

RATIONAL METHODS OF THE IMPROVING OF THE TREATMENT OF CYSTIC FORMATIONS IN LONG TUBULAR BONES

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Abstract. The method of treatment consists of performing surgical intervention in the amount of excochlation and replacing the defect with exchangeable osteoplastic materials: autologous bone grafting, medical cement, collopan, Bone graft were used.

We used the endoscopic method in the surgical treatment of cystic formations of long tubular bones of the skeleton to monitor the radicality of surgical intervention. For the endoscopic method, the arthroscopic device “STORE” and BIOS instruments were used.

Using a minimally invasive method, we performed radical operations on all patients with cystic formations of the long bones of the skeleton. The follow-up period ranged from 6 months to 2 years. During this observation period, no recurrence of cystic formations was recorded. Only in one case was a fracture noted at the level of osteoplastic surgery.

Using the endoscopic method, we visualized the pathological focus - a cyst-shaped cavity with minimal damage to soft tissue and bone structures, against the background of radical surgical treatment.

Thus, the use of the endoscopic method for the treatment of patients with cystic formations of long bones of the skeleton allows for minimal access and damage to bone and soft tissue structures, thereby allowing for radical surgery.

Keywords: long tubular bone, cystic formation, neck-trochanteric part, femur, osteosynthesis.

Bone cysts according to the international histological classification belong to tumor-like diseases. Currently, bone cysts are treated as local forms of osteodystrophy, based which lies in the disturbance of local homeostasis in rapidly growing part of the bone and manifesting biochemical increased activity of lysosomal enzymes, fibrinolytic activity cystic contents) and pathophysiological (impaired microcirculation with increased intraosseous pressure) shifts. The basis of the pathogenesis of bone cysts is impaired drainage interstitial fluid during the period of rapid growth, which, in turn, leads to disruption venous outflow, cavity formation and disappearance of bone substance [1, 2].

The range of therapeutic benefits for this disease is quite wide: from multi-stage conservative puncture treatment, radiation therapy to radical surgical methods (excochleation, marginal and segmental resection, removal of the articular ends of long bones from using various osteoplastic materials).

In clinical practice in the treatment of cystic formations of the femur cervical and trochanteric localization there are certain difficulties in re-creation of normal bone relationships fragments after resection in this area. Existing methods of surgical treatment consist mainly of extensive resection of the affected area of the bone, allo-

and autoplasty of the defect and fixation of fragments with various types of extraosseous and intraosseous fixators. In this case, it is recommended to carry out the load on the limb only 6-7 months after surgery, and its degree depends on the stage of transplant reconstruction. However, the use of transplants often complicated by their rejection, fracture or a relapse of the disease, and when installing a metal fixation - destruction of the femoral head and its lysis. In addition, the use of an internal fixator requires repeated surgery interventions to remove it [3-5].

The method of treatment consists of performing surgical intervention in the amount of exochelation and replacing the defect with exchangeable osteoplastic materials: autologous bone grafting, medical cement, collopan, Bone graft were used.

We used the endoscopic method in the surgical treatment of cystic formations of long tubular bones of the skeleton to monitor the radicality of surgical intervention. For the endoscopic method, the arthroscopic device "STORE" and BIOS instruments were used. Indications for surgery is: lack of positive dynamics of reparative processes in the pathological focus during

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conservative treatment; dynamic increase in the size of the destruction focus; repeated pathological fractures or the threat of their occurrence; presence of segment deformities with shortening or without it; relapses after previously performed surgical interventions.



Figure 1. Clinical case: Patient X.X. with diagnosis Cystic formation of the middle third of the right humerus

