

# Spontan Bilateral Quadriceps Tendon Rupture: A Rare Case Report

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## Abstract

Spontaneous bilateral quadriceps tendon rupture (QTR) is a rare condition that can be severely debilitating. It is often associated with delayed diagnosis due to its nonspecific presentation and wide differential diagnosis. The following case report details a 64-year-old obese male with a medical history of diabetes mellitus who presented to the emergency department with acute bilateral thigh pain and an inability to ambulate following a non-traumatic incident. Physical examination revealed swelling, tenderness, palpable suprapatellar defects, and loss of active knee extension, with neurovascular status intact. Initial radiographic imaging and three-dimensional computed tomography (CT) scans did not reveal any fractures, and the patellae were in their typical anatomical locations. Point-of-care ultrasound (POCUS) suggested bilateral QTR, a finding that was subsequently confirmed by magnetic resonance imaging (MRI). The patient was referred for surgical intervention.

Bilateral QTR primarily affects males over 40 years of age, often in the presence of comorbidities such as chronic renal failure, diabetes, obesity, or connective tissue disorders. Although MRI is widely regarded as the gold standard for diagnosis, point-of-care ultrasound (POCUS) offers a rapid, cost-effective, and highly sensitive alternative in emergency settings. Early recognition of the condition is imperative to prevent functional disability. Clinicians are advised to maintain a high index of suspicion for QTR in patients presenting with acute extension deficits, even in the absence of trauma or radiographic abnormalities.

**Keywords:** Bilateral, emergency, quadriceps tendon rupture

## Introduction

Tendon rupture is a relatively common occurrence in emergency departments. Spontaneous bilateral quadriceps tendon rupture (QTR) is a rare and severely debilitating condition. Despite its notable strength, the quadriceps tendon is susceptible to rupture, with underlying factors such as renal failure, diabetes, intraarticular injections, and rheumatoid arthritis contributing to this occurrence (1,2). Despite the fact that the condition was first documented in the medical literature in 1949, delayed diagnosis remains a significant problem due to the extensive range of differential diagnoses (3). The advent of advanced technology and enhanced hospital infrastructure has facilitated the diagnosis of QTR through ultrasonography (USG). In addition to a review of the extant literature on this subject, we present a non-traumatic case of spontaneous bilateral QTR that presented to the emergency department shortly after the development of severe bilateral thigh pain. Informed consent was obtained from the patient for the publication of this case report.

## Case Report

A 64-year-old male patient presented to the emergency department with a complaint of bilateral thigh pain. The patient reported that, while traversing a subterranean environment, he encountered an abrupt onset of “cramps” in both calves, despite the absence of any evident trauma. This event precipitated a fall onto his knees. He subsequently indicated that he was incapable of maintaining an upright posture and instead experienced a forward descent.

The patient had a 15-year history of diabetes mellitus. A physical examination revealed swelling and pain in both knees and in both anterior mid-thighs. A physical examination of both knees revealed that they were soft to palpation and consistent with hematoma. Additionally, the presence of dimpling was observed in the area between the knee and thigh. Despite the patient’s normal neurovascular examination results, they were unable to perform knee extension while in a seated position on a stretcher. Upon standing, the patient exhibited an inability to take a step or walk. The patella was found to be in an anatomically correct position.

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A thorough review of the patient's direct X-rays (Figures-1,2) revealed no evidence of fracture. The patient was diagnosed with a bilateral QTR, and the diagnosis was evaluated using point-of-care ultrasound (POCUS). The patient was referred to an orthopedic surgeon, who recommended computed tomography (CT) and magnetic resonance imaging (MRI) to differentiate between a partial and complete tear and to assist with planning a surgical intervention. No fracture was detected in the patient's CT images (Figures-3,4), but the QTRs were verified by the MRI (Figures-5-8). The patient was informed about the surgical procedure and subsequently admitted to the orthopedic surgery service.



**Figure 1.** AP X-ray, no evidence of fracture



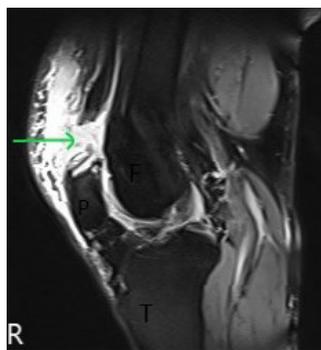
**Figure 2.** Lateral X-ray, no evidence of fracture



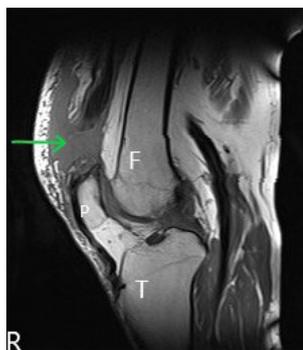
**Figure 3.** Left knee CT, no fracture was detected



