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Posterior Dislocation after Right Total Knee Replacement Treated with Full Constrained Total Knee Replacement: A Case Report

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ABSTRACT

Total knee replacement (TKR) is commonly performed for severe knee arthritis and usually yields positive outcomes. However, posterior knee dislocation, though rare, is a serious complication that can arise postoperatively. Neglected posterior dislocation, where the condition is not promptly addressed, can lead to chronic pain and functional impairment. The purpose of this case study is to detail the results of the TKR revision in neglected posterior dislocation of knee after TKR. A 63-year-old female presented with right knee pain for seven months before admission, which worsened with walking and prolonged standing. A right TKR was performed in April 2019. Physical examination revealed a postoperative scar, varus deformity of 15 degrees, tenderness at the lateral patella, and limited range of motion (ROM). The assessment concluded with a diagnosis of implant failure of the right knee post-TKR and left knee osteoarthritis. The planned intervention was a total knee replacement revision. A full-constrained TKR with a modular knee prosthesis system was implanted. Varus, valgus, extension, and flexion stability were satisfactory. Postoperative X-ray showed a medial distal femoral angle (MDFA) of 92.67° (N: 80-95°), medial proximal tibia angle (MPTA) of 88.50° (N: 85-90°), combined MDFA and MPTA of 181.17° (N: 165-185°), and a posterior condyle offset (PCO) ratio of 0.50 (N: 0.44-0.47). No notching was found on the femoral component. Timely recognition and intervention are crucial to prevent complications and improve outcomes. Proper surgical techniques and the use of a full-constrained prosthetic system were key in restoring knee stability and function.

Keywords: total knee replacement, knee revision surgery, prosthetic system, implant failure, case report

INTRODUCTION

The majority of patients who have total knee replacement (TKR) report a positive outcome for managing severe knee arthritis and other debilitating knee conditions. However, complications can occur postoperatively, with posterior knee dislocation being a rare but serious complication. Neglected posterior dislocation of the knee after TKR is even more uncommon and presents significant challenges in terms of diagnosis and management.[1]

Posterior dislocation of the knee after TKR often results from various factors, including ligamentous laxity, improper component positioning, or trauma. The posterior cruciate ligament (PCL) plays a crucial role in stabilizing the knee, and its insufficiency or damage during or after TKR can predispose patients to posterior dislocation. Neglected cases, where the dislocation is not promptly diagnosed or managed, can lead to severe complications such as chronic pain, functional impairment, and further damage to the knee joint. Management of neglected posterior dislocation typically involves surgical intervention. Revision TKR is the mainstay of treatment, aiming to correct the alignment, ensure proper component positioning, and restore knee stability. The revision procedure can be complex, requiring meticulous surgical technique to address the dislocated components and any associated soft tissue damage. The use of full-constrained or constrained prosthetic systems is often necessary to achieve adequate stability and function. [2,3]

A 63-year-old lady who had a neglected posterior knee dislocation after a botched total knee replacement (TKR) procedure is the subject of this case report, which details her successful revision surgery. Preventing long-term problems and improving patient outcomes requires early detection and effective surgical care, as shown in the case.

CASE PRESENTATION

A 63-year-old female presented to our outpatient clinic, with worsening right knee pain for seven months and used a walking stick for mobilization. She had a right TKR in April 2019 in our institution. Examination revealed a postoperative scar, 15-degree varus deformity, lateral patella tenderness, and limited ROM (Figure 1). The radiological examination showed the dislocated knee implants in the right knee (Figure 2). Diagnosed with implant failure post-TKR and left knee osteoarthritis, she underwent revision surgery. The procedure involved making an incision along the previous scar, deep dissection, patellar eversion, joint spacer removal, and fibrous tissue excision. Tibial and femoral components were resized and aligned, and a full-constrained TKR prosthesis was implanted. Stability in varus, valgus, extension, and flexion was satisfactory, with intraoperative blood loss of 400 cc. The clinical picture of intraoperative procedure showed in Figure 3 & 5. The difference of short-stem (the failure implant) and the long-stem showed in Figure 4.

