CASE REPORT

Peri-implant femoral shaft fracture in patient with healed femoral neck fracture treated operatively using Targon FN system

Złamanie okołoimplantowe trzonu kości udowej u chorej z wygojonym złamaniem szyjki kości udowej leczonym operacyjnie przy użyciu systemu Targon FN

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Abstract

Pursuant to the recent literature recommendations, we managed 31B1 fracture with Targon FN plate (BBraun/Aesculap, Germany) in our hospital. Patient reported to our center 14 weeks after operation, complaining about pain ailments in the proximity of the operated area. Patient did not sustain any other injuries. X-ray examination revealed the healed fracture of the femoral neck and fracture below a lower screw stabilizing implant.

Key words: femoral shaft fracture, femoral neck fracture, fixing screws, plate, bone-implant interface

Streszczenie

Zgodnie z doniesieniami z najnowszego piśmiennictwa złamanie typu 31B1 zaopatrzyliśmy w naszym ośrodku przy użyciu płytki Targon FN (BBraun/Aesculap, Niemcy). Chora po 14 tygodniach od operacji zgłosiła się z powodu bólu okolicy operowanej – wcześniej bez dodatkowego urazu. W wykonanym badaniu radiologicznym stwierdzono wygojone złamanie szyjki kości udowej i złamanie poniżej dolnej śruby stabilizującej implant.

Słowa kluczowe: złamanie trzonu kości udowej, złamanie szyjki kości udowej, śruby stabilizujące, płyta, pogranicze implantu i zdrowej kości
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Introduction

A perfect mode of management of the intra-capsular fracture of femoral neck is anatomical reposition and stabilization of fracture using Targon FN plate (BBraun/Aesculap, Germany) [1-4]. Similar outcome of treatment of such type of fracture was achieved after stabilization of fracture with conulated compression screws [5], Targon PF nail (BBraun/Aesculap, Germany) [6], SHS system [7], along with additional cortical bone graft obtained from fibula [8]. A great number of authors recommend primary management of the femoral neck fracture in elderly patients using hemiarthroplasty.

Clinical case

A 70 – year old patient stumbled on the rough surface, fell and injured her left femur. X-ray pictures revealed fracture of the left femoral neck: 31B1 – according to AO. As the case history revealed that seven years before patient had been operated due to colorectal cancer, the diagnostics was supplemented with the CT so that neoplasm-related fracture could be excluded.

After assessment of the radiological examination and general condition patient was qualified for the surgical reposition and stabilization using Targon FN metal system. As patient was treated with Pradaxa (oral anticoagulant) due to atrial fibrillation, surgery was performed on the third day since the patient was injured.

Then, on the first day since the surgery was performed early kinesitherapy was applied – passive exercises of the hip and knee joint (CPM) and the patient was brought back to upright position. On the third day patient began to walk with elbow crunches and stimulated loading of the affected limb. Patient reported no pain ailments.

Fig. 1. Post-operative radiograph

A radiograph performed 6 weeks after surgery revealed satisfactory progress in the process of healing of the fracture and no secondary dislocation of bone fragments. Retrospectively a brightening was found below the implant.

Patient was allowed to walk with a gradual increase in the volume of loading of the operated limb.

Three months after accident patient visited the hospital orthopedic surgery to report pain ailments she suffered when she walked with a loaded limb. They occurred two weeks before without any new injury. During the medical examination in the surgery patient was asked to fully load her limb and try to walk. After a first step she felt pain in the operated limb and fell.

Fig. 2. Radiograph 6 weeks after surgery
To plan further treatment, diagnostics was supplemented with computer tomography, which brought the following diagnosis: “patient’s condition after operative stabilization of the left femoral neck fracture with metal elements – osseous symphysis characteristics. Fracture crack in the proximal portion of the body, just below the stabilizing screw. Fracture has no pathological characteristics, typical of neoplasm or bone fatigue.”

**Discussion**

Operative treatment tailored for the patient’s general and local condition is the only treatment that enables patient to restore physical fitness after management of the femoral neck fracture [1-8].

Early operative treatment that allows patients to restore vertical position and improve fitness is crucial in the management of femoral neck fractures. A large number of reports on fractures on the bone-implant interface have been published so far [9,10] but none of them discusses the use of Targon FN system. The femoral shaft fracture may have resulted from “the material damage” caused by the micro-movements of the lower screw fixing the implant, which was exposed to additional stress since the upper screw was not inserted into the plate in full.

**Summary**

Early computer tomography diagnostics, low-invasive operative treatment mode and early kinesitherapy results in osseous symphysis of the femoral neck fracture. However, when one of the implant fixing Targon FN nails is not inserted into the plate in full, there may occur micro-movements resulting in the “material damage” on the bone-implant interface and, consequently, cause peri-implant fracture.

**References**