



Modern Technologies of Treatment of Patients with Deforming Arthrosis of the Knee Joint

Nematov Dilshod Amrilloevich ¹

Abstract: Degenerative-dystrophic lesions of the knee joints, characterized by a violation of the configuration of the articulating articular ends of the bones, a decrease in height and a change in the shape of the joint gap, came out on one of the first places among diseases of the musculoskeletal system. Gonarthros is in 86% of cases affects people of working age, and in 6.5-14.6% it leads to disability [15].

Keywords: Deforming, osteoarthritis, knee joint, treatment.

The prevalence of gonarthros is in Uzbekistan is 112.7 per 1000 adults. The incidence of osteoarthritis increases with age and among people over 60 years of age reaches 97-100 % [5, 6, 8, 13]. Deforming osteoarthritis is characterized by polyethology and progressive course. As a result of damage to the articular cartilage, its subsequent detachment and exposure of the subchondral bone layer, foci of cyst-like reconstruction and reactive sclerosis of the articulating surfaces of the knee joint are formed, followed by a violation of the biomechanical axis of the limb [3, 12, 17, 19].

Deformity of the knee joint and adjacent limb segments of traumatic, dysplastic or idiopathic origin leads to a deviation of the load axis from the anatomical center of the knee joint and instability of the knee joint and, as a result, deterioration of the intraosseous blood flow, the development of venous congestion with intraosseous hypertension, which causes constant pain in the knee joint [4]. Excruciating pain syndrome and impaired biomechanics of joint movements lead to limited functional capabilities of the patient and a decrease in the quality of life [6]. Currently, a large number of different methods of conservative and surgical treatment of patients with gonarthros is, depending on the stage of the disease, have been developed in accordance with the classification of N. S. Kosinskaya [2] and J. Kellgren et J. Lawrence [21]. These classifications are based on the grouping of radiological signs (the shape of the joint gap, the condition of the cartilage cover and subchondral bone) and the allocation of three to five degrees of severity of the disease. Conservative therapy is used to treat early stages of defarthros is without disruption of the biomechanical axis. In severe degrees of osteoarthritis with a disturbed biomechanical axis of the affected limb, surgical intervention is indicated. Various types of osteoperforati on of the subchondral articular parts and the medullary cavity of tubular bones are widely used for decompression, revascularization and stimulation of regeneration of the cartilage covering of the articular endsoc [5, 11, 22, 24]. These methods are low-traumatic, give a good analgesic effect, affecting directly the etiopathogenetic links of the disease. With the development of endoscopic techniques, rehabilitation arthroscopic operations on the knee joints are becoming widespread in the treatment of deforming osteoarthritis [14]. In the treatment of patients with gonarthrosis with a violation of the biomechanical axis of the limb, various types of tibial osteotomies are used [7, 16, 23], followed by fixation with various bony and intraosseous metal structures [9, 18]. The use of the Ilizarov device as a means of fixing the lower leg bones after corrective osteotomy allows not only to reduce the percentage of complications during treatment, but also to correct the position of osteotomized fragments of the lower leg bones, stimulating the regeneration process[1, 5, 10, 20]. Total or single -condylar endoprosthesis are indicated in the treatment of patients with severe gonarthrosis in the late age period. This surgical intervention, saving the patient from excruciating pain, is characterized by trauma and possible complications associated with it.

This distribution by age group is a consequence of the slowly progressive nature of the course of deforming osteoarthritis, which is clinically most pronounced against the background of age-related changes in the body of patients. There were 1.5 times more women (18-60 %) than men (12-40 %). The largest group consisted of patients engaged in intellectual work-12 (40 %), industrial workers and agricultural workers – 6 (20%), pensioners – 7 (23.3%), unemployed – 5 (16.7%). The main causes of gonarthrosis in 86.7% of cases (26 patients) were metabolic and age – related changes in the joint, in 4 patients (13.3%) - various injuries of the knee joint. The majority of patients (76.7 %) had stage III deforming osteoarthritis, and 23.3% had stage III – IV deforming osteoarthritis. Concomitant somatic pathology was found in 18 patients (60 %). Of these, 78 % suffered from diseases of the cardiovascular system (hypertension, coronary heart disease). 6 (20 %) patients had disabilities, of which 4 (66.7%) were disabled in Group II, and 2 (33.3 %) were disabled in Group III. All patients (100 %) complained of severe pain syndrome, which worsened during and after physical activity. The average severity of pain at rest on the NRS-5 scale was 1.42 ± 0.08 , pain when moving in the joint- 3.42 ± 0.08 , night pain- 1.48 ± 0.08 . Upon admission to the clinic, 74.3% of patients complained of lameness, and 100% complained of reduced exercise tolerance. Impaired knee function was found in 100 % of cases (flexion on average- $68.28 \pm 2.56^\circ$, extension on average- $178.85 \pm 0.33^\circ$). Varus deformity was found in the overwhelming majority of cases-96.7 % (average varus angle- $164.55 \pm 0.49^\circ$), in one case (3.3 %) there was a hallux valgus deformity of the limb axis (170°). Soft tissue atrophy of the lower limb was 76.7 %. Additional support devices were used by 8 (26.7 %) patients: 2 (25%) of them used crutches and 5 (62.5%) used walking sticks. One patient moved in a wheelchair (12.5 %). During the survey, a decrease in the quality of life was noted in 100 % of patients. Previously, 20 (66.7%) patients were treated conservatively at the place of residence with a short-term positive effect (from 1 to 3 months), 10 (33.3 %) patients were treated independently with a weakly positive effect. Surgical treatment was carried out in two stages: the first-performing diagnostic therapeutic and rehabilitation arthroscopy of the knee joint, the second-correction of the biomechanical axis of the limb.

