



Case Report

Unusual complication with an intramedullary lengthening device 15 months after implantation[☆]



Thomas M. Tiefenböck¹, Gerald E. Wozasek^{1,*}

Medical University of Vienna, Department of Trauma Surgery, Austria

ARTICLE INFO

Article history:
Accepted 19 July 2015

Keywords:
Leg length discrepancy
Automatic lengthening
PRECICE[®] nail
Unusual complication

ABSTRACT

The treatment of leg length discrepancy and deformities has become more important over the last decades due to newly developed implants. Several different devices have been presented with various complications reported in literature.

The purpose of this case report was to present an unusual complication 15 months after implantation of an intramedullary lengthening device (PRECICE[®]).

An intramedullary lengthening device (PRECICE[®] P1 nail) was implanted in a 74 years old male patient with a congenital leg length discrepancy in January 2014. After bone lengthening of 6 cm and obvious radiological callus formation a nail breakage with severe deformity occurred 15 months after implantation.

Physicians have to be aware of the risk of such late complications regarding this device with serious implications for the patient.

© 2015 Elsevier Ltd. All rights reserved.

Background

Limb length discrepancy caused by congenital acquired etiologies, growth plate arrest, osteomyelitis, trauma or tumour often require surgery. The treatment of these deformities has become more important over the last decades due to newly developed implants. Over the last years, results of several different fully implanted devices were reported. The most used ones were the Intramedullary Skeletal Kinetic Distractor (ISKD) [1,2], the Albizzia Nail [3], the Fitbone Nail (motorised system) and the Phenix Nail (magnetic actuation) [4].

Lengthening with these intramedullary devices have been advocated to provide many advantages such as lower infection rates, less soft tissue damage and pain, better joint movement and more patient comfort when compared to external ones [4,5]. However, it is still a rare procedure [6].

Previous designs of internal lengthening devices lacked a reliable mechanism for distraction monitoring and control [3]. Several authors reported inconsistent distraction of these devices leading to

non-unions, nerve injuries, nail fractures, joint contractures and other serious complications [3,7,8].

The magnet-driven internal lengthening device is a novel technology and literature regarding its safety, efficacy, reliability, patient satisfaction and complication rates is limited [9,10].

The purpose of this case report was to present an unusual complication 15 months after implantation of an intramedullary lengthening device (PRECICE[®]).

Case report

We are reporting a case of a 74 year old male patient with congenital malformation of the talus. Initially the patient presented with a limb length discrepancy of 6 cm at our outpatient deformity clinic in September 2013. Therefore in January 2014 a PRECICE[®] P1 nail was implanted in the right tibia because of congenital limb shortening. A single-level osteotomy was done at the centre of rotation and angulation due to an additional tibial valgus deformity of 10° in the midshaft. Distraction started intraoperatively (1 mm) to check the function of the telescopic nail radiologically (Fig. 1). In addition, bone graft harvested from the reamer heads were placed at the osteotomy side.

Lengthening was further continued at day 5 and evaluated by X-rays twice before patient's discharge. The patient performed lengthening procedure by himself with the external remote controller after instruction. After discharge, the patient was followed-up weekly during the distraction phase.

[☆] Level of Evidence: Case Report.

* Corresponding author at: Medical University Vienna, Department of Trauma Surgery, Waehringerguertel 18-20, 1090 Vienna, Austria. Tel.: +43 1 4040059250. E-mail address: gerald.wozasek@meduniwien.ac.at (G.E. Wozasek).

¹ Investigation performed at the Department of Trauma Surgery, Medical University of Vienna, Vienna General Hospital, Vienna, Austria.



Fig. 1. (a–c) Radiographs of lengthening over time.

After he had reached the limb lengthening goal the follow-up visits were scheduled every two weeks according to the new callus formation. Initially, the patient ambulated non-weight bearing and increased to partial weight bearing (15–20 kg) at the end of the lengthening procedure. Full weight bearing was allowed 6 months after implantation, when callus formation had been clearly seen in the distraction gap. The tibia was lengthened 6 cm in total (1 mm distraction rate per day).

Five months after implantation the patient complained about a painful toe clawing which was operated. Afterwards the patient presented without any complications at the further follow-ups, showing radiologically obvious bony healing. At the end of the year, he was satisfied with his clinical result and was able to walk with a normal gait (Fig. 2).

15 months after implantation the patient presented with swelling, pain and angular deformity at our outpatient clinic. Radiographs showed the PRECICE® P1 nail, which had broken under the osteotomy area at the nail's welding seam with a valgus and procurvatum deformity of 15° (Fig. 3).

The patient was immediately admitted to the hospital for revision surgery. He reported no trauma or any other cause that could have led to the implant failure. At surgery, the most proximal and the three distal interlocking bolts were initially removed. Then the nail extraction device was inserted through the mid patella incision. The second proximal interlocking bolt and the proximal portion of the broken nail were removed. The apex of the tibial valgus deformity was exposed through an anteromedial incision. A complete osteotomy was performed using a chisel. The distal portion of the broken nail was manipulated slightly proximally with a raspatorium through the distal bony interlocking hole. The proximal end of the distal



Fig. 2. (a, b) radiographs in lateral and a/p view with good callus formation after complete lengthening.

Download English Version:

<https://daneshyari.com/en/article/6083161>

Download Persian Version:

<https://daneshyari.com/article/6083161>

[Daneshyari.com](https://daneshyari.com)