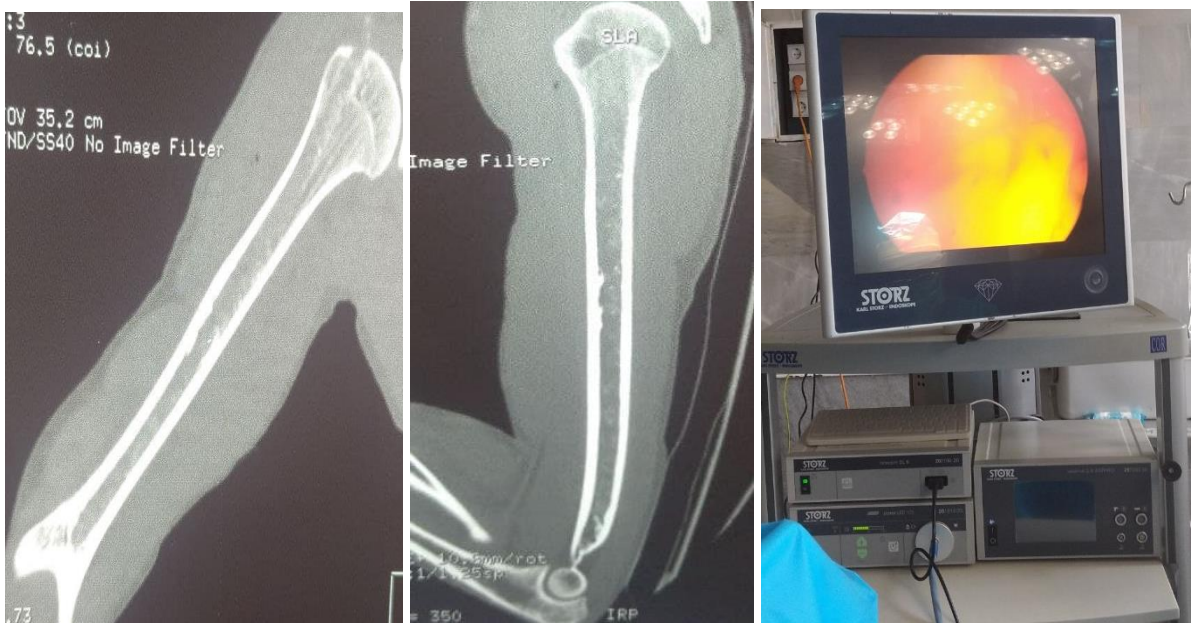


Figure 2. After the operation

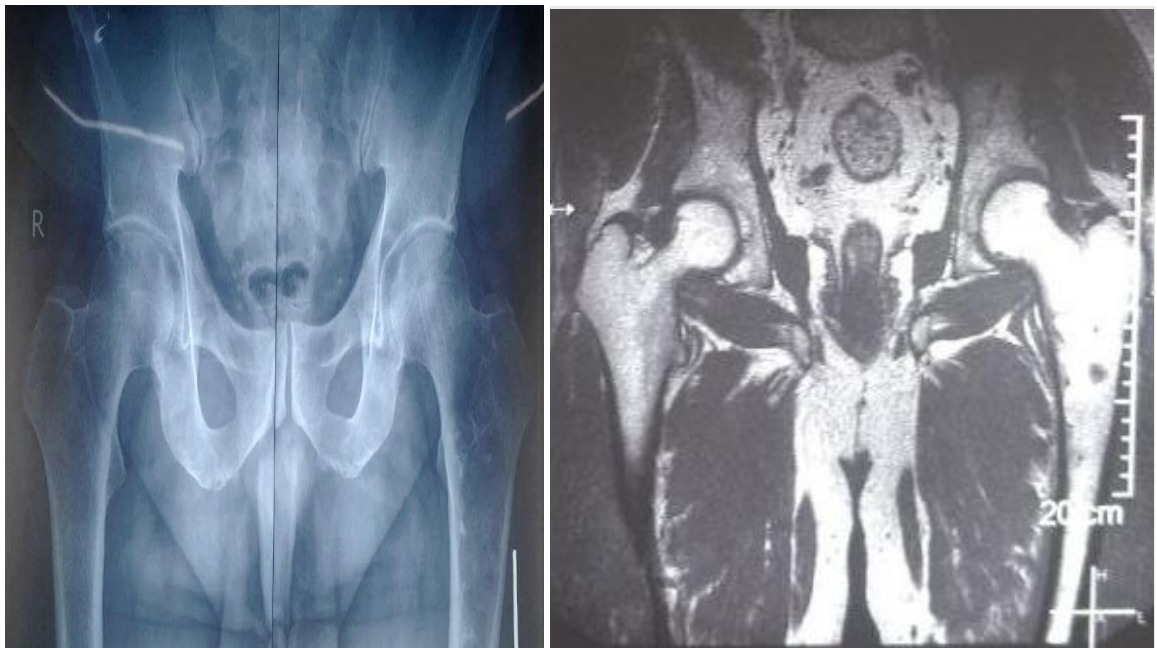


Figure 3. Patient M.R. was born in 1961 with Diagnosis: Cystic formation of the proximal epimetaphysis of the left femur

