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Case Report

Delayed tibial-platform periprosthetic stress fracture after unicompartmental knee arthroplasty: Uncommon and devastating complication

單室膝關節置換術後脛骨平台假體周圍應力性骨折延遲：罕見和破壞性並發症



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ABSTRACT

Periprosthetic fracture around total knee arthroplasty (TKA) is a well-described complication. Yet, report of medial tibial plateau stress fracture after unicompartmental knee arthroplasty (UKA) is limited. One case of delayed stress fracture of medial tibial plateau after UKA, which was salvaged by conversion to TKA was reported. To the best of our knowledge, this is the first report related to Zimmer Unicompartmental High Flex Knee system (fixed bearing). The possible reasons were analysed, and tips and tricks to avoid this complication were shared. With reference to our case, osteoporosis should be considered as one of the relative contraindication for UKA. Meticulous surgical technique and avoiding multiple pin holes for tibial tray cannot be overlooked.

中文摘要

圍繞全膝關節置換術(TKA)的假體周圍骨折是一個充分描述的並發症。然而，單室膝關節置換術(UKA)的內側脛骨平台應力骨折報告有限。我們報告了UKA後內側脛骨平台的延遲疲勞性骨折的一例，其通過轉化為TKA而被挽救。據我們所知，這是與Zimmer半單室人工膝關節置換術系統(固定軸承)有關的第一份報告。我們分析可能的原因，並分享我們的提示和技巧，以避免這種併發症再次發生。我們同時也建議考慮對骨質疏鬆症進行常規篩查，以防止這種破壞性並發症。關於我們的情況，骨質疏鬆症應該被認為是UKA的相對禁忌症之一。細膩的手術技術，避免脛骨託的多針孔不容忽視。

Introduction

Unicompartmental knee arthroplasty (UKA) in appropriately selected patients has been shown to be a reliable treatment for early isolated anteromedial osteoarthritis. The expectations of patients are usually higher as their preoperative function is better. However, the procedure is technically demanding.^{1,2}

Periprosthetic fracture around total knee arthroplasty is a well-described complication. Yet, reports of medial tibial plateau stress fracture after UKA are limited to a small number of case reports.^{3–7} The incidence of such fracture is around 0.1–1%,⁶ and most case

reports are related to mobile bearing type of UKA. One of the reasons is the popularity of mobile bearing UKA in Europe.

We are reporting one case of delayed tibia stress fracture in the early postoperative period in fixed bearing UKA (Zimmer Unicompartmental High Flex Knee system, ZUK; ZimmerBiomet, Warsaw, Indiana, US), which resulted in multiple operations and a devastating outcome. To the best of our knowledge, this is the first report related to this implant from literature. We would discuss the potential reasons for this complication and raise awareness about the problem to prevent future occurrences.

Case Report

A 75-year-old woman presented with 2-year history of left medial knee pain which worsened within a few months. She

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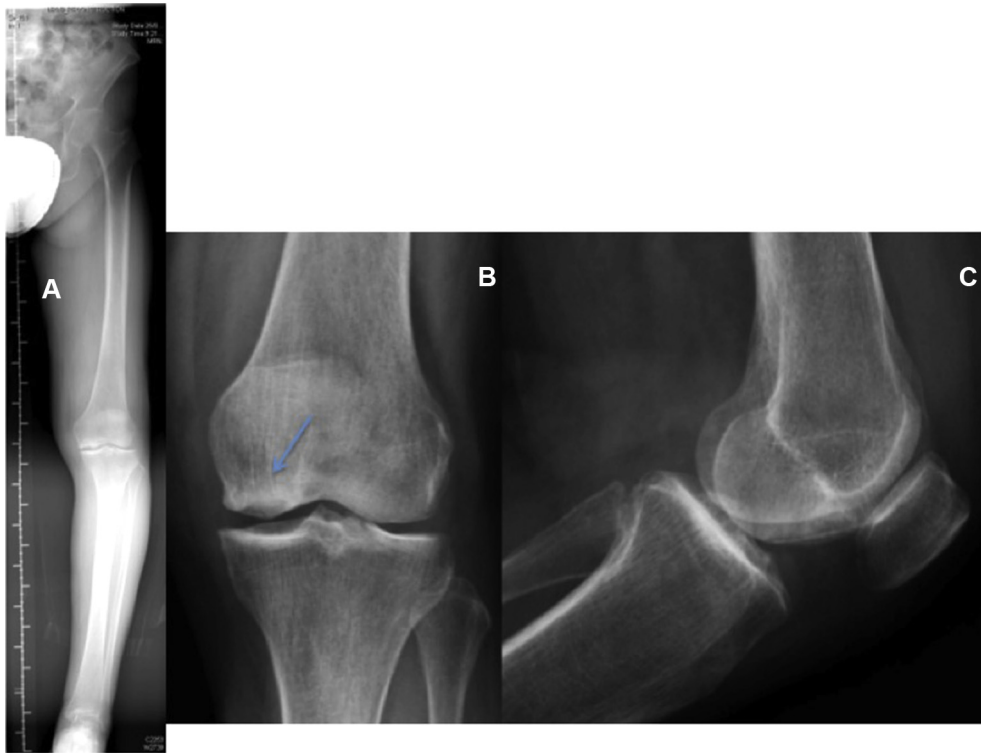


