

TRANSOSSEOUS OSTEOSYNTHESIS IN THE TREATMENT OF FRACTURES OF THE PROXIMAL TIBIA

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Abstract: *The treatment of fractures of the proximal tibia is at the center of surgery traumatology. A high percentage of complications and unsatisfactory functional results require the development of methods for the osteosynthesis of fractures of the proximal tibia. Various complications associated with bone regeneration, such as pseudoarthrosis and delayed fusion, occur mainly with a conservative flight. When using external fixators in the proximal part of fractures of the tibia, the probability of their association is high. The article uses the results of treatment of 132 patients with various methods. The treatment results were healed by other methods of osteosynthesis.*

Keywords: *fractures of the proximal tibia, osteosynthesis, external fixators, treatment.*

The problem of treating intraarticular fractures of long bones of the extremities remains relevant. She provided partial adverse treatment outcomes [1, 3]. Intra-articular fractures of the knee joint are serious fractures of the bones of the limbs. In this group there are fractures of the distal articular end of the tibia and proximal articular end of the tibia.

Unlike diaphyseal, the treatment of internal fractures is not a violation of consolidation, but post-traumatic deformation of the damaged joint, insufficiency of the ligamentous apparatus, joint contracture and arthrosis [2, 4]. This suggests that it is necessary to ensure compliance with the classical requirements of traumatology: accurate reposition, early function, late load. Statistics indicate that the results are achieved in conditions of multi-fractured bone fractures that form the articular surface itself [1, 3, 4].

The frequency of tibial condyle fractures is from 1,2% to 7,9% of all musculoskeletal system fractures and from 7,4% to 12% of all leg fractures [5, 6].

Active problems in the treatment of patients with proximal fractures in most cases, fractures were not widespread enough (from 10 to 54%). The most common reason for such outcomes is the incorrect rotation of the fragments, which leads to the formation of contractures in the knee joint, the development of deforming arthrosis [8]. Instability of the knee joint is formed in 5,8–28% of cases [4, 5]. Unfortunately, this leads to a large proportion of patients - from 5,9 to 9,1% - to persistent disability [6, 8].

According to numerous authors, from all to fractures and from 10 to 12,2% of all intraarticular fractures, damage, make up about 7% of all fractures of the musculoskeletal system [1, 2, 6]. In 92% of cases there is an impression of the external condyle, which is due to the anatomical features of the knee joint [2].

The mechanogenesis of the injury is due to the position in which the knee joint is located [4]. Traffic accidents - 50%, low-energy injury - reduction in the load on a person - 30%, the user of elderly patients with osteoporosis carry a risk group [5].

Adverse outcomes for treating fractures of the knee joint, according to various authors, range from 14% to 33.5%. Disability response increased from 11,1 to 34,8% (7, 8).

The aim of this research is evaluation of effectiveness of transosseous osteosynthesis in the treatment of fractures of the proximal tibia.

Material and methods.

In this work, we present the results of the treatment of 132 patients with fractures of the proximal leg bones. Over the past 10 years (2009-2019), 132 patients with various types of intraarticular fractures of the knee joint region have been held at the Department of Traumatology. The results were studied in 94 patients. Duration of observation - from 1 year to 10 years after injury. The total duration of treatment is from 4,5 to 9 months.

There were 89 men and 43 women. Fractures of the proximal leg bones are more common in people of working age. So, at the age from 21 to 50 years old there were 105 patients, in the elderly and senile age - 27 patients. In manufacturing, 29 (22%) patients were injured; as a result of road traffic accidents, 26 (19,7%) patients were injured, and 77 (58,3%) patients were injured. In 47 patients, fractures of the proximal leg bones were accompanied by multiple and combined injuries, which characterizes the severity of this contingent of patients. So, in 32 patients there was a combined trauma, in 37 patients - multiple trauma.

For a comparative analysis, a group of 68 victims was identified, whose long-term results were studied within 3 years from the moment of injury or more. The control group, comparable with those studied by age, gender and somatic status, consisted of 64 people with similar fractures, treated by other methods.

The experience of treating patients in a comparative aspect with other methods and methods has shown that the most favorable outcomes were obtained using the Ilizarov method.

The relatively low invasiveness of surgical intervention, significant repositioning and fixative properties of hardware treatment provide restoration of congruency and early restoration of joint function.

In isolated fractures of the lateral or medial condyle of the tibia without displacement of fragments, transosseous osteosynthesis is carried out as follows. The first step through a larger mass of the broken condyle is a spoke with a thrust pad. The second spoke is carried out counterclockwise to the first 40-45 degrees. Both spokes tighten in the ring support. The apparatus is being installed according to the Ilizarov method.

With displaced fractures, fragments are compared in a four-section apparatus. Distal and proximal supports are formed on the thigh and lower leg. Two intermediate supports are formed at the level of tuberosity of the tibia and condyles of the femur. Through a mixed fragment, a spoke is held with a thrust pad, by means of which reposition is carried out.

Results and discussion.

Outcomes were assessed as excellent in 67 (50,8%), good in 43 (32,6%), satisfactory in 22 (16,6%).

Almost all patients returned to their previous work and lifestyle. The obtained satisfactory outcomes in 22 are associated with severe comminuted and impression-compression fractures, which was the reason for the development of deforming arthrosis of the knee joint in the postoperative period.

Well-known and widely used methods of internal fixation have significant drawbacks, which are especially evident in the treatment of severe limb injuries. So, bone osteosynthesis requires the use of a massive fixative, as well as the implementation of a significant extent of surgical access for adequate reposition of bone fragments. This is associated with additional trauma to the soft tissues surrounding the fracture, which leads to a deterioration in the blood supply to the fracture zone and a violation of the venous and lymphatic outflows. In addition, such operations increase blood loss and increase the risk of developing fatty and

thromboembolism, as well as postoperative suppuration of wounds with the ensuing consequences (delayed consolidation, non-healing fractures, the formation of false joints, the development of osteomyelitis).

Most preferred for the treatment of multiple fractures with extensive soft tissue damage is the transosseous osteosynthesis. Its advantages are the simplicity of surgical technique, minimal soft tissue trauma, holding fixators outside the fracture area and soft tissue damage, which prevents additional circulatory disorders and reduces the risk of developing infectious complications. It is proved that early closed transosseous osteosynthesis of fractures can significantly reduce the treatment and rehabilitation of patients, and also serves as a measure of the prevention of fat embolism.

Conclusions

Based on the foregoing, we believe that with displaced and comminuted fractures of the proximal tibia, the best treatment results are obtained by the operational method. The method of transosseous osteosynthesis according to Ilizarov is currently the method of choice in the treatment of most intraarticular fractures of limb bones. Transosseous osteosynthesis techniques make it possible to achieve reposition with the elimination of all types of displacements and ensure stable fixation during the period of fusion of bone and soft tissues. In addition, the Ilizarov apparatus allows for closed osteosynthesis without causing additional trauma and without disturbing the blood circulation of the damaged segment of the limb.

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