Method of Prevention of Early Dislocations of the Endoprosthesis in Patients with II-III Degree Dysplastic Coxarthrosis

Abstract: Despite the significant progress that has been made in recent years, in the development of hip replacement, endoprosthetics for dysplastic coxarthrosis, in which the number of revisions, according to various authors, ranges from 32 to 58%, remains a serious problem. Complex deformation and defects of bone tissue in the area of the acetabular component of the endoprosthesis are accompanied by a high risk of early instability and dislocations of the endoprosthesis, the frequency of which after endoprosthesis in dysplastic coxarthrosis II-III degree ranges from 5 to 11%. The problem of dislocations after hip replacement exists exactly as much as the endoprosthetics itself.

Key words: Dysplastic coxarthrosis, dislocation of the endoprosthesis, posterior capsulotomy.

Relevance: Despite the significant progress made in recent years, in the development of hip replacement, endoprosthetics in dysplastic coxarthrosis of II-III degree, in which the number of revisions, according to various authors, ranges from 32 to 58%, remains a serious problem [1,3,5,7,9,11,13,15]. Complex deformation and defects of bone tissue in the area of the acetabular component of the endoprosthesis are accompanied by a high risk of early instability and dislocations of the endoprosthesis, the frequency of which after hip replacement in dysplastic coxarthrosis ranges from 5 to 11% [2,4,6,8,10,12,14,16]. The problem of dislocations after hip replacement exists exactly as much as the endoprosthetics itself. If we assume that the era of modern endoprosthetics began in 1950-1960 with the works of G.K. McKee and J. Charnley, then dislocations, their causes and tactics of actions were discussed in the very first reports on the experience of endoprosthetics [17,19,21,23]. Many authors note that dislocations of the endoprosthesis head in dysplastic coxarthrosis occur 3 times more often than in aseptic necrosis of the femoral head and in 22.5–32% of cases are the cause of revision surgery [18,20,22]. Along with this, it should be noted that previously performed reconstructive operations for dysplasia are the cause of both instability of the endoprosthesis cup and an increase in the frequency of dislocations. Thus, the search for techniques for performing endoprosthesi surgery in dysplastic coxarthrosis, which reduce the risk of dislocation of the endoprosthesis in patients, remains an urgent problem today.
Objective: to analyze the use of the technique of posterior capsulotomy for the prevention of dislocations of the endoprosthesis in patients with dysplastic coxarthrosis of II-III degree.

Materials and methods: 66 patients with dysplastic coxarthrosis of II-III degree — 41 (52%) women and 25 (38%) men who underwent total hip replacement were under our supervision in the Department of Orthopedics and trauma consequences of the Bukhara Regional Multidisciplinary Medical Center from 2017 to 2020. Dysplastic coxarthrosis of the II degree was noted in 21 (32%) patients, of the III degree — in 45 (68%). In 42 (54%) cases, the technique of posterior capsulotomy was used during surgery, mainly with a cementless type of fixation of the endoprosthesis components. Depending on the anatomical shape of the bone marrow canal of the femur, femoral components with metaphysical, metaphysical-diaphyseal or diaphyseal fixation type were used, in 24 cases, a cement method of endoprosthetics was performed, mainly in patients with osteoporosis. A serious risk factor for postoperative early dislocation of the endoprosthesis was the tension of the joint capsule when the acetabular component was lowered, in order to achieve an optimal center of rotation.

Evaluation of the results: We evaluated the results of hip replacement in dysplastic coxarthrosis of II-III degree, taking into account the risk factors of dislocation of the endoprosthesis in this pathology, studied the features of intraoperative tactics of posterior capsulotomy aimed at preventing dislocation of the endoprosthesis. In the study group of patients with dysplastic coxarthrosis, female patients prevailed, while over the age of 50 years, pathology was noted in 32 (78%) patients, which was considered by us as an additional risk factor for dislocation of the endoprosthesis. Special attention in these cases was paid to a thorough assessment of anatomical, local data, neurological status, psychological readiness for surgery and individual preparation for postoperative behavior of patients. When assessing the nature of previously performed hip joint operations, the anatomical condition of the hip joint, the presence of a defect of the acetabulum, the volume of the defect of the anterior, upper and posterior walls were evaluated as predictors of the risk of dislocation of the endoprosthesis. The shape of the femoral head and the loss of its sphericity, as well as the cervical-diaphyseal relationship (valgus or varus position, degree of antetorsion or retrotorsion) were evaluated. These factors must be taken into account at the stage of preoperative planning, as they affect the methods of endoprosthetics [24.26.27].

