

**Surgical methods for the treatment of Perthes disease**

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**Relevance of the problem.** Pathology of the hip joints of necrotic origin is the cause of high disability of children. Among all osteochondropathies болезнь Пертеса, according to various authors, Perthes ' disease is from 3 to 13%. Most oftenПертеса, Perthes disease affects children aged 4 to 10 years. Boys are affected 4-5 times more often than girls (Khisametdinova G. R., 2007; Dementsov A. B., Sokolovsky O. A., 2009).

Болезнь Perthes disease is one of the most common diseases of the hip joint in children, and in recent years it has become much more common. According to literature data, in the structure of orthopedic pathology, osteochondropathy of the femoral head is 0.17-3%, and among hip joint diseases in children-25-30%. The disease lasts for a long time up to 3-88 years, and 20-25% of children develop a pronounced deformity of the femoral head (Shishkin I. A., 2008; Yumaguzin U. U., 2009; Dementsov A. B., Sokolovsky O. A., 2009).

To date, the frequency of unsatisfactory outcomes of the disease remains high (from 40 to 80%), manifested by the early development of severe cocwithosteoarthritis and the onset of disability already in childhood (Mayorov A. N., 2005). The choice of treatment method for patients with остеохондропатией femoral head osteochondropathy is still debatable. There are various methods of surgical treatment of Perthes disease in the early stages.

Views on the occurrence and development of Perthes disease in children are associated with the recognition of not only the dysplastic nature of the disease, that is, violations of the correct orientation of the femoral head in the acetabulum, but also with vascular disorders in the proximal part of the thigh, leading to

degenerative-dystrophic processes in the femoral head (Shvabe L. Yu., 1987; Dzhumaniezov D. Kh., Urinbaev P. U., Ibragimov S. Yu., 2002; Aliev A. B., Herischi M. Kh., 2003).

Proponents of the theory of vascular disorders consider expedient surgical interventions aimed at restoring blood supply in the femoral head. For this purpose, the methods of femoral neck tunneling and insertion, muscle tunneling and insertion, and auto-bone tunneling and insertion are used. They consider it pathogenetically justified to create a new source of blood supply in the initial stage of the disease by implanting a vascular bundle in the femoral head. However, it is most effective in cases of preserving the sphericity of the femoral head (Shvabe L. Yu., 1987; Dzhumaniezov D. Kh., Urinbaev P. U., Ibragimov S. Yu., 2002; Aliev A. B., Herischi M. Kh., 2003).

Proponents of the theory of violation of the correct orientation of the femoral head in the acetabulum are divided into two opposite groups. The first group of orthopedists believes that the main pathology is in the proximal end of the femur and use surgical interventions aimed at restoring the centration of the femoral head by correcting femoral osteotomies in the intertrochanteric region (Tarasov V. I., Tsukanov V. E., Tarasova A.V., 1999). The second group of scientists believes that the centration of the femoral head in the acetabular cavity is most optimally achieved and allows you to completely cover the femoral head with an acetabular fragment during triple pelvic osteotomy. This prevents deformation of the head or leads to the restoration of sphericity as a result of the implementation of the principle of "permanent matrix modeling", in which the affected head takes the form of a sphericity-preserving acetabular cavity (Mayorov A. N., 2005; Dementsov A. B., 2007). But this rule is valid as long as the head is plastic, and is able to recover after correction of changes. To do this, it is necessary to diagnose the unfavorable course of Perthes disease in the initial stages, and determine the indications for surgical treatment, without slowing it down. In 1971, A. Catteral described risk signs – head at risk signs, which are essential for determining indications for early surgical treatment of Perthes

disease. A. Catteral described 5 risk signs: Gage's sign, calcification of the lateral part of the epiphysis of the head, lateral subluxation of the femoral head, horizontal position of the germ plate, cysts in the metaphysis (Catteral A., 1971, Dementsov A. B., Sokolovsky O. A., 2009).

