Case Report

Neck of Femur Fracture in a Patient with a Chronic Osteomyelitis of the Ipsilateral Foot

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This case report describes a successful two-stage treatment in a 75-year-old male with a displaced neck of femur fracture, also suffering from an active chronic osteomyelitis of the ipsilateral calcaneus. In our case, a below-knee amputation was performed first, followed by total hip arthroplasty two weeks later. At 15-month follow-up, full recovery of the prefracture level of activities of daily living without significant impairment was obtained. Only a few cases of total hip arthroplasty in amputees have been published, but the indication for surgery was mainly traumatic or advanced osteoarthritis. Treating patients with this type of comorbidities is challenging; therapeutic dilemmas can be major. The management in cases like these requires a thorough evaluation and a clear surgical and medical treatment plan, preferably conducted by a multidisciplinary orthogeriatric team.

1. Introduction

Hip fracture patients often suffer from comorbidities. We discuss the therapeutic dilemmas associated with surgical treatment of a hip fracture in patients with chronic, active infections: in this case an active, chronic osteomyelitis of the ipsilateral calcaneus. The principles of clinical assessment are highlighted and a potential treatment algorithm is proposed.

2. Case Report

A 75-year-old Caucasian male presented to the Emergency Department (ED) after a fall, complaining of pain in his right hip and he was unable to bear weight. His most important comorbidities were severe peripheral vascular disease, treated with percutaneous transluminal angioplasty of the left common iliac artery, and a forefoot amputation of the right foot as a final treatment option for a chronic, progressive, and infected ulcer of the right hallux. A new ulcer had developed on the ipsilateral heel. Despite multiple courses of antibiotic treatment, the patient developed osteomyelitis of the right calcaneus. This was confirmed by Magnetic Resonance Imaging (MRI), which demonstrated osteomyelitic changes without a sequester (Figure 1). The ulcer was initially treated with a below-knee cast and oral Clindamycin, with good results. Follow-up at one year, however, revealed recurrence of the infection. A chronic osteomyelitis developed, despite long-term courses of antibiotic therapy and surgical debridement, combined with another period of cast immobilization.

At examination on the ED, the right hip was painful and the leg was shortened and externally rotated. The ulcer on the right heel showed two cutaneous fistulas, both sanious but not infected. Radiographs demonstrated a displaced neck of femur fracture (Garden Type III; AO classification 31-B3) (Figure 2). Blood tests on admission revealed a white blood cell (WBC) count of $6.4 \times 10^9$/$L$ and a C-reactive protein (CRP) level of 15 mg/$L$.

A chronic ulcer with an active osteomyelitis in a patient with a hip fracture requiring surgery provided our team with a challenging therapeutic dilemma. Surgical treatment, whether closed reduction and internal fixation or (hemi)arthroplasty, is the gold standard for a displaced neck fracture.
of femur fracture [1]. However, the risk of deep infection of the implant and sepsis is high in a patient with active, chronic osteomyelitis, especially in the ipsilateral extremity.

Our multidisciplinary trauma team reached a consensus to eliminate the potential source of infection first by performing a below-knee amputation. The wound healed without any complications with a stump length of about 14 cm. Uncemented total hip arthroplasty (THA) with a 36-millimetre diameter head (Exceed ABT acetabular system and Taperloc hip system, Biomet, Warsaw, USA) was conducted two weeks later. The patient recovered well, following an intensive rehabilitation programme. At the follow-up at 15 months and 4 years after operation, he had returned to the prefracture level of activities of daily living without significant impairment. X-rays demonstrated no signs of loosening (Figures 3 and 4).

3. Discussion

Hip fractures in the elderly are challenging injuries to treat, especially with the presence of a chronic, active osteomyelitis as in our case. The therapeutic dilemmas and management decisions are interesting and clinically important.

The main question was whether to perform surgery to treat the hip fracture first (within 48 hours, as is common practice) or to start treatment of the active osteomyelitis, being a potential source of surgical site infection, initially. However, surgical and medical treatment of chronic osteomyelitis may follow a protracted course, delaying fracture treatment, which is associated with significant morbidity and mortality [2].

Treatment of a displaced femoral neck fracture can be either by internal fixation (IF) or by (hemi)arthroplasty. The advantage of IF in our case is that it can be performed
The patient gave the informed consent to the publication of this paper.

Consent

The patient gave the informed consent to the publication of the case study.

Competing Interests

The authors declare that there are no competing interests regarding the publication of this paper.

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