

Simultaneous Contralateral Quadriceps Tendon and Patellar Tendon Rupture in a Patient with Chronic Kidney Disease and HCV Infection: A Rare Case Report

Saurabh Satyanarayan Kunwar¹ , Akshay Vilas Pawar¹ , Abhi Ketan Vora¹ ,
Abhishek Ganeshkumar Dussa¹ 

Learning Point of the Article:

Patients with systemic diseases such as Chronic Kidney Disease (CKD) and Hepatitis C virus (HCV) are prone to rare asymmetric extensor mechanism injuries of the knee even after trivial trauma; therefore, thorough bilateral assessment and early surgical repair are crucial for optimal outcomes.

Abstract

Introduction: Extensor mechanism injuries of the knee are uncommon and typically involve either the quadriceps tendon or the patellar tendon. Simultaneous contralateral rupture of the quadriceps tendon on the one side and the patellar tendon on the other is extremely rare. Systemic conditions such as chronic kidney disease (CKD), chronic liver disease, ochronosis, collagen disorders, and hepatitis C virus (HCV) are known to predispose to tendon weakness and rupture even after trivial trauma.

Case Report: A 51-year-old male, a known case of CKD and HCV infection, presented in casualty with inability to walk following trivial trauma. Clinical examination revealed a suprapatellar gap with loss of active extension in the right knee and an infrapatellar gap with loss of active extension in the left knee. Radiographs showed features suggestive of quadriceps tendon rupture (patella baja) on the right side and patellar tendon rupture (patella alta) on the left side. The patient underwent open surgical repair of both tendons using non-absorbable Ethibond sutures with transosseous fixation. Postoperatively, the patient was immobilized, followed by gradual rehabilitation. At follow-up, satisfactory functional recovery with restoration of knee extension was achieved.

Conclusion: Simultaneous contralateral quadriceps and patellar tendon rupture is a rare entity, particularly in patients with systemic comorbidities such as CKD and HCV. A high index of suspicion, thorough bilateral knee examination, and early surgical intervention are essential for favorable outcomes.

Keywords: Quadriceps tendon rupture, patellar tendon rupture, chronic kidney disease, hepatitis C, knee extensor mechanism injury.

Introduction

The knee extensor mechanism, comprising the quadriceps tendon, patella, and patellar tendon, is essential for active knee extension and normal gait. Disruption of this mechanism is uncommon but can result in significant functional disability if not diagnosed and treated promptly [1]. Quadriceps tendon

ruptures are typically seen in middle-aged and elderly individuals, whereas patellar tendon ruptures are more common in younger patients following high-energy trauma [2, 3].

Simultaneous involvement of the extensor mechanism is rare, and asymmetric patterns such as contralateral quadriceps tendon rupture with patellar tendon rupture are exceedingly uncommon

Author's Photo Gallery



Dr. Saurabh Satyanarayan Kunwar



Dr. Akshay Vilas Pawar



Dr. Abhi Ketan Vora



Dr. Abhishek Ganeshkumar Dussa

Access this article online

Website:
www.jocr.co.in

DOI:
<https://doi.org/10.13107/jocr.2026.v16.i11.8458>

¹Department of Orthopaedics, Topiwala National Medical College and BYL Nair Ch. Hospital, Mumbai, Maharashtra, India.

Address of Correspondence:

Dr. Saurabh Satyanarayan Kunwar,
Department of Orthopaedics, Topiwala National Medical College and BYL Nair Ch. Hospital, Mumbai, Maharashtra, India.
E-mail: saurabhkunwar0@gmail.com

Submitted: 25/08/2026; Review: 10/09/2026; Accepted: October 2026; Published: November 2026

DOI: <https://doi.org/10.13107/jocr.2026.v16.i11.8458>

© The Author(s). 2026 Open Access. This article is distributed under the terms of the Creative Commons Attribution 4.0 International License (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits unrestricted use, distribution, and non-commercial reproduction in any medium, provided you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made. The Creative Commons Public Domain Dedication waiver (<http://creativecommons.org/publicdomain/zero/1.0/>) applies to the data made available in this article, unless otherwise stated.

