SURGICAL TREATMENT OF THE FAILURE OF THE DISTAL INTERBERTAL SYNDESMOSIS AFTER ANKLE FRACTURE (CLINICAL CASE)

Jalilov F.R.
master of the 3rd course **Nishanov E.H.**
Department of Traumatology and Orthopedics, ASMI.

Introduction. One of the reasons for the occurrence of early deforming arthrosis after damage to the ankle joint area is an untreated subluxation of the foot outwards. Recurrences of subluxation in the failure of distal interbertial syndesmosis (DIS) after treatment of ankle fractures are about 4.7%.

According to the scientific literature and the results of their own research, the most common recurrence of foot subluxation outward after surgical treatment is diagnosed in patients who have suffered suprasyndesmosis fractures of the fibula. With such an injury, as a rule, not only the ligaments that stabilize the tibial syndesmosis suffer, but also the interosseous membrane.

Recurrence of foot subluxation often occurs as a consequence of incorrect position (displacement anteriorly, posteriorly; incorrect rotation) of the fibula in the fibular tenderloin of the tibia. At the same time, the elimination of foot subluxation during surgery, followed by standard fixation of syndesmosis with one tricortical screw, unfortunately, does not always lead to the formation of sufficiently strong scars capable of to keep the "fork" of the ankle joint from expanding when loading on the limb.

As a result, despite the surgeon's reasonable satisfaction with the results of the operation, through 2.5–3 months during the control X-ray examination, the failure of the DMBS scars is revealed, leading to the expansion of the ankle joint fork and the appearance of foot subluxation outward, which can cause the development of early deforming arthrosis. The problem of insolvency of DIS scars may have a number of solutions, none of which are based on today is not a scientifically confirmed "gold standard". In our clinic, the method of shortening plastic surgery of the anterior portion of DIS, presented below, has been developed and successfully applied.

A clinical case.

Patient Z., 63 years old, without gross concomitant pathology, excessive nutrition (height – 180 cm, weight – 95 kg, BMI – 29.3), as a result of falling from the stairs, received a closed comminuted suprasyndesmosis fracture of the right fibula, rupture of the deltoid ligament, fracture of the posterior edge of the distal metaepiphysis of the tibia, rupture of the DIS, tear-off fracture of the anterior edge of the distal metaepiphysis of the tibia, subluxation of the foot outwards and posteriorly.

During the examination, flictens in the area of the ankle joint were detected, preventing the implementation of internal osteosynthesis. In order to keep the foot in the adjusted position until the healing of the integumentary tissues, temporary fixation of the ankle joint was performed using a set of rod military field.

10 days after skin healing, an operation was performed – dismantling of the external fixation apparatus, osteosynthesis of the fibula with a plate, fixation of the DMBS with a cortical screw with a diameter of 3.5 mm, fixation of the posterior edge of the distal metaepiphysis of the tibia with a screw, revision and reinsertion of the deltoid ligament .

The postoperative period proceeded without complications. External immobilization with a plaster cast was performed for 1.5 months, then a dosed gradually increasing load on the right leg was allowed. After 2.5 months, control radiographs revealed an extension of the ankle joint fork and signs of foot subluxation outward, manifested in an increase in the medial space of the ankle joint, the presence of bone resorption around the syndesmosis screw, which may indirectly indicate its "loosening".

The syndesmosis screw has been removed. On the control radiographs, the displacement of the talus bone to the outside increased, the size of the medial space of the ankle joint was 7 mm, about 2.5 times larger than on the left. With comparative computed tomography (CT) of both ankle joints has been established: the fibula is located in the tibial notch, however, it is displaced somewhat posteriorly; there is an expansion of the inter-tibial distance approximately 2 times greater than normal; there is an expansion of the medial space of the ankle joint 2-2.5 times larger by compared with the contralateral joint; there is no consolidation of the posterior edge of the distal metaepiphysis of the tibia, the posterior edge is slightly displaced outwards; the screw fixing the posterior edge of the distal metaepiphysis of the tibia passes through the tibial notch and reduces its depth by 2 mm; there is a subluxation of the foot posteriorly.

In connection with the identified complication, the patient underwent surgery for shortening the anterior portion of the DIS.

Operation technique:

1. We expose the front portion of the DIS.

2. We perform two horizontal cuts on

the upper and lower border of the anterior portion of the DIS.

The lateral edge of syndesmosis is cut off from the anterior surface of the fibula, thus forming a U-shaped connective tissue flap having a base on the anterolateral surface of the distal metaepiphysis of the tibia.

3. We stitch the flap along the edges with a strong thread and turn it inside, while there is access and the possibility of examining the DIS.

4. We remove the scars from the inter-tibial joint, trying not to damage the articulating surfaces of the tibia.

5. Extended "fork" of the ankle joint we narrow it with the help of a bone cap.

6. Using an electron-optical converter (EOP), we control the restoration of the correct ratio of the bones forming the ankle joint (elimination of subluxation).

7. Fix the achieved position with one or two quadricortical screws

8. Cut off the excess edge of the flap.

9. Stitch the corners of the flap with a thread.

10. At the level of the corners formed earlier Using a thin drill, we form 2 parallel channels in the fibula using a U-shaped flap.

11. Through the channels, we draw the threads with which the corners of the flap are sewn, pull the flap and tie the threads, sew the flap at the cut-off point on the fibula.

In the case under consideration, the screw fixing the rear edge was removed in advance, and after fixing the syndesmosis, it was re-inserted from behind in front in the correct position. In the postoperative period, CT was performed. The result: the extension of the "fork" of the ankle joint is eliminated, the block of the talus bone is in the correct position, the screws fixing the DIS and the posterior edge of the distal metaepiphysis of the tibia are carried out correctly.

Immobilization with a plaster cast was maintained for 4 weeks after revision surgery. The metered load is allowed after 6 weeks and brought to full by the 10th week after surgery. After 12 weeks, the screws fixing the DIS were removed. The patient was re-examined 4 months after the operation. There are complaints about a slight restriction of the back flexion of the foot. Radiography was performed: there is no recurrence of foot subluxation. The amplitude of movements in the ankle joint: plantar flexion – 120°, back flexion – 78. Clinical result on the AOFAS scale made 75 points. Thus, we can assume that the result of treatment is good.

Conclusions. The described technique is relatively simple in execution and does not require the use of expensive consumables. It makes it possible to visualize DIS, remove scars without damaging the articular surfaces of the shin bones, which reduces the risk of inter-tibial synostosis. The shortening plastic of the anterior portion of the DIS helps to preserve the width of the ankle joint fork after removing the screws that fix the DIS. These factors, in our opinion, make it possible to achieve better long-term functional results and reduce the risk of developing early deforming arthrosis.

LITERATURE:

1. Sagi, H.C. The Functional Consequence of Syndesmotic Joint Malreduction at a Minimum 2-Year Follow-Up / H.C. Sagi, A.R. Shah, R.W. Sanders // J. Orthop. Trauma. –2012. – Vol. 26 (7). – P.439–443.

2. Weening, B. Predictors of functional outcome following transsyndesmotic screw fixation of ankle fractures / B. Weening, M. Bhandari // J. Orthop. Trauma. – 2005. – Vol. 19 (2). – P.102–108.

3. Risk factors for post-traumatic osteoarthritis of the ankle: an eighteen-year follow-up study / A. Lübbeke, D. Salvo, R. Stern [et al.] // Int. Orthop. – 2012. – Vol. 36 (7). –P.1403–1410