Surgery technique: After spinal anesthesia. We lay the patient on his side. The limb is treated 3 times with a solution of iodine + alcohol. After that, we make a skin incision along the Harding 8-10 cm above the large trochanter, dissect the wide fascia of the thigh throughout the wound, then subperiostally separate the middle gluteus muscle from the large trochanter. Then we dislocate the femoral head. The femoral head is removed with a saw. The acetabulum is processed with cutters, after which we excise the posterior capsule. Next, we process the femoral canal. After that, we install the components of the endoprosthesis. Intraoperatively we check the presence of the volume of movement. Next, we perform hemostasis and suturing of the wound. According to our data, posterior capsulotomy is a serious factor in preventing early dislocation of the endoprosthesis. Because in patients with dysplastic coxarthrosis, the posterior capsule thickens over the years, losing its elasticity [29.30.31.33.35.37.39.41.42].

In the system of preventive measures to reduce the risk and prevent dislocations in endoprosthetics of patients with dysplastic coxarthrosis of II-III degree, attention was paid to preoperative preparation of patients, during which the nature of contracture in bilateral joint damage, the relationship with concomitant pathology of the spine and knee joints and their impact on the possible risks of dislocation of the endoprosthesis in the postoperative period was assessed. In some cases, with pronounced soft tissue atrophy at the preoperative stage, patients underwent rehabilitation treatment aimed at restoring muscle tone and increasing muscle mass in the hip joint by prescribing massage, electrical muscle stimulation. In case of bilateral hip joint lesion with dysplastic coxarthrosis, the joint
with more pronounced functional disorders and a pain component was operated on first, which were determined by an assessment of the pain threshold and a visual analog scale. Compensation for the shortening of the second, non-operated limb was carried out by selecting orthopedic shoes or pads on standard shoes. The average interval between joint operations ranged from 1 to 3 months. In the early postoperative period, for the prevention of dislocation of the endoprosthesis, all patients were put on a plaster derator for the first 10 days on the operated limb, and differentiated tactics for restoring joint function and mobility of patients were used, taking into account the postoperative risk assessment of dislocation [28,32,34,36,38,40,42].

All patients who underwent posterior capsulotomy were recommended bed rest from 1 to 2 weeks, while prescribed electrical stimulation of the thigh and lower leg muscles, isometric gymnastics, exercise therapy on an arthroban 3 times a day, lymphatic drainage massage. In the interval between passive gymnastics on the arthroban, patients were trained in the skills of active exercise therapy for the hip joint. In the late postoperative period, the stability of the endoprosthesis components, the functional state of the joint and aseptic instability were monitored. Such tactics of management of patients after endoprosthetics with dysplastic coxarthrosis allowed us to minimize the risks of dislocation of the endoprosthesis in the early stages after surgery. An analysis of the immediate and long-term results showed that dislocations of the endoprosthesis after performing 66 hip replacements in patients with dysplastic coxarthrosis occurred in 1 (1%) cases due to non-compliance with the regime.

Conclusions:

1. At the stage of preoperative planning of endoprosthetics in patients with dysplastic coxarthrosis of II-III degree, it is necessary to conduct a thorough analysis of all risk factors for dislocation of the endoprosthesis and take them into account when performing surgery.

2. Excision of the posterior capsule of the joint in patients with dysplastic coxarthrosis of II-III degree during endoprosthesis and compliance with the postoperative rehabilitation regime reduces the risk of postoperative dislocations of the endoprosthesis.

LITERATURE:


4. Акрамов В.Р.,Ахмедов Ш.Ш., Хамраев Б.У- (Эндопротезирование тазобедренного сустава при переломах шейки бедренной кости) “ПРОБЛЕМЫ БИОЛОГИИ И МЕДИЦИНЫ ” Узбекистан г. Самаркан и № 3 – 2017 (96), Стр.23-26

5. Акрамов В.Р.,Ш.Ш.,Хамраев А.Ш,Хамраев Б.У – (Тотальное эндопротезирование тазобедренного сустава и профилактика возможных осложнений) “НОВЫЙ ДЕНЬ В МЕДИЦИНЕ” Узбекистан. г. Ташкент, №4 (20) 2017, Стр.56-58

6. Акрамов В.Р., Ахмедов Ш.Ш., Хамраев А.Ш., Хамраев Б.У- (Эндопротезирование тазобедренного сустава при дегенеративно-дистрофических заболеваниях у взрослых)


33. Хамраев Б. У., Акрамов В. Р. Программа для выражения способа лечения методом блокирующего интрамедуллярного остеосинтеза при переломе бедренной кости


