



## A Modern Approach to the Care of Victims with Combined Pelvic and Femoral Bone Injuries Based on the Severity of the Injury and the Severity of the Condition

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**ABSTRACT:** Fractures of the femur with pelvic bone damage are one of the most severe combined injuries of the musculoskeletal system. This article presents the results of our studies, which demonstrated that the active tactics of minimally invasive treatment of femur fractures combined with pelvic bone fractures seem to be quite justified. The combination of consolidation and rehabilitation timing contributed to positive functional results, which significantly reduced the number of patients with severe consequences of musculoskeletal injuries.

**Key words:** hip fracture, compound fracture, stabilisation, musculoskeletal system, pelvic injury, damage control tactics.

**Relevance:** Treatment of pelvic bone fractures combined with fractures of other skeletal segments is one of the pressing problems of modern traumatology. Its significance is due to the steady growth of concomitant and multiple injuries in the general structure of trauma and the high proportion of injuries of limb bones (92 %) and pelvis (52 %) [1, 2]. In the structure of concomitant and multiple injuries, they are recorded with a frequency of 4.4% to 12.8%. Road traffic injuries and catatrauma are the main causes of these injuries [3].

In the case of polytrauma, the use of active fracture treatment tactics can be considered reasonable. Early stabilisation of fractures is supported by strong arguments such as the possibility of activating the patient and preventing pulmonary complications, ensuring stability of fixation of bone fragments and restoration of blood supply to the damaged tissue in the shortest possible time, reduction of mortality and improvement of functional outcomes. The analysis of the literature shows that the quality of diagnosis and treatment of combined unstable fractures of the pelvis and femur has significantly improved, but it remains obvious that the development of more effective, safe and accessible methods of early fixation of pelvic fractures, as well as optimization of treatment and diagnostic stages will be accompanied by improved treatment results in this severe category of patients.

**Objective of the study.** To improve the results of treatment of patients with concomitant injuries of the pelvis and femur.

**Materials and Methods of Research:** Under our observation at the Republican Scientific Center for Emergency Medical Care (RSC EMC) and its Samarkand Branch (RSC EMC SF) from 2016-2021, 130

patients with concomitant pelvic injuries with hip fractures were treated, which amounted to 15.4% of all patients with concomitant trauma. The victims were predominantly male. 6% of the patients were aged 20-55 years. Road traffic accidents were the cause of injury in 89 (68.4%) patients, falls from height in 33 (25.3%), and accidents at home in 8 (6.1%). Fractures of pelvic and limb bones in 81 (62.3%) patients, with internal organ injuries in 39 (30%). After elimination of the dominant damage to the abdominal and thoracic cavity organs and skull, and normalization of hemodynamic parameters, the issue of stabilization of pelvic and femoral injuries was raised. As for the unstable gas bones fractures in the early period of traumatic disease, we followed an active surgical tactics using minimally invasive osteosynthesis methods and applied external fixation devices of two modifications developed in the clinic. To stabilize B and C type fractures of the pelvis a bar apparatus for the pelvis and a spoke-rod apparatus for osteosynthesis of unstable fractures of the pelvis and the femur was suggested. 75 (57, We were able to perform operative stabilization of the damaged pelvic ring in 3 to 12 hours from the moment of incoming patients, besides, as a final method of treatment this method was performed in 19 (14, 6%) patients with type B damage and in 36 (27, 7%) patients with severe unstable type C fractures. It should be noted that the use of a pinned wire apparatus in the treatment of pelvic bone fractures made important adjustments to the complex of antishock measures and the prevention of complications, and its simplicity and accessibility made it possible to introduce it more widely into practice.

