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TREATMENT OF OPEN FRACTURES OF THE BONES OF THE SHIN, COMPLICATED BY DEFECTS OF SOFT TISSUE

MAMAJANOV K. KH.
Andijan State Medical Institute

BOTIROV N.T.
Andijan State Medical Institute

JALILOV F. R.
Andijan State Medical Institute

ABDULAZIZOV O. N.
Andijan State Medical Institute

ABSTARCT:

The study retrospectively and prospectively studied the results of treatment of 42 patients with open fractures of the shin bones, complicated by soft tissue defects. Patients, conditionally divided into the control (n = 28) and the main group (n = 14), were treated at the traumatology department of the AF RSCEMP in the period from 2015 to 2019.In the treatment of patients in the study group, the identified algorithm of urgent plastic surgery of soft tissue defects in patients with open fractures of the shin bones. Used complex, that is - clinical, laboratory, radiological and statistical research methods.

SUMMARY:

The study examined the results of treatment of 42 patients with open fractures of the bones of the leg, complicated by soft tissue defects. Patients conditionally divided into the comparison group (n = 28) and the study group (n = 14) were treated in the Department of Traumatology of the AF RSCEMP from 2015 to 2019. In the treatment of patients of the study group, the identified algorithm of emergency plastics of soft tissue defects was applied. in patients with open fractures of the bones of the leg. Clinical, laboratory, X-ray and statistical methods of research were used.

RELEVANCE OF THE TOPIC:

The problem of treating victims with severe injuries of the extremities does not lose its relevance. Most often, severe injuries to the limbs are observed in road traffic accidents. Despite progress in improving the safety of vehicles that protect vital organs, at the same time, do not protect limbs from impacts, high-energy kinetic effects [1 p. 47].

Purulent-inflammatory complications in open bone fractures, according to various authors, are observed in 11-62% of cases. Their successful treatment largely depends on the timely and radically performed PST of the wound, methods of fixing the fragments and early targeted antibacterial therapy.

The results of treatment of patients with open fractures of the leg bones complicated by soft tissue defects are in most cases recognized as unacceptable. About 20 a quarter of such patients, due to severe purulent complications, in particular osteomyelitis, undergo amputation and / or disarticulation, sometimes upon admission, and sometimes on a delayed basis [2 p. 20]. In 7–22% of cases, a deep

purulent infection develops with the transition to chronic osteomyelitis [2 p. 21]. In 40%, violations of the processes of fracture healing are observed. All this leads to the fact that almost half of the victims become disabled [3 p. 341].

The reasons for such poor treatment outcomes for open fractures of the lower leg bones complicated by soft tissue defects are varied. This is largely due to the unique features of the segment. The tibia along its entire length along the anteromedial surface is covered with only a thin layer of subcutaneous fatty tissue and skin, due to which the bone is exposed even with minor injuries [4 p. 891]. The lower leg, in comparison with other parts of the body, is characterized by relatively poor nutrition of soft tissues. This feature causes a high incidence of necrosis of the integumentary tissues of the lower leg in trauma [4 p. 895].

The development of the wound process is based on the pathological effect of the etiological factor and the patient's response, which has a protective and compensatory nature.

The important role of the lymphatic system in the development and outcome of the purulent-inflammatory process has been established.

Pathogenetic remedies can prevent disease progression or make it milder. One of the directions for solving this complex problem is the development of ways to increase the effectiveness of administered drugs. In this regard, we consider the use of antibiotics by the lymphotropic method promising. At the same time, the effect of treatment is achieved from the direct effect of antibiotics on microorganisms in the lymphatic vessels, as well as from an increase in the immunological activity of lymphocytes in the lymphatic system due to lymphostimulation.

THE AIM OF THE WORK:

To determine the effectiveness and implement the methodology of emergency soft tissue plastics in persons with open fractures of the lower leg bones, in order to optimize the results of treatment and prevent secondary osteomyelitis.