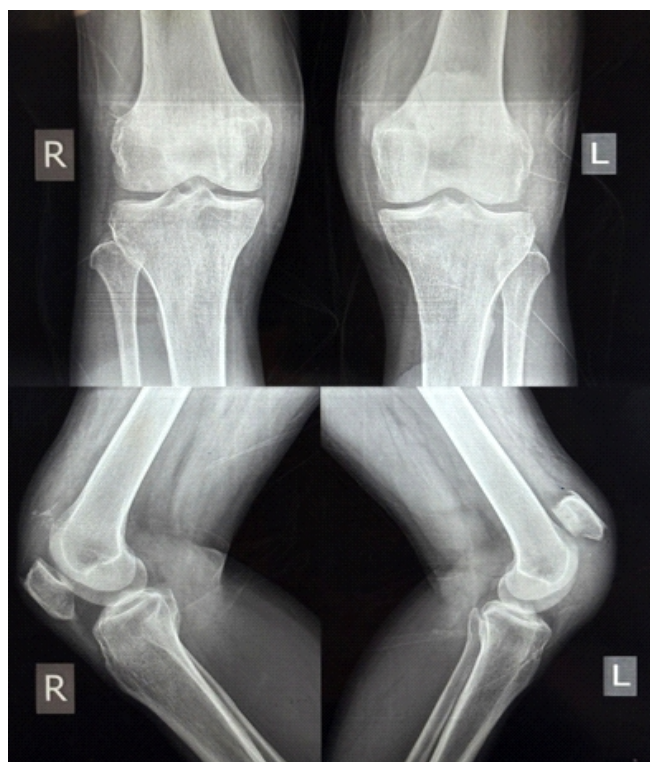


Figure 1: Preoperative anteroposterior and lateral radiographs of both knees demonstrating asymmetrical extensor mechanism injury. The right knee lateral radiograph shows patella baja suggestive of quadriceps tendon rupture, while the left knee lateral radiograph demonstrates patella alta consistent with patellar tendon rupture.

[4]. These injuries are frequently associated with systemic comorbidities that predispose to tendon degeneration. Chronic kidney disease (CKD) is a well-recognized risk factor, with metabolic disturbances such as secondary hyperparathyroidism, uremia, and altered calcium phosphate metabolism leading to weakening of the osteotendinous

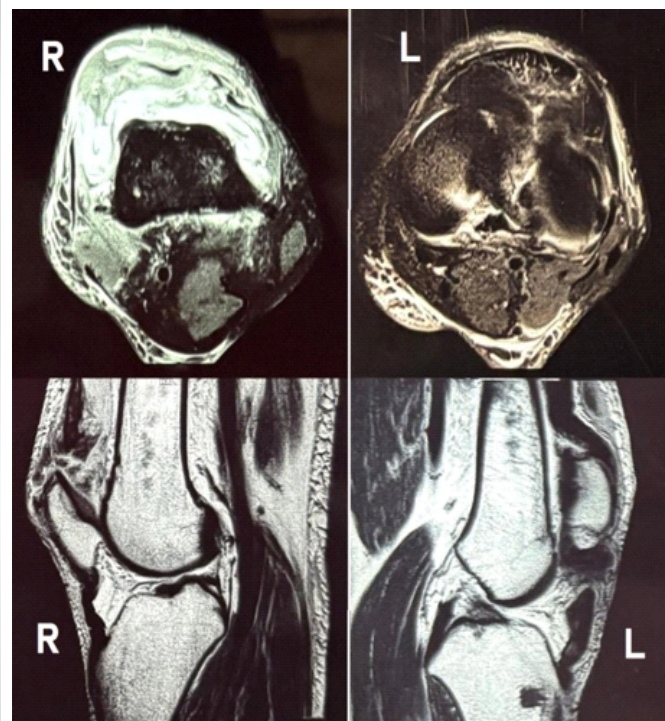


Figure 2: Magnetic resonance imaging (MRI) of both knees confirming extensor mechanism disruption. Axial and sagittal MRI cuts of the right knee demonstrate complete quadriceps tendon rupture with proximal tendon retraction and surrounding soft tissue edema. Corresponding axial and sagittal MRI cuts of the left knee demonstrate complete patellar tendon rupture with discontinuity of tendon fibers and superior displacement of the patella.

junction [5,6]. In addition, systemic inflammatory conditions, including chronic infections like hepatitis C virus (HCV), may impair collagen integrity and contribute to tendon degeneration [7].

Such pathological changes can result in tendon rupture even after trivial trauma, making diagnosis challenging. Early recognition and timely surgical intervention are crucial for



Figure 3: Intraoperative photographs of both knees. The right knee images demonstrate complete quadriceps tendon rupture at the osteotendinous junction and repair using transosseous non-absorbable sutures through the patella. The left knee images demonstrate complete patellar tendon rupture with subsequent transosseous tendon repair and restoration of extensor mechanism continuity.