Another group of orthopedists believe that when performing surgical treatment in the II-III stage of osteochondropathy of the femoral head, along with the risk of aggravation of the dystrophic process, residual deformities occur, which do not exclude further stages of surgical correction. In their opinion, the final one-stage correction of deformities in stage IV-V is the optimal surgical approach, provided adequate conservative treatment in the early stages of Perthes disease (Kulazhenko E. V., 2000; Gonina O. V., 2008).

**Material and methods.** Our report is based on the analysis of methods and results of surgical treatment of 3 to 4 patients treated for osteochondropathy of the femoral head in the Department of Pediatric Orthopedics of the Samarkand Regional Hospital of Orthopedics and consequences of Injuries. There were 2 boys (64.7%), 12 girls (35.3%). They were treated from 2018 years to 2020 years. According to the stage of the disease, the patients were distributed as follows: II stage II – 12 patients, III stage III-17 patients, IV stage IV-2 patients, V stage V-3 patients. As can be seen from the above data, the issue of early diagnosis of Perthes disease still remains problematic. All patients underwent clinical, laboratory, and X-ray examinations. Based on the X-ray picture and the stage of the disease, indications for a particular method of surgical intervention were determined. X-ray examination was performed in a standard anterior-posterior projection, in the Launstein position, and in indications with internal rotation and hip abduction. When the spatial relationships of the joint were close to normal, operations were performed aimed at improving the trophism of the affected head and neck of the femur. During decentration in the hip joint, operations were performed aimed at restoring normal relationships in the hip joint. The A. Catteral risk assessment method was also used to determine indications for surgical intervention.

In 29 patients (patients with stage II and III of the disease), signs of risk were identified, the most common were lateral subluxation of the femoral head and cysts in the metaphysis. Lateral subluxation of the femoral head was determined by determining the epiphyseal index. Calculations are performed on a conventional anteroposterior X-ray of the hip joint by determining the percentage ratio of the length of the loaded part of the epiphysis (X) to its total length (Y). The epiphyseal index is  $X/Y \cdot 100$ . Subluxation of the femoral head is diagnosed with an epiphyseal index of less than 90%. Its value from 80 to 89% indicates a mild subluxation, while an index value of less than 79% indicates a severe subluxation.

The patients были underwent the following types of surgical treatment: tunneling of the neck, femoral head – 1 in 10 patients. Tunneling + introduction of autologous fat into the neck and head – in 13 patients. Tunneling and insertion of the muscle leg into the tunnel – in 2 patients. Subtrochanteric corrective osteotomy was performed in 9 patients. Subtrochanteric corrective osteotomy and femoral neck tunneling were performed in 1 patient. Subtrochanteric corrective osteotomy and acetabular roof osteotomy were performed in 4 patients. Posterior rotational hip osteotomy and acetabular roof osteotomy were performed in 4 patients. All patients were placed in a hip plaster cast after surgical intervention, which was removed 4-6 weeks after the operation and the patients were treated with physiotherapy. Physiotherapy treatment consisted of: электрофорез  $KJ+CaCl_2$  electrophoresis, paraffin applications, massage of the lower limb muscles. The load on the operated limb was resolved only after X-ray restoration of the shape and structure of the femoral head.

**Conclusions:** The results of surgical treatment of Perthes disease were analyzed in 30 patients within one to two years after surgery. In 6 patients (20%), the results of treatment were evaluated as excellent, in 16 patients (53.3%), the results were evaluated as good. In the remaining 8 patients (26.7%), the results were assessed as unsatisfactory. Unsatisfactory outcome was observed in 8 cases, the first two cases were in patients after intertrochanteric corrective

osteotomy. In стадии the recovery stage , the femoral head was completely destroyed, which is associated with a violation of the orthopedic regime in the patient and in outpatient settings режима, еще у , and six more patients had hip subluxations that required additional surgical treatment.

The results of surgical treatment of children with Perthes disease depend on the correct surgical intervention, the time of surgical intervention, taking into account the severity of the disease and the spatial relationships in the hip joint. Unsatisfactory results according to the literature data are 40-80% (Mayorov A. N., 2005) and according to our data 26.7,7% (early results). The above data indicate that the early diagnosis and results of surgical treatment of Perthes disease are far from ideal, and require further study of this problem.

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