CASE REPORT

Complications after surgical treatment of pilon fractures – a case report

Powikłanie operacyjnego leczenia złamania typu pilon – opis przypadku

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Abstract

The paper reports a case of a 36-year-old professional soldier who suffered a pilon fracture of the right tibia. Initially, a wrong surgical technique was applied, which resulted in another surgery. The radiographic outcome of the second surgery was good. It is now 10 months after the accident and 7 months after the second surgery. The clinical condition is gradually improving. The patient walks without crutches, with a slight limp. He requires further rehabilitation. It is currently difficult to assess whether he will return to work as a professional soldier.

Key words: pilon, surgical errors

Streszczenie


Słowa kluczowe: pilon, błędy operacyjne
Introduction

Treatment of pilon fractures – articular fractures of the distal tibia – is a major therapeutic challenge [3, 4, 5, 6]. The surgeon's goal is to restore the anatomy of the tibia, effectively fixate the achieved reduction, and create conditions to improve the efficiency and functionality of the talocrural joint.

Distal tibia fractures are injuries with high percentage of complications – 25% in the material of the Orthopedics and Trauma Department in Siedlce. 20-50% of complications were reported in various studies [1, 2, 3, 4]. The causes of complications and sequelae include an unduly early weight-bearing of the operated limb causing the displacement of bone fragments and axis. Another reason for complications and sequelae is the severity of the fracture, i.e. the degree of destruction of the inferior articular surface of the tibia. In many cases, both of the causes described above lead to complications and sequelae.

In this work we describe a complication resulting from incorrect fracture identification and application of inadequate surgical technique. For this reason, the patient required another surgery, which was complicated and lengthy.

Clinical case

We present a case where the cause of the complication was a surgical error.

The patient is a 36 year-old man (a professional soldier). In 2018, he sustained a fracture of the distal epiphysis during military exercises. He was hospitalized at the orthopedics and trauma ward. In the discharge summary a bimalleolar fracture of the right lower leg is listed as the diagnosis. The patient was deemed eligible for surgery. After the surgery, he was discharged from the ward for follow-up treatment at his place of residence.

He reported to the Orthopedics Outpatient Clinic in Siedlce on October 31, 2018.

The patient was offered emergency revision surgery, but he did not consent to such treatment. Another follow-up x-rays were performed on November 22, 2018 and December 21, 2018. The displacement was getting larger.

In January 2019, the patient consented to the surgery. The surgery was performed on January 11, 2019. The internal fixation was removed during surgery. Nonunions of the lateral ankle and distal metaphysis of tibia were found. The nonunions were cleaned, the bone fragments were reduced and fixated with plates and locking screws. The bone defect of the distal metaphysis of the tibia was filled with an autogenous graft from the iliac ala.

Fig. 1. An x-ray taken at the Orthopedic Outpatient Clinic in Siedlce on October 31, 2018.
During subsequent visits to the Orthopedic Outpatient Clinic, a gradual improvement of the clinical condition was observed; follow-up x-rays were performed to monitor the progress of the union. Physical therapy was recommended. The patient began weight bearing on the limb on March 12, 2019.

The range of joint mobility is currently 10-0-20°. Joint swelling persists. The patient walks without crutches, with a slight limp. He requires further rehabilitation. It is currently difficult to assess whether he will return to work as a professional soldier.

**Discussion**

Surgical treatment of distal tibia fractures is very difficult. There are many surgical methods to choose from. A successful out-
come is contingent upon the surgeon’s experience, proper surgical technique, the most accurate reduction of the fracture and stable fixation of the distal epiphysis of tibia and lateral ankle.

The case in question is an example of using an incorrect primary surgical technique. Even with the diagnosis of a bimalleolar fracture, the rationale behind the surgical method used is inexplicable, to say the least. No fracture reduction was achieved during surgery, and no method of stable fixation was used.

Corrective surgeries performed after a few weeks are very difficult.

**Conclusion**

Surgery is the treatment of choice for pilon fractures. Pilon fractures should not be fixated using only lag screws. Currently, there is a wide range of plates at the surgeon’s disposal which are specifically dedicated to surgical treatment of such fractures and allow stable fixation. In situations where the use of internal fixation is not possible, an external fixation is applied.

Fractures entail the risk of post-surgery complications. Many of these complications occur without the surgeon’s involvement.

Complications resulting from surgeon’s mistakes must be avoided. This is not only an ethical problem but also a legal issue.

**References**