autograft taken from the area of the subiliac bone was inserted to improve consolidation of the bone fragments. Application of the principles of tissue care, use of medical wax and rational use of hemostatic preparations, rejection of periosteum detachment allowed to reduce the blood loss during the operation as much as possible. The duration of the operation ranged from 1 hour 20 minutes to 2 hours 50 minutes.

RESULTS OF THE STUDY:

Since this technique is new and we have comparatively little numerical material for the study, the evaluation of the radiometric results of the operations performed is preliminary. The preoperative Viberg angle averaged 12° and postoperatively averaged 26° . The degree of bone coverage before surgery averaged 0.72, postoperatively in all patients was 1. The mean value of the angle of vertical compliance before surgery was 71.5° , after surgery was 86° . In the assessment of the range of motion in the operated joints after 6 months of follow-up, all patients recovered the range of motion determined before surgery. The results of surgical treatment were rated as excellent, good, satisfactory and unsatisfactory. Excellent results were obtained in 4 patients. Good results were observed in 10 patients. Satisfactory results were observed in 4 patients.

CONCLUSIONS:

The results of triple pelvic osteotomy show the high resolution of triple pelvic osteotomy in the treatment of residual hip dysplasia. In cases where there are large changes in the proximal femur, it is advisable to combine triple pelvic osteotomy with corrective femoral osteotomy. We consider it advisable to further introduce triple pelvic

osteotomy in the surgical treatment of residual hip dysplasia.

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