



Ipsilateral stress fracture of the proximal fibula after total knee arthroplasty in a patient with severe valgus knee deformity on a background of Rheumatoid arthritis

Hirokazu Takai *, Sakumo Kii, Masatoshi Murayama, Nobutake Nakane, Tomoki Takahashi

Department of Orthopaedic Surgery, Kumamoto Kinoh Hospital, Kumamoto, Japan

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ABSTRACT

INTRODUCTION: Previous studies have reported a lower extremity stress fracture after total knee arthroplasty (TKA). However, a fibular fracture after TKA is quite rare. We report a case of proximal fibula fracture after TKA in a patient with rheumatoid arthritis (RA).

PRESENTATION OF CASE: A 45 year old woman with RA had severe knee and foot pain with an antalgic gait disturbance. There was a significant joint deformity in many of lower limb joints. Interval bilateral TKAs were performed two weeks apart. Right TKA was performed using a constraint-type prosthesis, through lateral parapatellar approach. Left TKA was performed using a posterior-stabilized (PS) prosthesis through the more commonly employed, medial parapatellar approach. Seven weeks after the right TKA, the patient was found to have an atraumatic proximal fibular fracture. The fracture went on to heal conservatively.

DISCUSSION: The fracture was considered to have occurred after the TKA. The callus appeared eleven weeks after the TKA. The factors that contributed to the fracture were thought to be overload of the fragile bone secondarily to disuse osteopaenia, RA or potentially the significant valgus malalignment correction. The surgical approach, the implant or implantation or the persisting joint deformity, were thought to be contributing factors to the aetiology of the stress fracture. The resultant change in clinical outcome/course is outlined in this case report.

CONCLUSION: A stress fracture of the proximal fibula has the potential in the aetiology of may cause other stress fractures, joint other instability, and/or malalignment of the total lower extremity.

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1. Introduction

In recent years, the number of total knee arthroplasty (TKA) operations have been increasing internationally. This could be attributed to an ever increasing aging society. There have been significant advances in both technique and instrumentation, as reflected in the literature. Stress fracture of the lower extremity are a rare complication after TKA. In general, a stress fracture is divided into three types: fatigue fracture, insufficiency fracture and pathological fracture. The majority of TKA surgery is performed in an elderly population. Most stress fractures after TKA are considered insufficiency fractures. Many stress fractures after TKA in lower extremities have been reported [1–7]; however, a fibular fracture after TKA is extremely rare. To the best of our knowledge, only one case has been reported [8]. The fracture occurred fourteen years

after TKA. In this report, we describe a case of ipsilateral stress fracture of the proximal fibula at a relatively early stage post TKA. This work has been reported in line with the SCARE criteria [9].

2. Case report

A 45 year old woman with rheumatoid arthritis (RA) had strong difficulties with knee and foot pain with an antalgic gait disturbance. At 19 years of age (and the onset of RA), she had been treated with several steroidal, anti-rheumatic medications and biological agents at another University Hospital. However, these treatments were ineffective. Synovectomy of the knee was performed at the age of 24 years old. Recently, she has been treated with tofacitinib (Xeljanz[®], XEL) and methotrexate (MTX) without steroids. She could not walk well due to persistent knee pain and limping (Video 1). The preoperative femorotibial angles while standing were measured at 130° on the right side and 168° on the left side (Fig. 1). The range of motion preoperatively was measured from –20 to 120° on both sides. Range of motion were measured by physiotherapist. Almost all the cartilage in the knee was

* Corresponding author at: Department of Orthopaedic Surgery Kumamoto Kinoh Hospital, 6-8-1 Yamamuro, Kitaku, Kumamoto 860-8518, Japan.
E-mail address: hirokazoid@hotmail.co.jp (H. Takai).