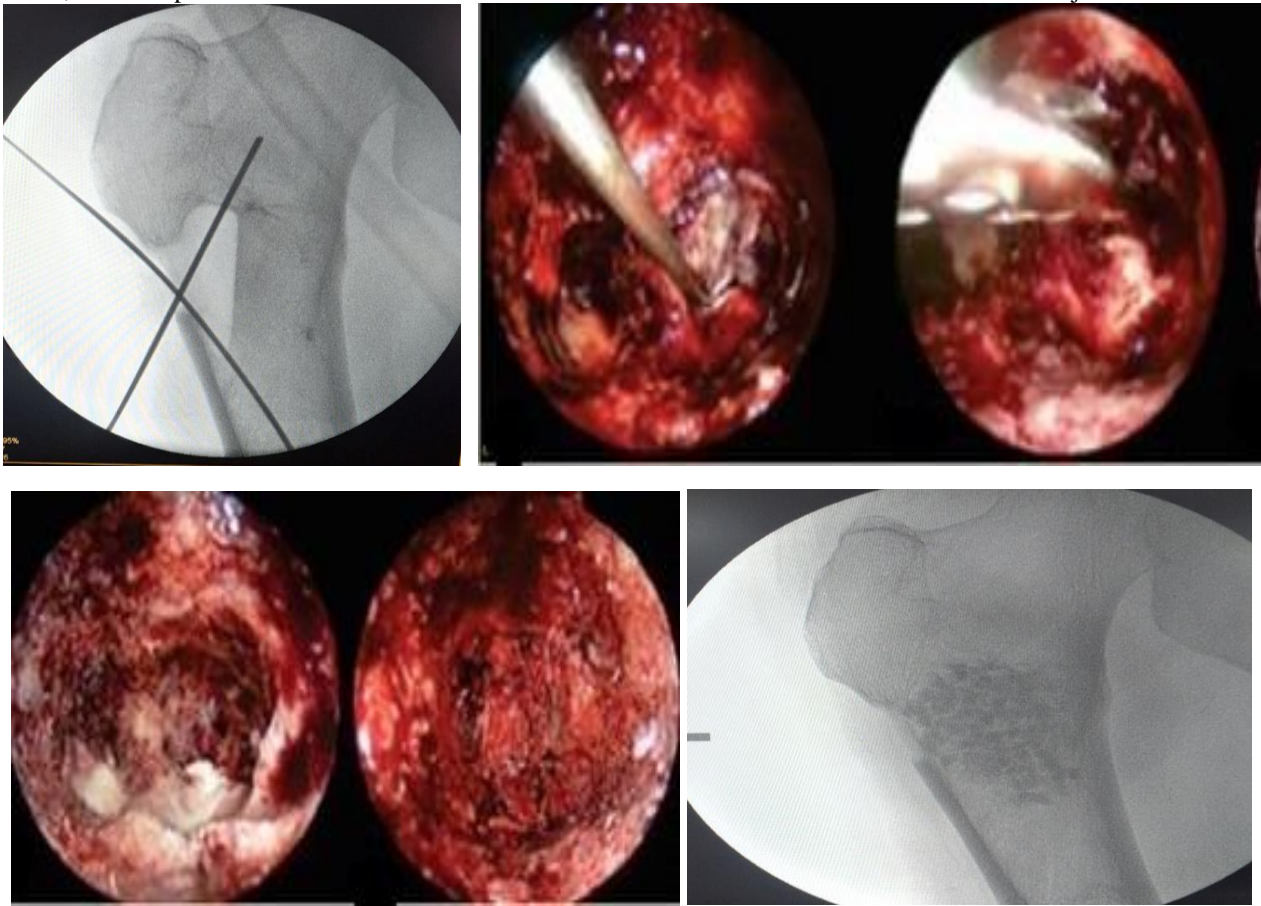


Figure 4. During the operation



Figure 5. Patient.K. M, was born in 2004 Diagnosis: Cystic formation of the distal epimetaphysis of the left fibula

