

METHODS OF PREVENTION AND METHODS OF SURGICAL TREATMENT OF POSTTRAUMATIC PURULENT OSTEOMYELITIS OF LIMB BONES

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The purpose of the study. To choose the optimal method of skin-plastic techniques for the replacement of a skin defect in open limb fractures, to optimize the methods of treatment of post-traumatic purulent osteomyelitis.

Keywords. Purulent osteomyelitis, open fractures, skin plastic surgery.

СПОСОБЫ ПРОФИЛАКТИКИ И МЕТОДЫ ХИРУРГИЧЕСКОГО ЛЕЧЕНИЯ ПОСТТРАВМАТИЧЕСКОГО ГНОЙНОГО ОСТЕОМИЕЛИТА КОСТЕЙ КОНЕЧНОСТЕЙ

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Цель исследования. Выбрать оптимальный метод кожно-пластических методик для замещения дефекта кожи при открытых переломах конечностей, оптимизировать методы лечения посттравматического гнойного остеомиелита.

Ключевые слова. Гнойный остеомиелит, открытые переломы, кожная пластическая хирургия.

Prevention and treatment of post-traumatic osteomyelitis currently continues to be one of the most important and intractable problems in practical medicine. The development of this complication is associated with an increase in the number of suppurations after reconstructive and reconstructive operations due to increasing surgical activity and mistakes made in the treatment of closed and open fractures, including the use of various implants. One of the most severe forms of purulent complications is osteomyelitis, a chronic recurrent disease that lasts for a long time, giving a lot of complications, the frequency of which reaches 23.3–46.2 %. The results of treatment of traumatological and orthopedic patients with purulent infection remain unsatisfactory.

Osteomyelitis of the shin bones ranks second among the causes of disability due to injuries of the musculoskeletal system, second only to injuries of the hand. The

formation of false joints and defects of the tibia is detected in 15.0–50.6% of cases, and the resulting persistent anatomical and functional disorders of the limb are the cause of persistent disability in 11.6–44.9% of patients.

Post-traumatic osteomyelitis accounts for 6.5% of diseases of the organs of support and movement, represents not only a complex medical, but also an important social problem, since 78% of patients are persons of working age, and a fairly frequent combination of osteomyelitis of the lower leg with non-joints and false joints of the tibia, bone and soft tissue defects aggravates the severity of the process, lengthens the time and worsens the results treatment.

Open fractures of long bones are complicated by traumatic osteomyelitis in 5–64% of cases, most often osteomyelitis complicates the course of fractures of the lower leg (54.5%), where the most massive and extensive open injuries occur. Along with the increase in the frequency of open fractures of the shin bones, their severity increases due to damage to the bones and surrounding soft tissue formations. Such fractures are characterized by an increased risk of wound infection and the severity of the clinical course, often the results of treatment are unsatisfactory.

In literary sources, factors, contributing to the occurrence of osteomyelitis are divided into 2 groups: one includes the degree of contamination and, consequently, infection of the wound, the volume and nature of the damage; the other – the nature and quality of the operation performed for an open fracture. In this regard, the method of treating open fractures is of great importance. The increase in the frequency of postoperative osteomyelitis reflects the general trend of the growth of purulent complications after various surgical interventions.

Combination with chronic osteomyelitis various types of non-joints, false joints of the tibia and soft tissue defects significantly aggravate the course of the process, lengthens the time and worsens the results. When analyzing the treatment of patients with false joints of long bones, it was found that they occur more often when there are fractures open, infected, double, fragmented, poorly fixed, with an unstressed displacement of fragments, immobilized for insufficient time, open reposition of which was carried out incorrectly. Severity of damage to the integumentary tissues, muscles, blood vessels, nerves, suppuration after primary wound closure, intact fibula and localization of fracture in the distal third of the tibia were also important factors in the development of infection-complicated pseudoarthrosis of the tibia.

Treatment of diseases of the osteoarticular system should be comprehensive: general and local, etiotropic and pathogenetic.

MATERIALS AND METHODS OF RESEARCH

The results of treatment of 1,325 people were retrospectively and prospectively studied. The tactics of treatment of patients with posttraumatic osteomyelitis of the

upper and lower extremities for 10 years (from 2012 to 2022) in the traumatology departments of the Andijan Regional Hospital.