Figure 1. Pre-operative clinical picture (source: internal documentation)

Figure 2. Pre-operative radiological picture (source: internal documentation)

Figure 3. Failure implant removal - Intra-operative clinical picture (source: internal documentation)

Figure 4. Short-stem versus Long-stem total knee arthroplasty implant (source: internal documentation)

Figure 5. Long-stem implant has been implanted (source: internal documentation)

On postoperative day zero, the patient reported controlled pain (VAS 2-3), and other complaints were denied. After applying a dry dressing, the patient's vitals remain steady minimal drain production (5 cc haemorrhagic). Distal active ROM was good, and active ROM exercises were initiated. The patient's follow-up will include continued physical therapy, pain management, and monitoring of the surgical site and knee function. Postoperative X-ray showed a medial distal femoral angle (MDFA) of 92.67° (N: 80-95°), medial proximal tibia angle (MPTA) of 88.50° (N: 85-90°), combined MDFA and MPTA of 181.17° (N: 165-185°), and a posterior condyle offset (PCO) ratio of 0.50 (N: 0.44-0.47). No notching was found on the femoral component (Figure 6).

Figure 6. Post-operative radiological examination with knee alignment measurement

DISCUSSION

This case illustrates the multifaceted challenges associated with managing implant failure post-total knee replacement (TKR). Initially, her worsening right knee pain over seven months, accompanied by a 15-degree varus deformity and limited range of motion (ROM), pointed to a significant

deterioration in the knee's function. The lateral patella tenderness and visible postoperative scar suggested complications related to the initial TKR performed in April 2019. Given her reliance on a walking stick for mobilization, the implant failure not only affected her physical health but also significantly impaired her quality of life. This clinical picture necessitated a thorough evaluation and the subsequent decision for revision surgery.

The revision procedure was meticulously planned and executed. An incision along the previous scar allowed access to the knee joint, where the joint spacer was removed, and fibrous tissue excised. This step was crucial to ensure proper visualization and prepare the joint for new components. Resizing it is essential to realign the tibial and femoral components in order to resolve the deformity and restore the knee's biomechanics. Implanting a full-constrained TKR prosthesis provided the needed stability in varus, valgus, extension, and flexion, which was confirmed intraoperatively. The procedure was relatively controlled, with intraoperative blood loss of 400 cc, and the postoperative radiographic analysis showed acceptable alignment and component positioning, with no notching on the femoral component, indicative of a precise fit. [4–6]

After primary TKR, instability might be caused by a number of different things. It is possible to classify the most prevalent reasons for instability as either technique-specific, implant-related, or patient-specific. Risk factors for patients include a history of neuromuscular diseases including poliomyelitis, severe falls after surgery, and connective tissue problems. Factors affecting implants include the implant's design and type, the rate of wear and bone loss (osteolysis), which causes implants to loosen or settle, and the gap's gradual imbalance and instability. Problems with the technique may lead to an incorrect or misaligned implant, weak or failed ligaments, incorrect or insufficient bone resections, and an imbalance in the knee's coronal plane caused by too much or too little release of the soft tissue envelope. Instability may also result from collateral ligament or posterior cruciate ligament (PCL) tears or subsequent weakening. When soft tissue releases, such as pie-crusting, are done during the first treatment, this problem becomes much more worrisome. [7] In this case report, due to the process of aging, this patient had an unsatisfactory quality of bone and weakened PCL. This was demonstrated when we applied femoral box component and a bone crack was occurred. The crack was as a result due to the bad quality of bone density and we fixed it by applying screw from the lateral side.

