

Tactics of Treatment of Severe Foot Injuries

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Annotation: Any, even minor, injury to the foot causes great discomfort, because every step gives off severe pain. At the same time, such injuries are one of the most common reasons for going to the emergency room. The human foot is a complex support and spring complex that carries the load of the whole body. In this article highlights of tactics of treatment of severe foot injuries

Key words: modern medicine, foot injuries, treatment, modern tactics, diagnostic, bones of the foot.

Ligament injuries of the foot are injuries to the ligamentous apparatus that provides stability and support to the foot. A sprain is a minor sprain or tension of the ligaments that usually occurs with moderate injuries and is usually accompanied by slight discomfort and swelling. A ligament tear is a partial rupture of a ligament, which can cause more severe pain, swelling and limited mobility of the foot. A complete ligament rupture is a serious injury in which the ligament is completely torn, which can be accompanied by severe pain, significant swelling and loss of the ability to move normally on the foot.

How to diagnose the consequences of foot ligament injuries? As the first diagnostic steps, the patient is recommended:

Make an appointment with an orthopedist.

Do an X-ray or MRI of the foot joint.

To clarify the final diagnosis, the doctor may prescribe an additional: CT scan of the foot joint.

The ligaments of the foot are strong strips of tissue that connect the various bones of the foot. They help to stabilize it, provide the necessary support for the arch of the foot. Since there are so many bones in the foot, numerous ligaments also connect them. The ligaments of the foot run all over the foot. Ligaments connect all 26 bones of the foot. Various ligaments of the foot: they pass from the toes to the heel, supporting the arch of the foot, intersect, connecting the tarsal bones in the arch of the foot, the metatarsal bones are connected.

The main task of the foot ligaments is to stabilize and maintain the arch of the foot. It is formed by bones, ligaments and tendons. The arch gives shape and structure to the foot. The ligaments of the foot help to support the weight of the body. They also absorb the shocks that the body experiences with each step.

Sprains and ruptures of the ligaments of the foot. Like other ligaments in the body, the ligaments of the foot can stretch, tear and come off. Sprains of the ligaments of the foot are less common than ankle ligament injuries. Sports involving fast, twisty movements, such as basketball, football or dancing, increase the risk of injury to the ligaments of the foot.

The prognosis of recovery after an injury to the ligaments of the foot can be different and depends on many factors, such as the type and degree of injury, the age and general health of the patient, as well as the correctness and timeliness of treatment:

Primary stage (1-2 weeks): During this period, the main goal is to relieve pain and restore normal foot function. Conservative treatment methods such as ice, foot elevation and load limitation are carried out, and anti-inflammatory and analgesic drugs are prescribed to relieve pain and inflammation.

The recovery stage (2-6 weeks): During this period, the restoration of the ligaments of the foot is active, and the patient is recommended to start physiotherapy exercises to strengthen muscles and increase mobility. Physiotherapy procedures such as ultrasound therapy or electrical stimulation may be prescribed to stimulate tissue repair.

The stage of complete rehabilitation (6-12 weeks): At this stage, the ligaments of the foot usually already heal, and the patient begins to return to normal activity. Physiotherapy and rehabilitation are continuing to restore full mobility and strength of the foot. The doctor may recommend a gradual increase in the load on the foot and participation in special exercises to strengthen muscles and ligaments.

The vastness of traumatic injuries of the foot, the lack of knowledge of them require a solution to this problem. Its solution lies in identifying the features of diagnosis and adequate treatment of various types of foot injuries.

Plantar fasciitis. Plantar fasciitis is the most common injury to the ligaments of the foot. It is also the most common cause of heel pain. The ligament of the plantar fascia stretches along the sole of the foot from the heel. When the ligament of the plantar fascia is overstressed or ruptured, inflammation leads to pain in the sole of the heel. Plantar fasciitis affects about 2 million patients per year. Plantar fasciitis develops in any patient, but certain factors increase the risk:

- high arches of the foot;
- obesity;
- repetitive shock movements, such as running;
- strained calf muscles and Achilles tendon.