38.2% of patients had postoperative complications, 46.6% were victims with open fractures (fractures of the lower leg were diagnosed in 55.5% of patients, hip fractures – in 22.3%, 22.2% were open fractures of other localizations), 15.2% were diagnosed with hematogenous osteomyelitis.

The main group consisted of people of working age: from 20 to 40 years (more than 50%).

All patients were examined clinically, radiologically: 10.3% performed computed tomography, 12.8% – ultrasound examination of soft tissues.

Radical surgical treatment of the osteomyelitic cavity with simultaneous bone reconstruction was performed in 87 (6.5%) patients.

A retrospective examination of 125 victims with open limb fractures of 2-3 B and 4th degree according to Kaplan's classification was also carried out – Markova. Skin-plastic methods for closing a wound defect were used in the treatment of 44 patients.

RESULTS AND THEIR DISCUSSION

Due to the developed purulent process, 87 (6.5%) patients underwent radical surgical treatment of the bone cavity with simultaneous bone reconstruction.

To replace the formed bone cavity, a "Collapse" filling was used in 48% of cases. In the postoperative period, the postoperative wound healed initially. Remission within 1 year was 50%. Filling of cavities gives a positive result with defects of no more than 1.5–2.0 cm, when sterilization of the purulent cavity is achieved surgically.

More extensive bone defects (23%) they were sheltered using muscle plasty. As a rule, the muscles were cut out near the bone cavity. In most cases, postoperative wounds also healed initially. Remission within 1 year was 70%. A muscle flap attached to a cavity in the bone performs substitutive, hemostatic, drainage functions. A muscle flap does not contribute to bone tissue repair.

In 28.7% of cases, a bone autograft was used to replace the bone cavity and eliminate false joints accompanying osteomyelitis. Bone for transplants were cut out of the iliac crest, immersed in concentrated solutions of antibiotics or bacteriophage. After radical surgical treatment of the bone cavity, the graft tightly tamponed the cavity with a monolith or crumbs. The advantages of this method are obvious: the bone cavity is immediately replaced by bone, bone mass is increased, which subsequently acquires a strong tubular structure, prevents the risk of a pathological fracture. Remission for 2-3 years was observed in 75% of cases.

Most often osteomyelitis develops on against the background of open fractures of the extremities, especially complicates the course of fractures of the lower leg. We have treated 125 patients with open fractures of the lower leg and extensive soft tissue injuries.

All the victims underwent primary surgical treatment in the first 6-8 hours after injury. The peculiarity of surgical treatment of open fractures was its radicality and the use of skin-plastic techniques to replace a skin defect.

The primary suture for wound closure was used in 48.8% of cases. Deep necrosis was noted in 2% of patients with open fractures 2 B, C art.

The use of the primary suture was ineffective in the victims from the 3rd grade, suppuration and necrosis were noted in 45.6%. In the most severe group of patients (4 art.) who had crushing and massive skin detachment, healing by primary tension was noted in 12% of cases.

Replantation was used to close skin defects in 25% of patients leather by V. K. Krasovitev. Partial necrosis and suppuration of the wound were noted in 54% of the operated patients. In 1%, extensive graft necrosis associated with primary damage to the detached skin was detected. Free skin grafting was used in 31% of the injured. In 78%, complete or partial graft engraftment was noted.

In 6.8% of cases, a modification of the V.K. Krasovitev method was used to close the wound effect. With the flap leg intact, maintaining vascular connections the flap leg was left in connection with the mother's bed in the ratio of width to length 1:1 or 1.0:1.5, and the remaining part was processed according to V. K. Krasovitev.

In 22.7% of cases, skin grafts taken from a remote area of the body were resorted to to close the wound defect, in 10% deep necrosis of the graft was noted. Combined skin grafting in the form of a combination of local tissue grafting and graft was used in 13.6% of patients. Deep necrosis was noted in 16%.

Conclusions

The optimal way to close a skin wound after the initial surgical treatment of an open fracture leads to a decrease in necrosis and suppuration of soft tissues, and as a result – reduces the risk of acute osteomyelitis.

We have developed a scheme of indications for the use of various methods of wound closure, depending on the nature of the damage.

Radical surgical tactics for the treatment of post-traumatic osteomyelitis allows surgical sterilization of the bone cavity, and bone reconstruction - to achieve remission. With small bone defects (up to 2 cm) shows the filling of cavities with a "Collapse", and with more extensive defects, the use of the method of muscle or bone autoplasty is justified.

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