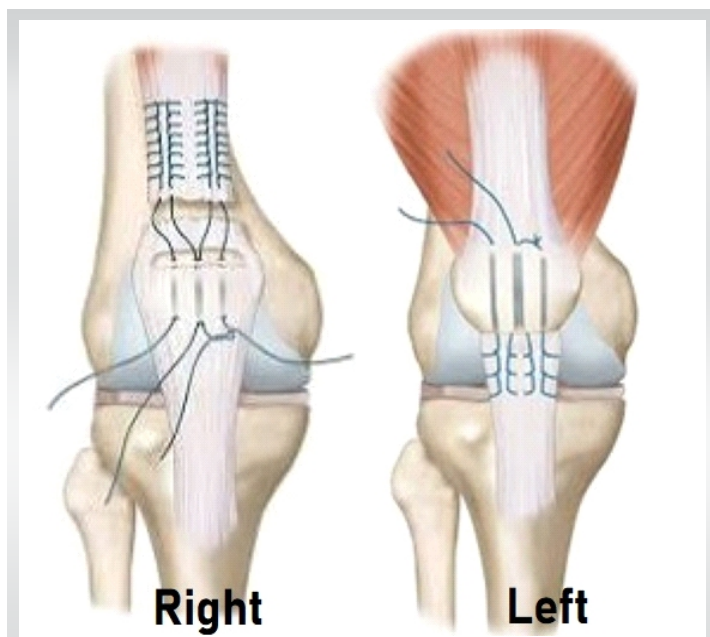


Figure 4: Schematic illustration of the surgical repair technique. The right knee demonstrates transosseous repair of the quadriceps tendon through patellar bone tunnels using non-absorbable sutures, while the left knee demonstrates transosseous patellar tendon repair through drill holes in the patella with restoration of extensor mechanism continuity.

optimal functional recovery. We report a rare case of simultaneous contralateral quadriceps tendon and patellar tendon rupture in a patient with CKD and hepatitis C infection.

Case Report

A 51-year-old male presented with complaint of pain and swelling over bilateral knee since 2 days with inability to walk and inability to actively extend both knees following a trivial fall while getting out from his bed. He was a known case of CKD and chronic HCV managed with medical therapy for 2 years.

On clinical examination, a palpable suprapatellar gap was noted in the right knee suggestive of quadriceps tendon rupture, while an infrapatellar gap was appreciated in the left knee indicating patellar tendon rupture. Active straight leg raising was not possible bilaterally. Radiographs (Fig. 1) revealed patella baja on the right side and patella alta on the left side. The patient was given bilateral long knee braces and admitted to the ward with proper limb elevation. Magnetic resonance imaging (MRI) of both knees was performed which showed complete rupture of the quadriceps tendon on the right side and patellar tendon on the left side (Fig. 2).

The patient underwent surgical management on the 3rd day after trauma with open repair of both tendons. Through a midline incision, the torn ends were identified and freshened. The quadriceps tendon on the right side and the patellar tendon on the left side were repaired using transosseous tunnels and non-absorbable Ethibond sutures (Fig. 3). Retinacular tears

were also repaired. A schematic diagram of transosseous suture repair is shown in (Fig. 4).

Postoperatively, both knees were immobilized in extension for a period of 1 month. However, the patient was allowed to walk with a brace during this time. This was followed by gradual flexion of the knee with closed-chain knee range of motion (ROM) exercises and static quadriceps exercises under supervised physiotherapy. At 3-month follow-up, the patient demonstrated satisfactory functional recovery with restoration of active knee extension and no significant extensor lag. Follow-up radiographs (Fig. 5) were satisfactory and showed maintained alignment with an intact extensor mechanism repair. At 1 year of follow up patient had full ROM of knee with no extensor lag, walking full weight bearing and doing all activities of daily living comfortably (Fig. 6).

Discussion

Extensor mechanism injuries of the knee are uncommon and most often occur unilaterally. Bilateral or asymmetric involvement is rare, with contralateral quadriceps and patellar tendon rupture representing an extremely unusual injury pattern [1,8]. Recent literature continues to emphasize the rarity of such presentations, with only a limited number of case