Figure 1. Preoperative scanogram and radiograph. (A) Scanogram shows nine degree varus of mechanical axis; (B) anteroposterior (AP) view of left knee show spontaneous osteonecrosis of medial femoral condyle;(C) lateral view of left knee. Arrow show spontaneous osteonecrosis of medial femoral condyle.

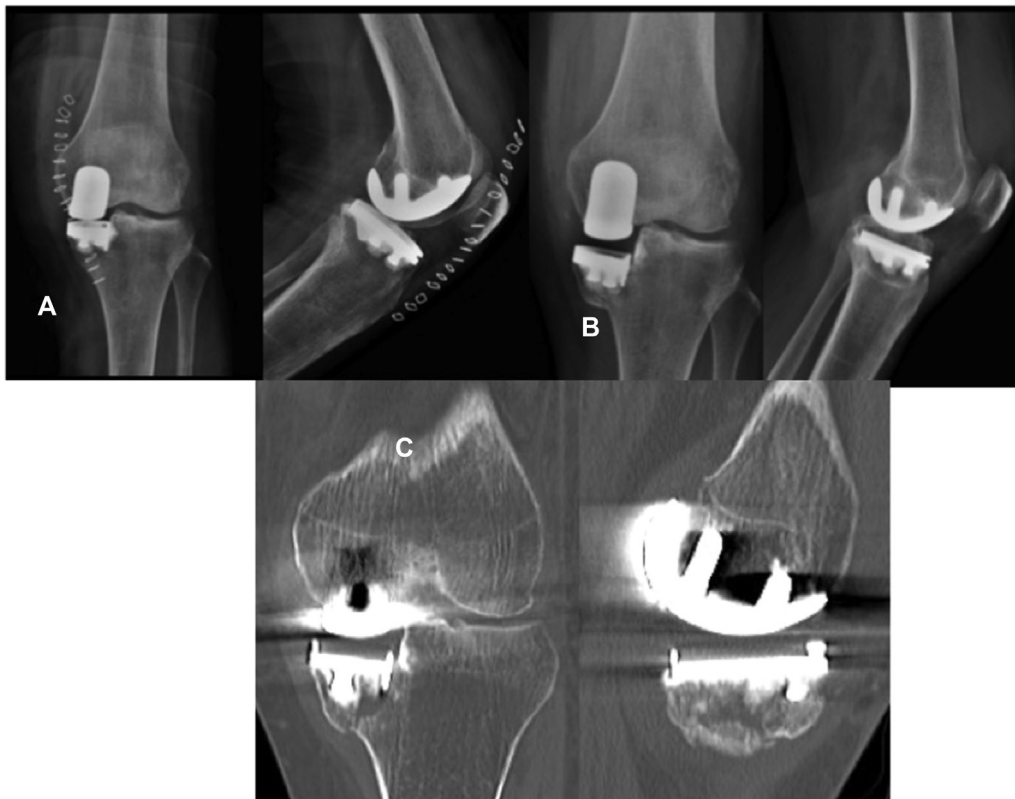


Figure 2. (A) Immediate postoperative radiograph; (B) four-week postoperative photo shows delay stress fracture of tibial platform; (C) CT of left knee shows fracture of tibia platform. CT = computed tomography.

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