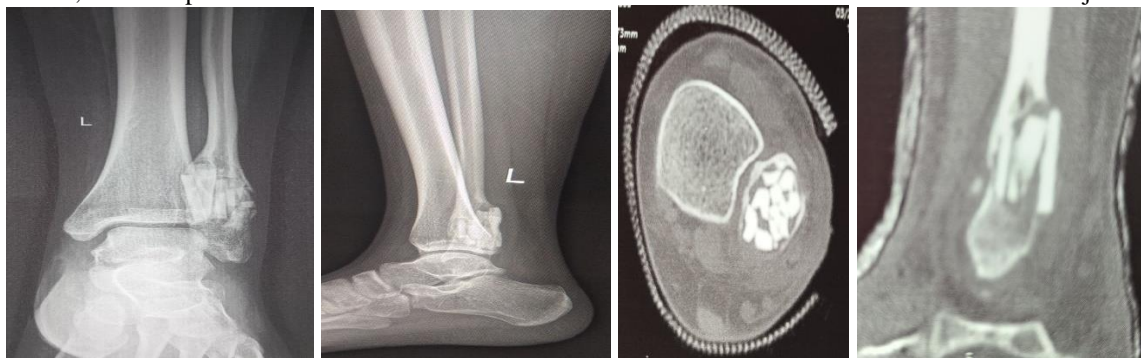


Figure 6. After the operation

Technology of using the method. Under epidural anesthesia, 3 crossing lines are passed through the wing of the ilium. knitting needles that are fixed in the arc support Ilizarov apparatus. On the border of upper and middle thirds of the femur are carried out by 3 intersecting knitting needles, which are fixed in an arcuate or ring support of the Ilizarov apparatus. Through the distal metaphysis of the femur is carried out 3 intersecting knitting needles that are fixed in ring support of the Ilizarov apparatus. The supports are connected to each other by 3-4 threaded rods. Through an incision corresponding to the localization of the pathological focus in the area of the greater trochanter, the femur is isolated layer by layer. A chisel is used to perform subperiosteal trepanation of the bone to form a trepanation window. With help chisels and Volkmann spoons perform intraosseous resection with removal of pathologically altered tissues of the greater trochanter and femoral neck within areas of healthy bone. The bed is coagulated and treated with alcohol. In the projection of the lower edge femoral neck (the border of the area of unchanged bone tissue) perform an oblique osteotomy of the femur from below-outside, up-inside until the beak-shaped proximal end of the distal femoral fragment is formed, congruent with the formed defect in its proximal part. Subsequently, the distal fragment is inserted into the proximal one in a position corresponding to the normal size neck-shaft angle (1250-1300) to tight contact. Through the greater trochanter area and proximal end of the distal femoral fragment carry out 3 intersecting knitting needles, which fixed in the arc of the device. Supports are connected to each other by rods with hinged units. The wound is sutured tightly in layers. On the wound and the area where the needles exit are covered with aseptic dressings.

After 3-4 weeks, if there are radiological signs of the formation of contact regenerate, the proximal arch, installed on level of the iliac wing, dismantled. A course of exercise therapy is prescribed to develop movements in the hip joint and develop gait under new biomechanical conditions. In cases where, after comparison fragments, shortening of the segment occurs; in order to eliminate it, an osteotomy is performed femur in the lower third. On 5-7 days begin dosed extension segment by distraction between the supports at a rate of 0.25 mm 3-4 times a day at the planned value.

The timing of termination of fixation with the device is determined depending on a set of radiological and clinical indicators. The following consolidation tests take

into account: homogeneous throughout, close in intensity to adjacent areas of the bone, density of regenerates; formation of cortical plates, traceable on radiographs in direct and lateral projections; absence of pathological mobility and pain in distraction and contact regenerates during a clinical test with axial (up to 30% body weight) and lateral load.

After dismantling the device, additional immobilization is usually not required. This method was used in 7 patients with cystic lesion of the proximal part of femur between the ages of 8 and 16 years (men – 5, women – 2). Previously, the patients had 11 pathological fractures, for which conservative (plaster cast - 5, skeletal traction - 2) and surgical (marginal resection - 3, subperiosteal resection with cortical allograft plastic surgery - 1) treatment. Upon admission to the hospital, five patients had coxa vara from 1200 to 850, 2 - plow valga (1350 - 1450). In two cases there was shortening of the segment by 3 and 4 cm, respectively. The affected limb was 3 cm longer (due to the hip) in relation to the contralateral one in two patients.

The extent of pathological spread the process along the length of the bone was different and ranged from 4 to 10 cm. When the disease was accompanied by deformation of the cervical-trochanteric region of the segment, used the operational procedure described above a technique consisting in performing a directed osteotomy within healthy areas of tissue with the formation of a fragments of normal biomechanical relationships in this area. Shortening of the segment was eliminated in 4 patients. In two of them it arose after the comparison of fragments during surgery. The shortening was eliminated by lengthening osteotomy of the femur in the distal metadiaphysis. Excessive segment length in two patients was eliminated during surgery on the lesion.

The duration of osteosynthesis with the device was 106.7 ± 14 days. Favorable treatment outcomes achieved in all cases. The results were assessed taking into account the following factors: presence of pain syndrome; stability at the surgical site; presence of deformation, segment shortening; range of motion in adjacent joints; occurrence of relapse of the disease. Long-term results of treatment have been studied in terms from 1 year to 5 years. X-rays showed positive dynamics of organotypic restructuring bones without signs of pathological recurrence process, with preservation of the cervical-diaphyseal angle is within normal limits. The function of adjacent joints was full. Thus, the use of the developed method based on transosseous osteosynthesis in the treatment of patients with cystic lesions of the femur of the cervical-trochanteric localization, which involves performing directed osteotomy, compression techniques and distraction of fragments both separately and in their combination allows one to obtain stable, relapse-free results with adequate orthopedic and functional rehabilitation and reduce the duration of one-stage treatment by 1.5-2 times.

Conclusion. Using the endoscopic method, we visualized the pathological focus - a cyst-shaped cavity with minimal damage to soft tissue and bone structures, against the background of radical surgical treatment.

Thus, the use of the endoscopic method for the treatment of patients with cystic formations of long bones of the skeleton allows for minimal access and damage to bone and soft tissue structures, thereby allowing for radical surgery.

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