

TIBIAL PILON FRACTURES REPAIR USING MINIMALLY INVASIVE OSTEOSYNTHESIS

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Introduction: Pilon fractures comprise 1% to 9% of all tibial fractures, and have a peculiar mechanism of injury with talus hitting against tibial articular surface with high energy. Taking into account the location and the severity of injury to the articular surfaces, capsule, and ligaments, pilon fractures require specific approach in surgical tactics and technique. Impaired circulation in bone fragments causes high risk of complications such as delayed union, aseptic necrosis, leading to contracture and posttraumatic osteoarthritis. Thorough preoperative planning is necessary primarily emphasizing preservation of blood supply to the fragments and their anatomical reduction; fixation method with minimal additional damage to blood supply should be preferred. Minimally invasive osteosynthesis complies with this concept.

Material and methods: From 2007 till 2016 year 327 patients underwent surgery for fractures in the ankle joint in the Clinic of Traumatology and Orthopedics of Bukovinian State Medical University, including 68 pilon fractures. Surgical treatment outcome was assessed in three clinical groups. The first group included patients with pilon fractures fixed with conventional technique using semitubular plate and support plate. The second clinical group included the patients who underwent minimally invasive osteosynthesis with metallic or biodegradable polymeric cannulated screws. The third group included the patients with open pilon fractures, mostly combined with severe circulation impairment and soft tissue lesion.

Results: Early outcome evaluation revealed the following complications in the first clinical group: wound necrosis in 3 cases, superficial surgical site infection (SSI) in 5 cases, and posttraumatic osteomyelitis in 2 cases. The complications observed in the second clinical group included no wound necrosis, superficial or deep SSI; however, the reduction was incomplete in 2 cases, and migration of screws/wires occurred in 2 cases. The vast majority of complications in the third clinical group were infection and/or ischemic lesions.

Conclusion: The study showed that the complication rate is lowest in the second clinical group where osteosynthesis of pilon fractures was performed using minimally invasive technologies.

Key words: pilon fractures, surgical treatment, complications.