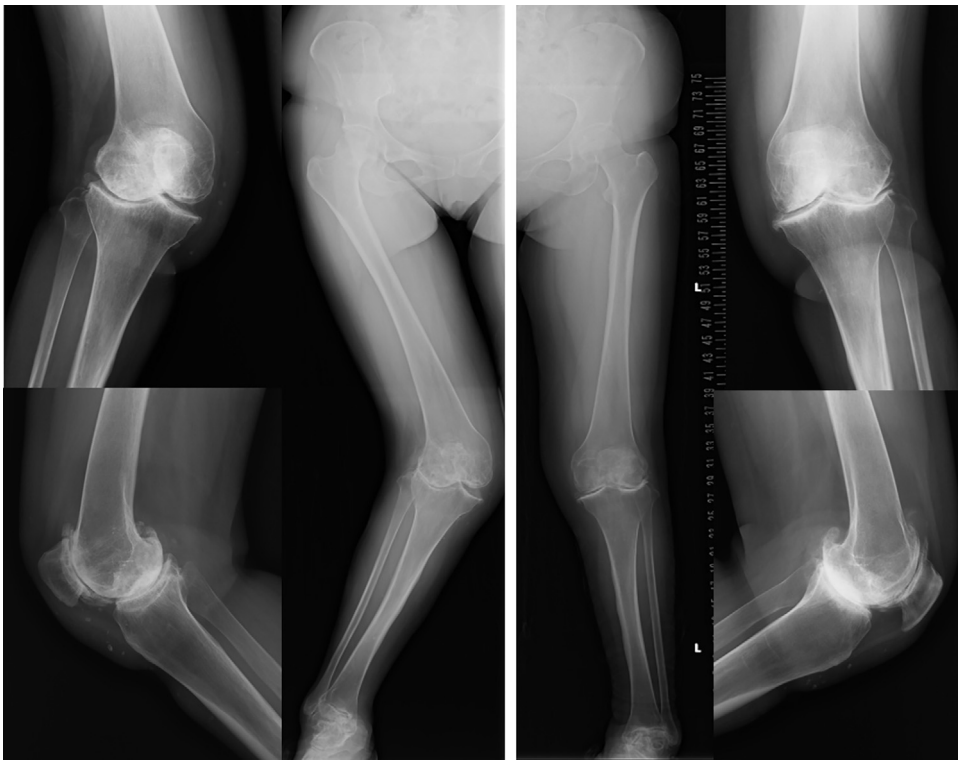


Fig. 1. Preoperative radiographs of the knees. The radiographs show bilateral severe valgus knee deformity.

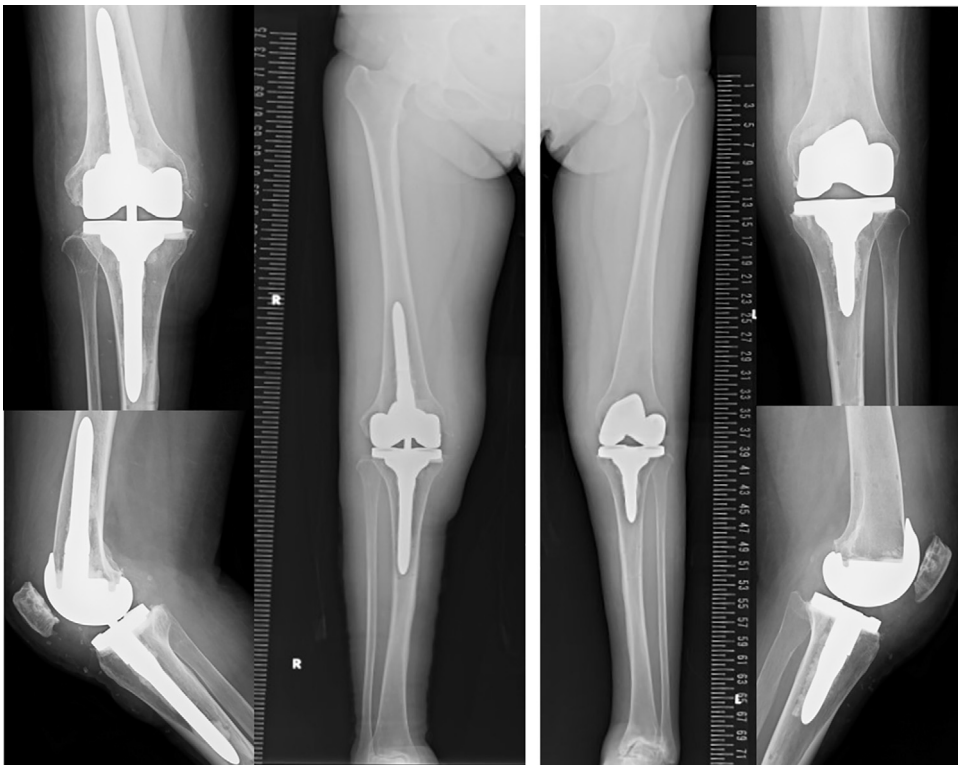


Fig. 2. Postoperative radiographs. The radiographs show the improved alignment of the lower limbs.

absent. Two weeks prior to surgery, the patient's treatment with XEL+MTX was withdrawn. The right TKA was performed with a lateral para-patellar approach (Keblish approach [10]) using a constraint-type prosthesis (Triathlon TS, Stryker, Mahwah, NJ). The left TKA was performed two weeks later with a medial para-patellar

approach using a posterior-stabilized type prosthesis (Triathlon PS, Stryker, Mahwah, NJ) (Fig. 2). Bilateral TKAs were performed using an image-free navigation system (Stryker, Mahwah, New Jersey). The postoperative femorotibial angles while standing were corrected to 175° on the right and 174° on the left. Three weeks

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