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Total Knee arthroplasty in a patient with a previous history of patellar tendon repair: Case report

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Abstract
We report the case of an 80-year-old female patient who underwent total knee arthroplasty (TKA) 30 years after patellar tendon repair for a previous traumatic rupture. Total knee arthroplasty with a history of patellar tendon repair proved to be a good option in the short-term follow-up.

Keywords: Total knee arthroplasty, patellar tendon, rupture

Introduction
Total knee arthroplasty (TKA) is a widely used intervention for the treatment of advanced osteoarthritis, providing significant improvement in pain and function [1]. However, morphological modifications of the extensor mechanism, particularly of the patellar tendon, may occur after the procedure, contributing to anterior pain and postoperative knee dysfunction [2-3].
In patients with previous surgery involving the patellar tendon, such as repair after rupture, these alterations tend to be more pronounced due to fibrosis, collagen alterations, and vascular compromise [4].
The aim of this study was to present a case of total knee arthroplasty in a patient with a previous patellar tendon repair.

Case Report
An 80-year-old retired female patient with hypertension and a body mass index (BMI) of 24,7 kg/m² presented with severe pain in the left knee. Her medical history revealed a previous patellar tendon repair surgery 30 years earlier. On physical examination, genu varum of the knee was observed (figure 1). The range of motion was -10° to 120°. Additionally, a scar was noted on the anterior aspect of the left knee, resulting from the previous tendon surgery. This surgical scar showed no signs of inflammatory changes. No joint effusion, instability, or ligamentous deficiency was found. The extensor mechanism was intact.
Radiographs of the knee in anteroposterior weight-bearing, lateral, and Merchant axial views confirmed a varus deformity, tricompartmental osteoarthritis, and steel wires from the previous patellar tendon repair reinforcement (figure 1).
The patient underwent left TKA in January 2025 under spinal anesthesia combined with peripheral femoral and sciatic nerve blocks. The surgery was performed under tourniquet ischemia, with the pneumatic tourniquet inflated to 125 mmHg above the patient's systolic blood pressure after limb exsanguination.
The procedure was performed with the patient in the supine position, using the standard medial parapatellar approach. The implant used was the Nexgen-Zimmer® posterior-stabilized model. Intraoperative analysis showed an intact patellar tendon, and some steel wires were removed during surgery (figure 2).
In the immediate postoperative period, the patient showed improvement in pain and knee function. She returned to her usual activities, satisfied with the surgical result. The range of motion maintained 0°-120°(figure 3). The Knee Society Score (KSS) [5] improved from 43 preoperatively to 84 postoperatively, with a six-month clinical follow-up.

Fig 1: Physical examination and Radiographics images A: Knee physical examination with the patient in the standing position demonstrating varus alignment of the lower limbs. B: Full-length lower-limb radiograph and weight-bearing anteroposterior knee radiograph showing varus alignment and residual metallic wires from the patellar tendon reconstruction. C: Lateral weight-bearing radiograph demonstrating varus alignment and residual metallic wires from the patellar tendon reconstruction.

