



POSTTRAUMATIC OSTEOMYELITIS

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ABSTRACT

Posttraumatic osteomyelitis is usually caused by Staphylococcus aureus, which gets into the wound directly at the moment of injury, during surgery or subsequent dressings. Usually it is chronic, but acute course is also possible. It is manifested by fever, leukocytosis, pain and signs of inflammation in the area of injury. In chronic course fistulas are formed.

ПОСТТРАВМАТИЧЕСКИЙ ОСТЕОМИЕЛИТ

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ABSTRACT

Посттравматический остеомиелит как правило, вызывается золотистым стафилококком, попадающим в рану непосредственно в момент повреждения, во время операции или последующих перевязок. Обычно протекает хронически, но возможно и острое течение. Проявляется повышением температуры, лейкоцитозом, болями и признаками воспаления в области травмы. При хроническом течении образуются свищи.

Introduction. Posttraumatic osteomyelitis is a purulent inflammation of all bone elements resulting from trauma.

Posttraumatic osteomyelitis (from Latin osteon bone - myelos bone marrow - itis inflammation) is one of the most serious complications that occur after open skeletal injuries and bone surgeries. According to various data, it develops after open fractures in 15-49% of



cases and after surgical interventions in 3% of cases. It can be detected in people of any gender and age. The likelihood of occurrence increases with severe injuries with bone destruction and extensive damage to soft tissues, intense microbial contamination, untimely or inadequate surgical treatment, the presence of concomitant injuries and diseases that reduce the body's resistance and aggravate the general condition of the patient.

The causes of posttraumatic osteomyelitis in open fractures are extensive lesions of the soft tissues surrounding the bone, intense contamination of the wound, insufficiently radical or too late primary surgical treatment, and the absence of drainage for the outflow of contents. In addition, the likelihood of suppuration increases in cases where the bone is located close to the skin and poorly protected by soft tissues (for example, the antero-inner lateral surface of the tibia).

Postoperative osteomyelitis is associated with infection of the wound during surgery. It is assumed that the increase in the number of suppurations after surgical interventions in recent years is due to the widespread use of osteosynthesis, as well as the emergence of new strains of pathogenic microorganisms resistant to antibiotics.

Factors that increase the risk of developing osteomyelitis after surgery include:

- excessive trauma to soft tissues;
- unstable or insufficient osteosynthesis;
- corrosion of metal structures;
- presence of foci of latent infection in the patient's body.

A variation of this form of osteomyelitis is spoke osteomyelitis – local suppuration of the bone during installation of the Ilizarov apparatus or application.

All types of post-traumatic osteomyelitis are not a local process, but a disease of the whole organism, since they arise under the influence of a combination of general and local factors and cause damage to various organs and systems, including those located far from the purulent focus. With osteomyelitis, all elements of the bone become inflamed: bone marrow, periosteum and compact substance, as well as surrounding soft tissues, but the primary inflammation is caused by the penetration of pathogenic microorganisms into the bone marrow.

In patients with open bone injuries, the inflammation zone with suppuration is usually limited to the fracture area, sometimes marginal osteomyelitis develops. In case of extensive skin defects and comminuted fractures, extensive purulent processes are observed, affecting both the entire bone and the surrounding soft tissues. In case of post-traumatic osteomyelitis, inflammation is localized in the area of surgical intervention, the purulent process spreads along the metal structure (pin, nail, plate).

Classification of posttraumatic osteomyelitis.

In modern traumatology and orthopedics, the following types of post-traumatic osteomyelitis are distinguished:

- Actually post-traumatic – developing with open fractures;
- Gunshot - arising after gunshot wounds;
- Post-traumatic - developing after operations.

Symptoms of post-traumatic osteomyelitis.



The pathology is characterized by a chronic course (chronic osteomyelitis). There is an increase in temperature, blood tests reveal increasing leukocytosis. The wound area is edematous, hyperemic, painful, pus is released from the wound. After opening and drainage, the inflammatory phenomena subside, the amount of purulent discharge decreases, a fistula is formed in the area of the postoperative wound without a tendency to spontaneous healing. In the acute variant of post-traumatic osteomyelitis, intense pain, an increase in temperature to febrile numbers, phenomena of general intoxication, significant edema, accelerated ESR, pronounced leukocytosis and increasing anemia are noted.

Diagnostics. The first radiographic signs appear only a month after the onset of the disease. The images reveal corroded ends of bone fragments, sequestrs and foci of destruction, as well as osteoporosis around metal structures (if any). In gunshot osteomyelitis, narrowing of the bone marrow canal, more pronounced periosteal layers and an osteosclerosis zone are observed. The presence of bone cavities is possible. Metal fragments are sometimes visible in the surrounding soft tissues.

Treatment of post-traumatic osteomyelitis.

The main objective of treatment is the complete elimination of the purulent focus and the elimination of inflammation. The main method of treatment is surgical - opening and drainage. The issue of removing metal structures is decided on an individual basis. In localized forms, osteosynthesis can be preserved. In case of suppuration along the intraosseous pins, their removal with subsequent installation of the Ilizarov apparatus is indicated. During surgery, intravenous or intraosseous administration of antibiotics is used.

To ensure stable outflow, active drainage systems are installed, and constant aspiration of wound discharge is performed. The area of suppuration is irrigated with nitrofurazone preparations or antibiotics. All therapeutic measures are carried out against the background of antibiotic therapy, carried out taking into account the sensitivity of the pathogen. In case of extensive foci of suppuration and severe general intoxication, antibiotics are administered intravenously or intra-arterially. Immobilization and UHF therapy are used.

Prognosis and prevention. The prognosis for posttraumatic osteomyelitis depends on the severity of the lesion, the timeliness and sufficient radicality of treatment, the patient's age, the presence of concomitant injuries and diseases, etc. The outcome may be a bone defect, pseudoarthrosis, shortening or angular deformation of the limb. The formation of long-term non-healing fistulas is possible. Due to the mobility of fragments in the area of damage, the infection often spreads through the bone, which complicates fracture stabilization and prevents the consolidation of fragments.

The probability of complete recovery decreases in chronic forms of post-traumatic osteomyelitis, which is caused by trophic disorders, bone dystrophy and deficiency of full-fledged soft tissues in the area of the purulent focus. Prevention consists of preventing injuries, early adequate treatment of wounds and open fractures, reasonable performance of surgical interventions, and compliance with surgical technique.

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