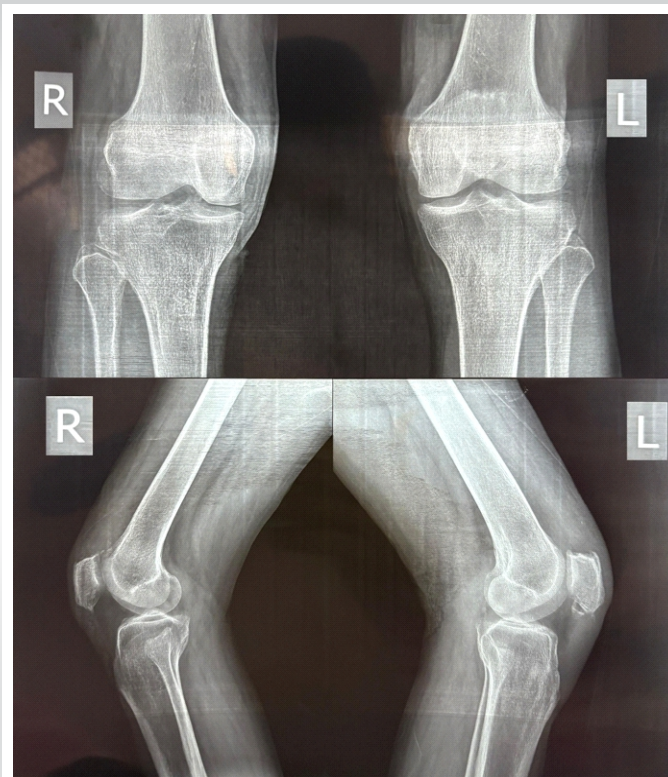


Figure 5: Three-month follow-up anteroposterior and lateral radiographs of both knees demonstrating satisfactory postoperative alignment with maintained patellar position, intact extensor mechanism repair, and no evidence of rerupture.



Figure 6: One-year follow-up clinical photographs demonstrating excellent functional outcome of both knees. Clinical images show full active knee flexion and extension bilaterally, absence of extensor lag, successful performance of straight leg raise on both sides, and stable independent full weight-bearing standing posture with satisfactory lower limb alignment. Surgical scars over the anterior aspect of both knees are well healed.

spectrum of extensor mechanism injuries [13].

Clinically, patients present with acute pain, swelling, palpable defects, and inability to actively extend the knee. However, diagnosis may be delayed, particularly in asymmetric cases. Radiographic findings such as patella alta and patella baja can aid in diagnosis, while MRI is highly sensitive for confirming tendon rupture and is particularly useful in equivocal or complex cases [1,14].

Early surgical repair remains the cornerstone of management. Techniques such as transosseous suturing using non-absorbable material provide strong fixation and favorable outcomes [15]. Recent studies continue to report favorable functional outcomes with early intervention and structured rehabilitation protocols [16,17]. In contrast, delayed

reports describing this entity [4,9].

Systemic diseases play a crucial role in tendon vulnerability. CKD is one of the most frequently implicated conditions, due to metabolic disturbances such as secondary hyperparathyroidism, uremia, and calcium metabolic disturbance in the contralateral quadriceps and patellar tendon [6]. Previous studies have identified CKD as a major risk factor for bilateral or simultaneous tendon ruptures [10]. Patients on long-term dialysis are particularly susceptible to spontaneous or low-energy tendon ruptures [11]. Recent evidence further supports this association, with increased incidence of extensor mechanism injuries reported in CKD patients undergoing dialysis [6].

Hepatitis C infection may further contribute through chronic inflammation and alterations in collagen metabolism, leading to reduced tendon strength [7]. The coexistence of CKD and HCV in our patient likely created a synergistic effect, predisposing to tendon rupture even after trivial trauma.

Recent reports have described injury patterns similar to our case. Radaideh et al. reported successful management of simultaneous contralateral quadriceps and patellar tendon rupture in a patient with chronic renal failure [4]. Similarly, Zhang et al. described spontaneous quadriceps tendon rupture in a CKD patient following trivial trauma, reinforcing the role of metabolic derangements in tendon degeneration [12].

Other rare variants, such as the tendon rupture in a simultaneous ipsilateral quadriceps and patellar tendon rupture, have also been described, further highlighting the

treatment may lead to poor outcomes and require more complex reconstructive procedures.

The rarity of this injury pattern makes it clinically significant. While several reports have described bilateral or ipsilateral tendon ruptures, asymmetric contralateral involvement remains exceedingly uncommon, with only a limited number of cases reported [4,9]. Our case adds to the growing body of evidence linking systemic diseases, particularly CKD, with complex extensor mechanism injuries and highlights the importance of early diagnosis and prompt surgical management.

Conclusion

Simultaneous contralateral quadriceps tendon and patellar tendon rupture is a rare injury pattern, particularly in patients with systemic comorbidities such as CKD and hepatitis C infection. These conditions predispose to tendon degeneration and increase the risk of rupture even after trivial trauma. A high index of suspicion, careful bilateral knee examination, and prompt surgical intervention are essential for early diagnosis and optimal functional outcomes.