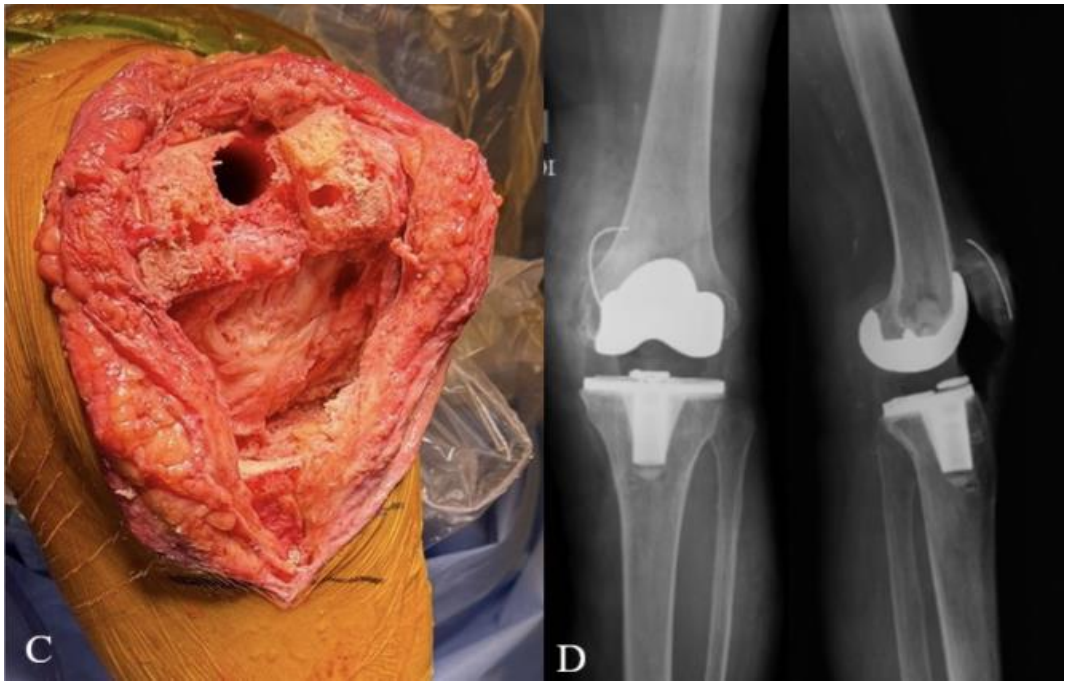

Fig 2: Intraoperative image and postoperative radiographs, C: Intraoperative image of the knee. D: Immediate postoperative anteroposterior knee radiograph and lateral knee radiograph showing a well-positioned prosthesis with no intraoperative fractures, as well as removal of most of the previous metallic wires.

Fig 3: Post-total knee arthroplasty follow-up, E: Post-suture removal image demonstrating a well-healed surgical incision with no phlogistic signs or areas of skin compromise. F: Image of the knee in flexion demonstrating the surgical wound with satisfactory postoperative appearance. G: Lateral image of the knee in flexion demonstrating a flexion range of motion of 120°. H: Patient in the standing position demonstrating neutral mechanical alignment and independent ambulation.

Discussion

There are no studies in the literature that specifically describe TKA in patients with previous patellar tendon repair. Patellar tendon rupture usually occurs in previously degenerated tendons and is rare in completely healthy tissue [6-7]. Chronic degeneration, repetitive microtrauma, corticosteroid use, and systemic diseases are among the main predisposing factors [8]. Ruptures in normal tendons usually result from high-energy trauma, involving violent quadriceps contraction during knee flexion [9]. Our patient reported a history of trauma to the left knee and a prior emergency patellar tendon repair surgery.

Patellar tendon healing after repair is characterized by a scarring repair process rather than complete tissue regeneration. The repaired tissue forms a fibrous neotendon, whose histological structure differs from the original in collagen density and organization [10-11]. Histological analysis after repair confirms the importance of adequate rehabilitation and progressive loading to stimulate fiber alignment and prevent recurrence. Consequently, TKA after patellar tendon repair carries a higher risk of intra- and postoperative complications [12]. Our follow-up was short-term, and we found no intraoperative tendon alterations or postoperative complications.

This case illustrates the potential for structural alterations of the patellar tendon after TKA in a patient with a previous tendon repair. Changes in patellar tendon length and thickness after TKA are well described. Ultrasonographic studies demonstrate an average shortening of 9% and thickening of about 20% in long-term follow-up [13]. These changes are believed to occur due to altered mechanical tension in the extensor mechanism and postsurgical fibrosis. Shortening may lead to patella baja, associated with poorer functional outcomes and anterior knee pain [2, 14]. We did not replace the patellar component. The literature on this subject is controversial, and we opted not to replace it to minimize potential complications.

