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Surgical Management of a Chronic Hemodialysis Patient with Traumatic Ruptures of the Left Patellar and Right Quadriceps Tendons: A Case Report

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Abstract **Case Report**

This case study details the surgical procedures in a 53-year-old male patient, on hemodialysis for 20 years, who suffered traumatic ruptures of the left patellar tendon and the right quadriceps tendon, as well as ligamentoplasty using the semitendinosus tendon for reconstruction of the left patellar tendon.

Keywords: Patellar tendon, quadriceps tendon, hemodialysis.

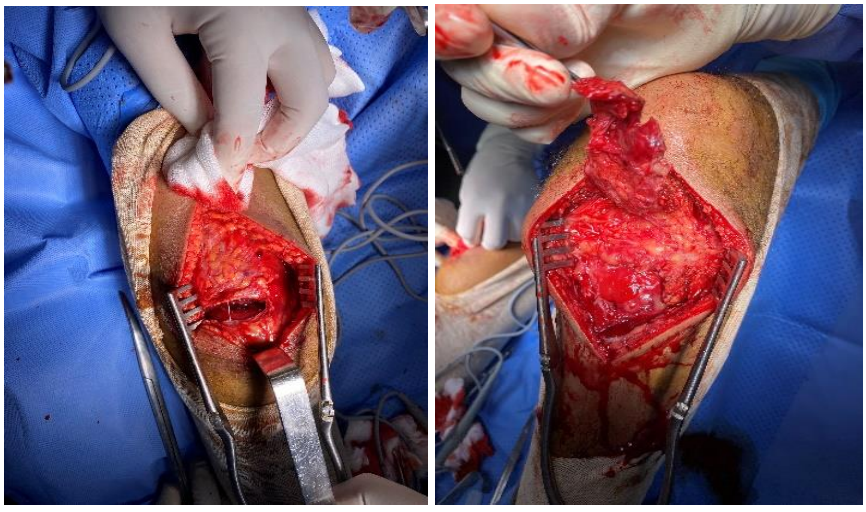
INTRODUCTION

Chronic hemodialysis patients are at increased risk of musculoskeletal complications. This case study explores the treatment of complex tendon ruptures, including ligamentoplasty with the semitendinosus tendon, in this patient

CASE REPORT

The patient, who had been on hemodialysis for 20 years, was hospitalized following a fall causing bilateral pain and total functional impotence with bilateral knee extension deficit. Depression was palpable in the suprapatellar and infrapatellar regions on the left side. X-ray: Showed positional abnormalities of the patella indicating tendon ruptures. Ultrasound: Confirmed ruptures of the left patellar and right quadriceps tendons (Figure 1).

The Surgical interventions: 1. Ligamentous stay suture of the left patellar tendon: The semitendinosus tendon was used to reinforce the repair, providing better stability and strength of the repaired tendon (figure 2). 2. Reinsertion of the right quadriceps tendon with tunnels in the patella: Technique involving bone tunnels to facilitate reinsertion and healing



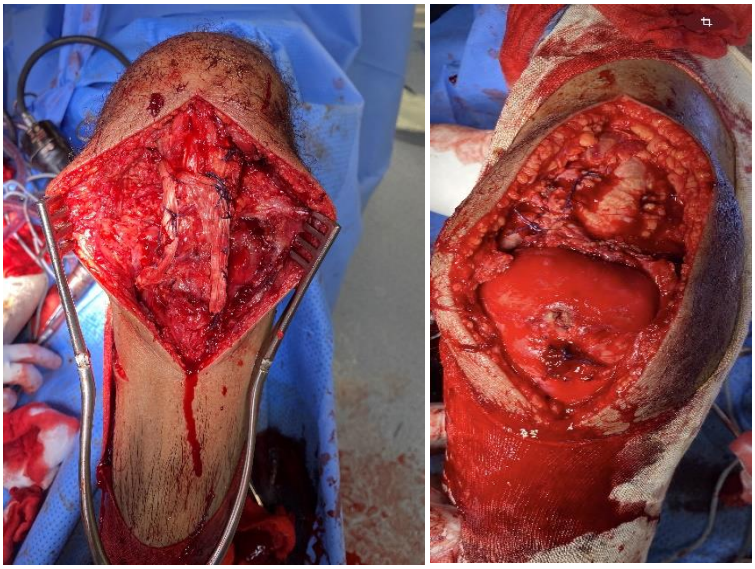


Figure 1

DISCUSSION

The management of tendon ruptures in hemodialysis patients presents unique challenges due to the impact of chronic kidney disease and dialysis treatment on tissue health, particularly tendons. The study by Machado and Lugon (2022) highlights the use of innovative techniques such as quadriceps tendon repair with hamstring tendon grafts, prolene mesh, and autograft plates, which could offer viable alternatives to strengthen tendon repairs in this population at high risk of recurrence and postoperative complications. Additionally, Srimongkolpitak *et al*., (2022) highlight the importance of considering tendon quality and surgical repair techniques suitable for patients with end-stage renal disease undergoing hemodialysis. They found that quadriceps tendon repair results can be optimized through personalized adjustments based on the patient's tissue condition and dialysis regimen. Research by Wu *et al*., (2019) provides an important perspective on the inferior outcomes of rotator cuff tendon repair in hemodialysis patients, suggesting that structural changes to the tendon due to long-term dialysis could also affect other tendons such as the patellar and quadriceps tendons.Furthermore, Malta *et al*., (2022) explored innovative surgical techniques for the repair of chronic quadriceps tendon ruptures, using approaches such as the use of hamstring grafts and prolene mesh, revealing the need for innovative surgical solutions to address structural weakness tendons in patients on dialysis. Finally, the study by Wu *et al*., (2019) on the inferior outcome of rotator cuff tendon repair in hemodialysis patients reveals the challenges related to tendon tissue healing in these patients. The authors postulate that alterations in tendon structure due to chronic dialysis could compromise healing, requiring more targeted surgical and rehabilitation strategies to improve outcomes. These studies highlight the importance of adopting personalized surgical approaches and considering the long-term implications of kidney disease treatment on tendon structures. They also highlight the need for continued research to develop optimized strategies for tendon repair in this vulnerable population.

CONCLUSION

This case illustrates the effectiveness of an adapted and personalized surgical approach, including the use of the semitendinosus tendon for ligamentoplasty, in a patient with specific risk factors linked to hemodialysis. The functional results obtained underline the importance of a well-planned therapeutic strategy and rigorous rehabilitation.

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