Clinical Message

In patients with chronic kidney disease, trivial trauma may lead to rare asymmetric extensor mechanism ruptures; careful bilateral evaluation and early surgical repair are key to successful outcomes and prevent long-term disability.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

References

1. Tandogan RN, Terzi E, Gomez-Barrena E, Violante B, Kayaalp A. Extensor mechanism ruptures. *EFORT Open Rev* 2022;7:384-95.
2. Pengas IP, Assiotis A, Khan W, Spalding T. Adult native knee extensor mechanism ruptures. *Injury* 2016;47:2065-70.
3. Matava MJ. Patellar tendon ruptures. *J Am Acad Orthop Surg* 1996;4:287-96.
4. Radaideh AM, Audat ZA, Sunallah AW, Bani-Younes HM, Obeidat O. A simultaneous rupture of the patellar tendon and the con-tralateral quadriceps tendon in a patient with chronic renal failure undergoing long term hemodialysis. *Med Arch* 2021;75:317-20.
5. Jones N, Kjellstrand CM. Spontaneous tendon ruptures in patients on chronic dialysis. *Am J Kidney Dis* 1996;28:861-6.
6. Tao Z, Liu W, Ma W, Luo P, Zhi S, Zhou R. A simultaneous bilateral quadriceps and patellar tendons rupture in patients with chronic kidney disease undergoing long-term hemodialysis: A case report. *BMC Musculoskelet Disord* 2020;21:179.
7. Cacoub P, Renou C, Rosenthal E, Cohen P, Loury I, Loustaud-Ratti V, et al. Extrahepatic manifestations associated with hepatitis C virus infection. A prospective multicenter study of 321 patients. The GERMIVIC. Groupe d'étude et de recherche en medecine interne et maladies infectieuses sur le virus de l'hepatite C. *Medicine (Baltimore)* 2000;79:47-56.
8. Negrin LL, Nemecek E, Hajdu S. Extensor mechanism ruptures of the knee: Differences in demographic data and long-term outcome after surgical treatment. *Injury* 2015;46:1957-63.
9. Camarda L, D'Arienzo A, Morello S, Guarneri M, Balistreri F, D'Arienzo M. Bilateral ruptures of the extensor mechanism of the knee: A systematic review. *J Orthop* 2017;14:445-53.
10. Shah MK. Simultaneous bilateral rupture of quadriceps tendons: Analysis of risk factors and associations. *South Med J* 2002;95:860-6.
11. Garner MR, Gausden E, Berkes MB, Nguyen JT, Lorch DG. Extensor mechanism injuries of the knee: Demographic characteristics and comorbidities from a review of 726 patient records. *J Bone Joint Surg Am* 2015;97:1592-6.
12. Zhang H, Lin Z, Zhong J, Nie D, Gao S, Zhang J. Spontaneous rupture of the right quadriceps tendon in a patient undergoing long-term hemodialysis: A case report. *J Int Med Res* 2020;48:300060520959221.
13. Chraibi O, Messoudi A, Lamris MA, Rajaallah A, Rahmi M, Rafai M. Floating patella: Ipsilateral and simultaneous rupture of the quadriceps and patellar tendons in a young individual (a surgical case report). *Int J Surg Case Rep* 2024;116:109429.
14. Neubauer T, Wagner M, Potschka T, Riedl M. Bilateral, simultaneous rupture of the quadriceps tendon: A diagnostic pitfall? Report of three cases and meta-analysis of the literature. *Knee Surg Sports Traumatol Arthrosc* 2007;15:43-53.
15. Bui CN, Learned JR, Scolaro JA. Treatment of patellar fractures and injuries to the extensor mechanism of the knee: A critical analysis review. *JBJS Rev* 2018;6:e1.
16. Haskel JD, Fried JW, Hurley ET, Mojica ES, Alaia MJ, Strauss EJ, et al. High rates of return to play and work follow knee extensor tendon ruptures but low rate of return to pre-injury level of play. *Knee Surg Sports Traumatol Arthrosc* 2021;29:2695-700.
17. Rosteius T, Jettkant B, Brinkemper A, Rausch V, Lotzien S, Geßmann J, et al. Long-term follow up of extensor tendon ruptures of the knee using electromyography and three-dimensional gait analysis. *Knee* 2021;29:251-61.

Conflict of Interest: Nil
Source of Support: Nil

Consent: The authors confirm that informed consent was obtained from the patient for publication of this article

How to Cite this Article

Kunwar SS, Pawar AV, Vora AK, Dussa AG. Simultaneous Contralateral Quadriceps Tendon and Patellar Tendon Rupture in a Patient with Chronic Kidney Disease and HCV Infection: A Rare Case Report. *J Orthop Case Rep*. 2026 November;16(11): 246-250. doi: 10.13107/jocr.2026.v16.i11.8458.