When examining the joint, we determined not only the degree of damage to the cartilage coating, but also revealed concomitant pathology of soft-tissue structures of the knee joint, which was diagnosed in 53.3% of cases. Thus, injuries of the internal meniscus were noted in 12 (40 %) patients, external – in 2 (6.7 %). Various degrees of anterior cruciate ligament injuries were diagnosed in 4 (13.3 %) patients, chondromic bodies – in 2 (6.7 %) patients. All patients had synovial membrane hyperplasia and varying degrees of synovial papilla hypertrophy. In case of grade II damage to the cartilage covering, the arthroscopic stage consisted in removing detached fragments of the cartilage covering, followed by mechanical treatment.

It is also possible to perform partial resection of the meniscus with the formation of a sphere and perform various types of subchondral bone osteoperforations. When performing arthroscopy of the knee joint in patients with grade II-III degenerative dystrophic process of the knee joint, a significant degree of synovial membrane hypertrophy was diagnosed. Synovial papillae filled the knee joint cavity. In the medial part of the knee joint, significant damage to the cartilage covering was detected up to the exposure of the subchondral bone. In the lateral part of the knee joint, changes in the cartilage cover are less pronounced – chondromalacia II degree. The menisci are degeneratively altered, the changes are most pronounced in the medial meniscus and in 76.5 % of patients the meniscus was presented in the form of a stump. The arthroscopic stage consisted of abrasive shaver arthroplasty, ablation, microfracturing, fenestration, partial meniscectomy and synovectomy, and removal of chondromic bodies . Tunneling of the articular surfaces of the knee joint was performed according to the prevalence and degree of cartilage damage. The arthroscopic stage was completed by washing the joint with saline solution. After 10-14 days, the second stage was performed – corrective (supracondylar, subcondylar) osteotomies of the femur, tibia, and fibula (in its lower third). Three pairs of intersecting spokes were usually carried out on three levels. The Ilizarov device was assembled from three rings. Osteotomy was performed using a chisel through a 0.5 cm skin incision along the anterior surface of the segment at the site of the intended bone section. After correcting the limb axis, the rings of the Ilizarov apparatus were connected using threaded rods, and the proximal and middle rings were connected using hinge assemblies. In the postoperative period, a

course of conservative treatment was performed, including nonsteroidal anti-inflammatory drugs, chondroprotectors, physiotherapy, and exercise therapy. In our opinion, the use of chondroprotectors, including their intra-articular administration, is appropriate. In patients with grade II gonarthrosis, Zeel – T – 2.0 No. 5 was administered intraarticularly every other day. In order to reduce the pain syndrome by replenishing the natural lubricating and cushioning functions of synovial fluid in patients with grade II – III osteoarthritis, fermatron – 2.0, No. 3 or duralan was administered intra-articularly once a week – 2.0. To demonstrate the effectiveness of the combined treatment method, we present a clinical example. Patient L., 46 years old, was admitted to the clinic of the Center with complaints of intense pain in the knee joint, which sharply worsened after minor physical exertion, lameness, limited movement in the knee joint, and deformity of the right lower limb. On admission, standard radiographs show an uneven joint gap of the knee joint, a uniform increase in subchondral sclerosis of the tibia in the medial and lateral parts of the joint up to 4 mm. Small osteophytes are detected along the lateral edges of the articular surface of the condyles of the femur and tibia up to 1-2 mm. In the lateral projection-the articular surface of the patella is uneven, minor sharpenings of the upper and lower edges of its articular surface (Fig. 5, a). On functional radiographs of the right knee joint with the lower leg: in the direct projection – a decrease in the height of the articular gap in the medial region to 1 mm (in the lateral – 8 mm). mm), varus deformation

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