Lisfranc injury is also called midfoot injury because it occurs in the Lisfranc joint in the midfoot. A fall or twisting of the ankle leads to a fracture of the bones in the Lisfranc joint and rupture of ligaments. Lisfranc's severe injuries require surgery to repair broken bones and torn ligaments. For less serious dislocations, you will have to wear a cast.

The main symptoms of injury to the ligaments of the foot, which should lead the patient to think about the need to visit a doctor:

- pain when trying to move the foot;
- stiffness in the foot;
- hypersensitivity in the toes;
- swelling of the foot and fingers;
- bone sticking out of the skin.

Where does it hurt with an injury to the ligaments of the foot

In case of injury to the ligaments of the foot, pain can occur in various areas of the foot, depending on which ligaments were damaged:

Lateral (outer) side of the foot: Pain may occur on the outside of the foot.

Medial (inner) side of the foot: Damage to the medial ligaments can cause pain on the inside of the foot.

Achilles tendon: Injury to the ligaments of the foot can sometimes affect the Achilles tendon, which leads to pain in the heel and back of the foot.

Forefoot: Damage to the anterior ligaments of the foot can cause pain in the forefoot.

Back of the foot: When the posterior ligaments of the foot are injured, pain may occur in the back of the foot and ankle.

In the whole foot: In some cases, when several ligaments are damaged or the foot has been severely injured, the pain may cover the entire foot.

Damage to the ligaments of the foot can be caused by various reasons, including:

Injury or bruises: The ligaments of the foot may be damaged as a result of a fall, impact or other injury to the foot. Active sports, especially those that require fast turns and jumps, can cause damage to the ligaments of the foot. Constant repetitive movements or incorrect foot positions, both in everyday life and in sports, can cause ligament damage.

Overstrain: Prolonged stress on the foot, especially with improper movement technique or unsuitable shoes, can lead to sprains or ruptures of ligaments. Sudden and unexpected movements that may occur, for example, while walking or running, can cause ligament damage. Acute sprains of the foot can occur if the foot twists or twists in an unnatural position.

Falling from a height: Falling from a height or unsuccessful jumps can damage the ligaments of the foot.

The consequences of injury to the ligaments of the foot can be different and depend on the degree of damage, the quality of treatment, as well as the individual characteristics of the patient:

Limited movement: Ligament damage can lead to limited movement in the joints of the foot, which makes walking and other activities difficult.

Chronic edema: Some patients may develop chronic edema in the area of damaged ligaments, which can also cause discomfort and restrict movement.

Instability of the foot: In case of serious injuries to the ligaments of the foot, instability of the foot may develop, which increases the risk of repeated injuries and impairs the functionality of the foot.

Development of osteoarthritis: Ligament damage can lead to the development of osteoarthritis, a degenerative joint disease characterized by damage to cartilage and inflammation of articular tissues.

Restriction of activity: Recovery from injury to the ligaments of the foot can take a long time, and this can lead to a restriction of the patient's activity for a certain period.

Treatment options for foot ligament injury depend on the symptoms, examination of the patient, remaining growth in his or her growth plates, and the type of ligament damage. Conservative, non-surgical treatment is most appropriate for grade 1 sprains. It includes immobilization, physical therapy and a gradual return to regular physical education and sports.

Surgical treatment is recommended for patients with grade 3 or complete rupture of the ligaments of the foot. Surgical treatment options may vary depending on the type of ligament injury.

Different types of foot injuries are common in children and adults quite often, and bruising and even a fracture can happen both on the street and at home. Athletes often suffer from bruises and sprains, and a serious wound can be obtained in the summer just by walking along the beach.

The most common causes of foot injuries:

- A sharp frontal impact (when running, sudden movement of the leg, etc.). Especially often in this case, the phalanges of the fingers suffer, fractures often occur.