In patients previously subjected to patellar tendon repair, the risk is higher. The old scar tissue tends to show disorganized collagen fibers, reduced vascularization, and increased local stiffness [10, 15]. Thus, the new surgery (TKA) may cause additional tendon remodeling, as evidenced in this case by the observed thickening. Elastography and magnetic resonance imaging studies support these findings, showing reduced elasticity and signal alterations in the patellar and quadriceps tendons after TKA [16]. Our pre- and postoperative assessments were based solely on radiographic examination. We reasoned that the previous surgery had occurred long ago and that the main complaint was articular degeneration. Therefore, we chose not to perform more specific tendon imaging studies.

Conclusion

Total knee arthroplasty in a patient with a previous patellar tendon repair proved to be a good short-term option, providing functional improvement and pain relief.

Conflict of Interest

Not available.

Financial Support

Not available.

References

1. Carr AJ, Price AJ, Glyn-Jones S, *et al*. Advances in total knee replacement. BMJ. 2012;344:e2717.
2. Mihalko WM, Boachie-Adjei Y, Krackow KA. Patellar tendon length after total knee arthroplasty. Journal of Arthroplasty. 1996;11(5):559-563.
3. Meneghini RM, Ritter MA. The effect of the patella on function following total knee arthroplasty. Journal of Bone and Joint Surgery American. 2001;83(2):199-204.
4. Sharma P, Maffulli N. Tendon injury and tendinopathy: healing and repair. Journal of Bone and Joint Surgery American. 2005;87(1):187-202.
5. Silva AL, Demange MK, Gobbi RG, Silva DTF, Pécora JR, Croci AT. Translation and validation of the Knee Society Score-KSS for Brazilian Portuguese. Acta Ortopedica Brasileira. 2012;20(1):25-30.
6. Clayton RA, Court-Brown CM. The epidemiology of musculoskeletal tendinous and ligamentous injuries. Injury. 2008;39(12):1338-1344.
7. Kannus P, Józsa L. Histopathological changes preceding spontaneous rupture of a tendon. Journal of Bone and Joint Surgery American. 1991;73(10):1507-1525.
8. Longo UG, Ronga M, Maffulli N. Acute ruptures of the patellar tendon. Sports Medicine and Arthroscopy Review. 2009;17(2):99-104.
9. Siwek CW, Rao JP. Ruptures of the extensor mechanism of the knee joint. Journal of Bone and Joint Surgery American. 1981;63(6):932-937.
10. Bring DK, Kreicbergs A, Renström P, Ackermann PW. Physical activity modulates nerve plasticity and stimulates repair after Achilles tendon rupture. Journal of Orthopaedic Research. 2007;25(2):164-172.
11. Sharma P, Maffulli N. Biology of tendon injury: healing, modeling and remodeling. Journal of Musculoskeletal and Neuronal Interactions. 2006;6(2):181-190.
12. Tang T, Zhang G, Liu J, *et al*. Complications following total knee arthroplasty: a systematic review and meta-analysis. Journal of Orthopaedic Surgery and Research. 2021;16(1):190.
13. van Kampen A, Huiskes R, van der Helm FC, Nelissen RG. The patellar tendon after total knee arthroplasty: an ultrasound study. Knee. 2014;21(3):572-576.
14. Grelsamer RP. Patella baja after total knee arthroplasty. Journal of Arthroplasty. 2002;17(5):604-609.
15. Petersen W, Tillmann B. Blood supply of the quadriceps tendon and patellar ligament of man. Anatomia, Histologia, Embryologia (Berl). 1999;200(3):325-334.
16. Kulig K, Landel R, Chang YJ, *et al*. Patellar tendon morphology and mechanical properties in female basketball players after anterior cruciate ligament reconstruction. Journal of Orthopaedic and Sports Physical Therapy. 2013;43(10):808-817.

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