

# Our experience of treatment of femoral fractures with locked intramedullary nailing with ChM fixators.

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**Relevance.** Currently, in the surgical treatment of fractures, the technology of low-traumatic fixation of bone fragments is being actively introduced. Preference is given to the atraumatic nature of the intervention in relation to the periosteum, bone marrow and surrounding soft tissues. From the point of view of patient rehabilitation, that method of treatment is considered as functional, which allows the management of patients without additional external immobilization, an early load on the operated limb.

The aim of this report was to study and describe the results of treatment locking intramedullary osteosynthesis of fractures of the femur with ChM fixators (ChARFIX system)

**Materials and methods.** During the period from 2017 to 2019, 33 patients with femoral fractures were treated. Among them there were 25 men (76%), 8 women (24%). The age of the victims ranged from 18 to 64 years old (average age 42 years.)

#### *Concomitant injury*

Hip fractures in 8 (24%) patients occurred as part of a concomitant injury (5 - craniocerebral injury, 2 - chest injury); in 4 (12%) patients in the form of multiple fractures (fractures of the shoulder - 2, fractures of the shin and forearm bones - 1).

#### *The nature of the damage*

In 12 (36%) patients, femoral fractures were comminuted. In 14 (42%) patients, fractures were localized in the diaphyseal part, in 9 (27%) patients in the proximal part, in 10 (30%) patients there were fractures in the distal third of the femur. 17 patients were admitted to the hospital early after the injury, from several hours to 3 days, 12 (36%) patients were admitted later. Planned admission from other medical institutions was in 4 (12%) patients.

We performed osteosynthesis by the method of open reduction through small incisions, allowing palpation and visual comparison of bone fragments, without detachment of the periosteum, intramedullary fixation with a nail and locking screws.

The technique of closed retrograde osteosynthesis, the insertion of ChM fixators from the knee joint, we used in 5 (15%) patients. In the postoperative period, additional external immobilization was performed with a posterior plaster cast for a period of 3 weeks

The healing of postoperative wounds proceeded smoothly, without any complications.



**Figure 1. Patient 31 y.o. Ds: Polytrauma. Fracture of the middle-lower third of the humerus with damage to the n.radialis. Comminuted fracture of the mid-lower third of the femur**



**Figure 2. Patient 31 y.o. Done: closed retrograde intramedullary nailing of the femur, Open intramedullary nailing of the humerus and revision of the n.radialis.**

**Results.** The results of treatment in the period from 1 to 2.5 years were studied in 27 (82%); in 24 (89%) recovered anatomical and functional results, we assessed as good - in the absence of complaints and complete restoration of function in the joints of the lower extremities. In 3 (11%) patients, the results of treatment were assessed by us as satisfactory. In 1 (3.7%) patient after bone fusion, 1.5 years after the operation, a fistula with purulent discharge of the lower third of the femur was observed. After removing the fixator and cutting off the fistulous course of purulent discharge, it stopped.

**Conclusion.** Thus, good functional results in the restoration of anatomy and the prevention of minimal rotational and other types of mixing, full consolidation can be achieved through the use of intramedullary lockable fixators of the ChARFIX system.

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