We also developed treatment tactics for femoral bone injuries combined with pelvic bone fractures, based on the severity of the condition (especially) and the severity of the femoral segment injury. As a matter of principle, all hip fractures should be stabilised in the early period of traumatic illness before complications develop, if objective conditions exist. The method of fixation depends on the severity of the condition of the victims. Hip fractures were observed in all our patients; there were 137 fractures in all. Fractures of both femurs occurred in 7 patients. Surgical intervention was performed after elimination of dominant pathology, immediately after surgical intervention on abdominal and thoracic cavity organs, skull or after hemodynamic stabilization. Intramedullary pin osteosynthesis method was used in 82 (63,1%) patients, 13 (10%) of them had closed intramedullary osteosynthesis without medullary canal opening under EOP control. In 24 (18,5%) patients with closed fractures of the femur at the level of the lower third, supraosseous osteosynthesis with plates was performed. In 28 (21.5%) patients with severe bone injuries, supraosseous osteosynthesis with an external fixation device developed by us was applied. The patients were divided into two groups according to the timing of osteosynthesis of the hips. In 75 (57.7%) patients of Group 1, early osteosynthesis was performed up to 3 days later. In 55 (42.3%) group 2 patients, surgical intervention was performed at a later date.

**Results and discussion.** At all stages of medical care, timeliness of diagnosis and objective assessment of the severity and condition of victims are the basis for success. The multilevel principle of estimating the severity of the injured is the most optimal [3, 4, 5]. This is the "golden hour", during which the most severe and life-threatening consequences of injuries develop. The algorithm of diagnostics and treatment of patients with combined trauma is based on the principle of "damage control". All of our patients with pelvic injuries and femoral fractures were examined and treated according to a standard technique, taking into account the dominant pathology. On admission, all patients with concomitant pelvic injuries were admitted to the shock ward, where they were examined by a trauma surgeon, neurosurgeon, intensive care physician, surgeon, urologist, and other specialists if necessary. In the presence of unstable haemodynamics, antishock measures were administered. The patient was examined at the same time, and X-rays were taken of the skull, thorax, pelvis and injured limb segments. an ultrasound examination of the internal organs and thorax organs was always performed if trauma to these areas was suspected. a CT scan and MSCT were always performed for severe craniocerebral trauma and complicated spinal injuries. The anatomical and functional results were assessed according to two criteria. The anatomical result was assessed on the basis of control radiographs and computer tomograms. The functional result was assessed on the basis of complaints,

clinical data, and the amount of movement in the healthy and injured joints. a good anatomical result was considered to be a complete elimination of the displacements of the pelvic bone fragments and their joints; a good functional result was full restoration of the functional capabilities of the pelvic ring. a satisfactory anatomical result was considered to be incomplete elimination of the displacements with good adaptation of the bone fragments; a satisfactory functional result was considered to be a deformed pelvis, the existence of a functional defect in the pelvic floor, and a good functional outcome.

A study of treatment outcomes with multiple fractures of the pelvis and femur showed that recovery was achieved in 123 (94.6%) patients. Seven (5.4%) patients died. Analysis of lethal outcomes revealed that the cause of death in 3 (2.3%) patients was the massive trauma of three or more bone segments together with injuries of internal organs (liver, spleen, intestines, etc.). In 2 (1.5%) patients the cause of death was traumatic shock caused by multiple fractures and blood loss. In 2 (1.5%) patients the fatal outcome was due to severe traumatic brain injury. The immediate results of treatment were studied at follow-up examination after 2, 4, 6 and 12 months in 87 (66,9%) patients. Recovery was achieved in 80 (96.5%) patients with combined pelvic and femoral injuries. Fragment fixation was registered in 64 (61,5%) patients.

The long-term results of treatment were studied in 43 (33,1%) patients within 2 to 5 years. The results were evaluated as good, satisfactory and unsatisfactory. The results were considered good in case of complete anatomical-functional recovery of the injured limbs, absence of complaints, return to the previous work capacity or preservation of the previous quality of life in disabled elderly patients.

The satisfactory results were characterized by the fracture heal in the average terms, a moderate restriction of movements in the adjacent joints, reduction of professional work ability of physical workers (up to change of the profession for the lighter one), absence of permanent disability. Unsatisfactory results included no consolidation (even of one of the operated segments) or a dramatic delay in consolidation, incorrectly healed fractures with severe deformity and functional impairment, and permanent disabilities associated with musculoskeletal injuries.

**Conclusion.** Thus, hip fractures with pelvic injuries are one of the most severe combined injuries of the musculoskeletal system. restoration of anatomical structure and function of the hip, knee and hip joint without surgical treatment of fractures in most polytrauma victims is impossible. it is fundamental that all hip fractures and pelvic injuries should be stabilized in the early period of traumatic disease if objective conditions exist. our study has shown that active tactics.

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