

# RESULTS OF SURGICAL TREATMENT OF PATIENTS WITH ANKLE FRACTURES

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## Abstract

Ankle fractures are one of the most common injuries of the musculoskeletal system and account for 20-24% of all skeletal injuries and 40-60% of tibial fractures; 60-80% of ankle fractures are unstable and are accompanied by confusion of fragments, dislocations and subluxations of the foot. [1,2,3,5].

## Introduction

Ankle fractures in 60-70% of cases are detected in people of working age. Despite the constant improvement of methods of surgical and conservative treatment of fractures of this localization, the number of unsatisfactory results varies according to various data, from 5 to 40% [1,2].

The incidence of disability in patients with ankle fractures remains high - from 3.1 to 39% [2,3,4].

**The aim of the study was to** analyze the results of surgical treatment of patients with ankle injuries of varying severity.

## Material and Methods

The study group included 62 patients with ankle injuries treated in the period 2022-2023.

The ages of the patients ranged from 21 to 72 years, the median age was 46.5 years. There were 41 men (66.1%), 21 women (33.9%). People of working age prevailed 47 (75.8%).

Patients in the admission department underwent standard radiographs in 3 projections: pre-posterior, anterior-posterior with internal rotation in the hip joint by 20-30° and lateral projection. X-rays in these projections were also performed on the next day after surgery and in dynamics at follow-up examinations 1, 3, 6 and 12 months after surgery, as well as after removal of metal structures.

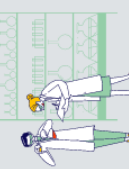
The ASIF classification was used in making the diagnosis. According to the types of fractures, the patients were distributed as follows:

B2. Fibula fracture with rupture of the intertibial syndesmosis + deltoid ligament - 20 (32.2%) patients.

B3. Transsyndesmosis fracture of the fibula with fracture of the medial malleolus - 17 (27.4%) patients.

C1. Suprasyndesmosis diaphyseal fracture of the fibula with fracture of the medial malleolus - 16 (25.8%) patients.

C2. Fracture of both ankles with rupture of the deltoid ligament in 9 (14.6%) patients.



In the treatment of patients with ankle fractures, open reduction of internal fixation with bone metal structures was used. In 13 (21%) patients, a plate was used to fix the fibula, intertibial syndesmosis was fixed on a bolt tie, in 7 patients with screws passed through the external malleolus and two cortical layers of the tibia.

In 16 (25.8%) cases, the medial bone fragment of the tibia was injured with two constricting screws, one of which was inserted through the medial fragment into the tibia at right angles to the fracture line, the other through the apex of the inner malleolus from bottom to top in an oblique direction.

In 9 (14.6%) patients with bimalleolar fractures after open reduction, osteosynthesis of the external malleolus and revision of the ligaments of the intertibial syndesmosis were performed, in patients with their complete rupture, it was fixed with a bolt-tie, then reduction and osteosynthesis of the inner malleolus were performed through an additional incision. After osteosynthesis, immobilization with a removable plaster bandage and physiotherapeutic treatment were carried out for 3 weeks in order to create optimal conditions for the healing of the soft tissue components of the ankle joint

### **Treatment Results**

An analysis of the treatment of 62 patients with ankle fractures was carried out. Within 1 to 3 years. The assessment was carried out on the basis of objective clinical and radiological examination data.

An excellent result is the absence of pain, normal walking, and a return to the previous way of life. Objective assessment: absence of swelling, deformities, restoration of movements in the ankle joint.

On X-ray, complete restoration of anatomical congruence of the ankle joint.

Good result - pain is insignificant during long walking or with excessive load.

Objective assessment - loss of range of motion in the ankle joint up to 10 degrees. The X-ray shows the restoration of the anatomical congruence of the ankle joint, insignificant phenomena of deforming arthrosis.

Satisfactory result - mild pain after walking and with load on the legs, the appearance of minor swelling in the ankle joint in the evening. Objectively, the limitation of movements in the ankle joint is more than 100-150 degrees with dorsal flexion up to 90°. The X-ray shows the phenomena of deforming arthrosis with a slight violation of the anatomical congruence of the ankle joint. Unsatisfactory result - intense pain when walking or exercising, walking with restriction, walking using a cane.

Objective assessment - constant swelling in the ankle joint, deformity with loss of range of motion in the joint more than 200°, stiffness in the lower leg joint.

The X-ray shows an anatomical violation of congruency in the ankle joint, the phenomena of deforming arthrosis and posttraumatic flat feet.

In order to prevent stiffness in the ankle joint: to improve the repair of cartilage of the articular surfaces, a set of rehabilitation measures was carried out, taking into account the individual characteristics of patients and the features of the performed metal osteosynthesis.

Physiotherapeutic procedures included the following methods: paraffin (ozokerite) application - 10 sessions; in order to reduce tissue swelling in the operated area – UHF No8-10 sessions. For the purpose of analgesic effect, amplipulse - No10 sessions were used.

In order to restore painless movements in the operated joint, passive gymnastic exercises are recommended: flexion, extension, rotational movement in the ankle joint. Exercises were carried out for the operated limb: active movements of the toes, movements in the ankle joint, which patients should perform independently. The duration of the sessions was 30 minutes, a course of 10-12 sessions of massage, which was carried out to patients according to the suction technique, using all techniques in combination with passive and active movements. The duration of the session is 15 minutes every day, the course of treatment is 15 procedures.

Of the 62 patients examined in the long term, 14 (22.5%) had an excellent treatment result, 39 (63.0%) had a good result, and 8 (13.0%) had a satisfactory result. Unsatisfactory treatment results were observed in 1 (1.5%) patient.

The largest number of satisfactory and unsatisfactory results was obtained in two-ankle fractures with displacement with destruction of the anatomical congruence of the articular surfaces.

### Findings

1. Analysis of the results of treatment of patients with intra-articular fractures of the ankle joint showed that the outcomes of treatment depend on the type and nature of the injury, the quality of bone fragment reposition with the restoration of congruence in the ankle joint. Satisfactory and unsatisfactory results were obtained in two-ankle intra-articular fractures with destruction of the articular surfaces of the ankle joint.
2. A set of rehabilitation treatments on an outpatient basis to increase the effectiveness of rehabilitation measures, ensure early recovery of joint function and improve favorable treatment results.

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