- The fall of an object on the foot. In this case, the back of the foot is damaged. With such blows, serious bruises often occur, and if the object was heavy enough, complex fractures of the metatarsal bones may occur.

- Careless sudden movement. The result is most often sprains and dislocations. As a rule, we are talking about ankle damage, but in rare cases, plantar ligaments also suffer.

- A person steps on a sharp or cutting object. Injuries are very common in summer, on the beach or during any other barefoot walks. Among the most common injuries are bruised feet and open wounds. The latter are especially dangerous because they can become an entrance for infection, for example, bacteria that cause tetanus.

- Jump from a height. As a result, all types of injuries are possible, from bruising to fracture.

In fact, many people get minor foot bruises quite often. If the soft tissues are not badly damaged, and the ligaments and bones are not touched at all, then such injuries pass quickly, and the pain does not bother for more than 2 days. If the injury is serious, the following symptoms will be felt:

- Fracture: acute severe pain immediately after injury, blueness at the site of impact, swelling, sharp pain when moving, stiffness of the foot (a person begins to limp), deformity of the phalanx of the finger may be observed.

- Bruise: pain that often spreads to the entire foot, swelling, hematoma and redness, fever at the site of the injury, stiffness of movements, numbness of the foot may occur.

- Dislocation and sprain: severe pain, especially when trying to move the foot, swelling, decreased sensitivity, the victim cannot stand on his foot.

A doctor will also be required for wounds, especially if we are talking about punctures of the foot (for example, with a nail) or severe bleeding. Such wounds need to be treated properly to reduce the risk of infection. Emergency prevention is mandatory for people who have not been vaccinated against tetanus — wound treatment and administration of tetanus toxoid.

In case of any injury to the foot, before the victim gets to the doctor, he needs to be given first aid:

- Inspect the injury for open wounds.

- If there are wounds, rinse them with water, get out small parts, dirt. Then apply a clean bandage. If there is no gauze at hand, any clean cloth will do.

- Fix the foot, immobilize it as much as possible. This is done with the help of a splint (any rigid plate), which is applied to the foot, and a dressing material. Fixation will prevent displacement of bones if there is a fracture, as well as protect against aggravation of sprains or dislocations.

- A cold compress can be applied to the swelling. An ice bag is ideal, if it is not available, you can use a bottle of cold water or a cloth soaked in cold water.

It is very important to provide rest to the injured leg, so an ambulance is called to the scene. And if this is not possible, the victim is helped to get to the emergency room, while the injured foot must be held in the air, not stepped on it. Ideally, a person is carried on a stretcher.

As a rule, the bruise goes away after 2-3 weeks, dislocation and stretching may require from 1 to 4 weeks of rehabilitation, and it should take from 1 to 2 months for the fracture to heal. After removing the plaster, it is necessary to take a control X—ray - it will show whether the bones have grown together correctly, whether there are any dislocations and other things. This is especially important for the bones of the foot, since they are under increased stress every day.

Foot injuries without proper, and most importantly, timely treatment can lead to serious complications and even disability. The most dangerous in this regard are fractures of the metatarsal bones, after which the foot may deform, and lameness develops against the background of changes.

Injuries are also fraught with such consequences:

- Post-traumatic osteoarthritis (develops when cartilage is damaged).
- Hemarthrosis is a hemorrhage into a damaged joint.
- Synovitis and other joint inflammations.
- Loss of sensitivity of a part of the foot. It is observed with improper bone fusion, as well as sprains.
- If the foot was not developed during bruising and stretching (therapeutic gymnastics was not performed), it was in a fixing bandage for a long time, trophic tissue changes may develop.

Poorly treated wounds are dangerous not only by suppuration, but also by the development of tissue necrosis, up to gangrene. In severe cases, amputation of the foot may be required.

- Loss of mobility of the foot. It occurs due to improperly fused bones after fractures, with the development of inflammatory processes in the joints, etc.