Constraint refers to the design features of knee implants that provide stability by counteracting forces around the knee after arthroplasty, particularly when the soft-tissue envelope is deficient. Although component constraint helps to reduce instability, it may also cause greater forces to be transmitted to fixation and implant interfaces. Therefore, determining the necessary level of constraint can be difficult.[8] I Full constraint is indicated for knees where adequate stabilization cannot be achieved by soft tissues The collateral ligaments, especially the medial collateral ligament (MCL), are either completely or partially ineffective. This assessment should be part of the preoperative evaluation. In knee osteoarthritis, ligament insufficiency is relatively common in cases of severe knee valgus deformity (>20º), in patients with a history of poliomyelitis or neuropathic arthropathy, and also due to iatrogenic intraoperative injuries to the MCL.[9] In this case report, we did maximum or full constraint by considering the clinical condition and life quality of this patient. This patient had valgus deformity which was indicating for ligament insufficiency.

Postoperative care is pivotal on the effectiveness of TKR revision in the long run surgeries. The initial recovery was promising, with controlled pain levels (VAS 2-3) and a stable general condition. The dry surgical dressing, minimal drain output, and

good distal active ROM allowed for early initiation of ROM exercises, critical for preventing stiffness and promoting functional recovery. Continued physical therapy and pain management will be essential in her follow-up care, alongside regular monitoring of the surgical site and knee function to detect any early signs many difficulties. The need for a thorough, interdisciplinary strategy in handling complicated problems is demonstrated by this example, which meticulous surgical technique and vigilant postoperative care to optimize patient outcomes.

CONCLUSION

This case study describes the effective treatment of a posterior knee dislocation that had gone untreated after a failed total knee replacement (TKR) through revision surgery. Timely recognition and intervention are crucial to prevent complications and improve outcomes. Proper surgical techniques and the use of a full-constrained prosthetic system were key in restoring knee stability and function.

Declaration by Authors

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REFERENCES

1. Matar HE, Platt SR, Gollish JD, Cameron HU. Overview of Randomized Controlled Trials in Total Knee Arthroplasty (47,675 Patients): What Have We Learnt? J Arthroplasty. 2020;35(6):1729-1736.e1. doi: https://doi.org/10.1016/j.arth.2020.01.065
2. Healy WL, Della Valle CJ, Iorio R, et al. Complications of Total Knee Arthroplasty: Standardized List and Definitions of The Knee Society. Clin Orthop Relat Res. 2013;471(1):215-220. doi: https://doi.org/10.1007/s11999-012-2489-y
3. Ng TP, Chiu KY. Recurrent dislocation of total knee arthroplasty. J Arthroplasty. 2003;18(8):1067-1070. doi: https://doi.org/10.1016/j.arth.2003.08.015
4. Rao V, Targett JPG. Instability after total knee replacement with a mobile-bearing prosthesis in a patient with multiple sclerosis. J Bone Joint Surg Br. 2003;85(5):731-732. http://www.ncbi.nlm.nih.gov/pubmed/12892199
5. Nguyen LCL, Lehil MS, Bozic KJ. Trends in Total Knee Arthroplasty Implant Utilization. J Arthroplasty. 2015;30(5):739-742. doi: https://doi.org/10.1016/j.arth.2014.12.009
6. Cholewinski P, Putman S, Vasseur L, et al. Long-term outcomes of primary constrained condylar knee arthroplasty. Orthopaedics & Traumatology: Surgery & Research. 2015;101(4):449-454. doi: https://doi.org/10.1016/j.otsr.2015.01.020
7. Al-Jabri T, Brivio A, Maffulli N, Barrett D. Management of instability after primary total knee arthroplasty: an evidence-based review. J Orthop Surg Res. 2021;16(1):729. doi: https://doi.org/10.1186/s13018-021-02878-5
8. Digennaro V, Brunello M, Di Martino A, et al. Constraint degree in revision total knee replacement: a registry study on 1432 patients. Musculoskelet Surg. 2024; 108(2): 195-200. doi: https://doi.org/10.1007/s12306-023-00790-1
9. Vedoya SP, Garabano G, Del Sel H. Indicación y resultados de la prótesis con estabilidad aumentada en la artroplastia primaria de rodilla [Constrained prosthesis in primary total knee arthroplasty]. Revista de la Asociación Argentina de Ortopedia y Traumatología. 2018;83(2):94-100. doi: https://doi.org/10.15417/issn.1852-7434.2018.83.2.775

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