RESEARCH MATERIAL:

The study retrospectively and prospectively studied the results of treatment of 42 patients who were treated in the Department of Traumatology of the AF RSCEMP in the period from 2015 to 2019 with open fractures of the shin bones complicated by soft tissue defects. The patients were conditionally divided into control (n = 28) and main groups (n = 14).

Case histories of 14 patients were subjected to prospective analysis, of which 12 (89.3%) were men and 2 (10.7%) were women. The results of treatment of 28 patients were retrospectively studied, including 22 (85.7%) men, 6 (14.3%) women.

The distribution of patients by the type of open fracture according to the Gastillo-Anderson classification was as follows: in the main group with type A fractures there were 4 (28.6%), type B - 8 (57.1%), type C - 2 (14.3 %). In the control group, patients were distributed as follows: there were 15 type A fractures (55.4%), type B - 12 (41.1%), type C - 1 (3.6%).

RESULTS AND DISCUSSION:

When analyzing the effectiveness of therapeutic measures in the main group in relation to the control group, a significant tendency towards a decrease in limitation of movements in the knee joint (21.4% versus 34.5%) and in the ankle joint (53.6% of joints 84.5) was revealed. Improvement of functions according to the LEFS scale was statistically valid and significant: 64.8 in the study group,

57.7 in the comparison group. These data, in my opinion, are sufficient indicators of effective treatment of patients with open fractures of the lower leg bones, complicated by soft tissue defects. Reducing the development of wound infection, preventing the development of a defect in the integumentary tissues, reducing the duration of treatment, improving the fusion of leg fractures, all this ultimately leads to an improvement in the function of the limb after reconstruction.

The tactics of plastic replacement of the soft tissue cover in open fractures of the shin bones depends on the general somatic condition of the patient. We have proposed the following methodology for emergency plastics of the soft tissues of the lower leg in persons with open fractures.

- Patients in stable condition are shown the use of all methods of plastic defect replacement upon admission.
- In patients in a terminal state after intensive therapy and stabilization of the condition, it is possible to use local flaps on the vascular pedicle to restore the soft tissue cover of the lower leg.
- For victims in an unstable state, operations to restore the shin cover, mainly with local flaps, should be carried out 4–5 days after the injury, in order to stabilize the general condition of the patient.
- For patients in critical condition, the restoration of the integumentary tissues of the lower leg is shown in a delayed period (by 10-15 days), after the final stabilization of the condition and treatment of associated injuries.

The choice of a specific restoration method is proposed to be carried out depending on the scale and location of the defect.

In addition, the applied complex therapy included therapeutic and prophylactic measures:

- X-ray and determination of the microflora of the wound and its sensitivity to antibiotics
- preparation of the patient for surgery (anti-shock therapy, normalization of hemodynamic parameters and preparation of the damaged segment).
- selection of an adequate method of pain relief
- radical primary surgical treatment of the wound with excision of all non-viable tissues and dissection of pockets
- adequate drainage with perforated PVC tubing
- immobilization of the injured limb with a plaster cast, skeletal traction or compression-distraction devices. At the same time, we give preference to the Ilizarov apparatus with a rod device
- improvement of microcirculation in damaged segments by regional lymphatic stimulation
- desensitizing and stimulating therapy, providing an increase in the body's immunobiological reactivity.

During follow-up observation of patients, a significant decrease in the incidence of chronic osteomyelitis was observed in the main group relative to the control group (14.3% versus 53.5%). It should be noted that the urgent restoration of the soft tissue cover in the area of the fracture of the shin bones allows preventing infection and death of bone structures, that is, avoiding a key stage in the development of chronic purulent infection.

OUTPUT:

Analysis of the results of treatment of patients with open fractures of the leg bones with extensive soft tissue injuries showed that conservative treatment of the damaged area and plastic replacement of the integument in the long term (more than 15 days after injury) lead to the development of wound infection, and as a consequence, necrosis of the tibia, contribute an increase in the duration of

treatment and a deterioration in functional results.

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