In order to reduce the risk of foot injuries in sports training, where they occur especially often, you need to follow these rules:

- Choosing the right shoes for a particular sport. You will need one type of running shoes, and another type for gym classes. It is unacceptable to use ordinary shoes, as well as to engage in barefoot sports such as cycling, football, running, tennis, etc.

- Protection of the joint with a fixing bandage or bandages. It is especially important if there is a high probability of sprains.

- Warm up before training. This will reduce the risk of sprains and dislocations.

On the beach, it is necessary to wear special low—running shoes with reliable thick soles - flip-flops, flip-flops. On hikes and nature excursions, it is better to wear closed comfortable sports shoes — sneakers, sneakers, etc.

Computed tomography is a necessary diagnostic method for determining the degree and nature of damage in fractures of the calcaneus and talus bones.

Open reposition and screw osteosynthesis of talus fractures in combination with therapy of regional circulatory disorders guarantee compensation for vascular disorders. Preservation of the talus bone is advisable in small areas of aseptic necrosis, moderate pain syndrome and absence of talus prolapse. Severe pain syndrome complicated by vascular disorders and aseptic necrosis of a significant part of the talus bone with its prolapse are indications for resection astrogalectomy.

Intraarticular fractures of the calcaneus with dislocation of fragments can be fully repaired only in an open way. The use of bone grafting and immersion osteosynthesis provide the possibility of functional treatment of these fractures.

Injuries of the middle section are a frequent (36.2%) foot injury, accompanied by pronounced disorders of regional blood circulation. Computed tomography is indicated for a true assessment of the nature of fractures and displacement of fragments, and adequate preoperative planning.

In the absence of dislocation of the fragments, treatment of fractures of the middle part of the foot with a plaster cast is indicated. When shifting, a closed reposition with knitting needles can be used if there are no severe circulatory disorders of the foot. With severe circulatory disorders, open fractures, failure of closed reposition and long-standing injuries, open reposition and internal fixation of fragments with spokes and screws are necessary.

In case of metatarsal fractures, a plaster cast can be used only in the absence of dislocation of fragments and circulatory disorders of the foot. In the presence of displacement and compensated blood circulation, skeletal traction can be used for fractures of the distal metatarsal bones. When the fracture is localized in the middle and proximal third, fractures of the metatarsal bone bases and in combination with fractures of the tarsal bones, the method of non-focal osteosynthesis should be used if there are no significant circulatory disorders. Open reposition and internal fixation with spokes, plates and screws is indicated when bone damage is accompanied by circulatory disorders of the foot.

Fractures of the phalanges of the toes are often (66.9%) accompanied by dislocation of fragments, which is the reason for delayed consolidation. 29 non-fusion and formation of false joints. A closed one-stage manual reposition with knitting needles, an open reposition with screws and plates creates optimal conditions for the fusion of fractures and compensation of blood circulation.

Open injuries account for 31.2% of all foot injuries requiring inpatient treatment. The proposed classification with a point assessment of the localization, nature and depth of the wound, the area from the tissue layer and four variants of bone and joint damage allows objectifying the severity and prognosis of damage, dictates the need to expand the volume of primary surgical treatment of wounds, taking into account the reconstruction of traumatic defects.

The angiotraumatology approach to the treatment of open foot injuries expands the possibilities of successful treatment. It includes primary surgical treatment with possible complete reconstruction and strong fixation of fragments by internal or extracellular osteosynthesis and a complex of drug therapy aimed at compensating for impaired blood circulation of the injured foot. With extensive defects, the joint efforts of traumatologists and plastic surgeons can significantly expand the possibilities of preserving various departments and the entire foot.

In large orthopedic and traumatology centers, it is advisable to create departments for the treatment of injuries and diseases of the foot. Severe circulatory disorders of the foot associated with bone and joint injury require the organization of urgent angiotraumatology care for these patients, consisting in urgent closed or open reposition of fractures and dislocations and correction of existing circulatory disorders. The department should have a laboratory for assessing regional blood circulation of the foot. Computer plantography is a modern method of rapid analysis of the functional state of the foot.

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