**Figure 4.** Right knee CT, no fracture was detected



**Figure 5.** Right knee MRI-pd, quadriceps tendon rupture in the right knee is indicated by the arrow



**Figure 6.** Right knee MRI-t1, quadriceps tendon rupture in the right knee is indicated by the arrow



**Figure 7.** Left knee MRI-pd, quadriceps tendon rupture in the left knee is indicated by the arrow



**Figure 8.** Left knee MRI-t1, quadriceps tendon rupture in the left knee is indicated by the arrow

## Discussion

Spontaneous bilateral QTR is a rare condition. The process of identification and diagnosis is often subject to delays, which can be attributed to misdiagnosis and delays in imaging procedures. The prevalence of misdiagnosis has been documented to range from 30% to 50% in various studies (4, 5). A diagnosis that is solely based on physical examination may result in an inaccurate diagnosis for these patients.

It has been established that QTR manifests predominantly in patients over the age of 40 and is observed to be more prevalent in males (8:1). It is also most probable that this phenomenon will occur in the non-dominant limb (2:1) (6). The patient's demographic profile corresponded to the established literature, with an age of 64 years and a male gender.

Taylor et al. (2009) demonstrated that certain predisposing conditions, including renal failure, diabetes, rheumatoid arthritis, hyperparathyroidism, connective tissue disorders, steroid use, and intraarticular injections, may be present in the histories of patients with QTR (7). In Camarda et al.'s review, the most prevalent comorbidities in patients with non-traumatic bilateral QTR were identified as chronic renal failure (61%), followed by diabetes (14%) and obesity (14%) (5). The patient had been diagnosed with diabetes and was found to be clinically obese, with a length of 1.80 meters, a weight of 114 kilograms, and a body mass index of 35.2 kg/m<sup>2</sup>.

A physical examination of the patient revealed the following symptoms of QTR: tenderness at the tear site, a palpable defect usually within 2 centimeters of the upper pole of the patella, the inability to extend the knee against resistance, and, in the case of complete tearing, the inability to raise a straight leg. The patient exhibited tenderness, palpable defects, an inability to raise a straight leg, and a lack of knee extension against resistance. QTR demonstrates a low level of sensitivity to physical examination. To establish a definitive diagnosis, imaging procedures are imperative. Due to the low specificity and

sensitivity of direct radiography, imaging with ultrasound (USG) or magnetic resonance imaging (MRI) is required. A physical examination alone may not provide sufficient diagnostic information for these patients, potentially leading to misdiagnosis.

Tendon ruptures are typically observed in cases of traumatic injury; however, in this patient, the rupture occurred in the absence of trauma. The absence of a fracture on X-rays and CT scans, in conjunction with the anatomically correct positioning of the patella, were among the potentially misleading factors that might have otherwise led to an incorrect diagnosis. Although MRI is widely regarded as the gold standard, recent technological advancements and improvements in ultrasound imaging quality have the potential to expedite diagnosis. The implementation of physical examinations and the widespread use of POCUS has been demonstrated to result in significant time and cost savings.

## Conclusion

Bilateral QTR is an exceptionally rare occurrence. In the event that an active extension limitation is observed in a patient following minor trauma, it is imperative that the condition be evaluated with utmost urgency. Advanced imaging modalities should be contemplated as a part of the evaluation process. The risk factors identified include advanced age, male gender, obesity, and the presence of comorbidities. The low cost, practicality, and high sensitivity of USG ensure its consistent implementation.

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## Referances

1. McMaster, P.E., Tendon and muscle ruptures: clinical and experimental studies on the causes and location of subcutaneous ruptures. *JBJS*, 1933. 15(3): p. 705-722.
2. Kuo, R.S. and D.H. Sonnabend, Simultaneous rupture of the patellar tendons bilaterally: case report and review of the literature. *The Journal of trauma*, 1993. 34(3): p. 458-460.
3. Verbecque, E., D. Coetzee, and B. Smits-Engelsman, 首页» 文章» 文章详细信息. *BMC Pediatrics*, 2022. 22(1).
4. Neubauer, T., et al., Bilateral, simultaneous rupture of the quadriceps tendon: a diagnostic pitfall? *Knee Surgery, Sports Traumatology, Arthroscopy*, 2007. 15(1): p. 43-53.
5. Camarda, L., et al., Bilateral ruptures of the extensor mechanism of the knee: A systematic review. *Journal of orthopaedics*, 2017. 14(4): p. 445-453.
6. Yalcin, S., et al., Do Patellar Tendon Repairs Have Better Outcomes than Quadriceps Tendon Repairs? A Prospective Cohort Analysis. *The Journal of Knee Surgery*, 2022.
7. Taylor, B.C., A. Tancev, and T. Fowler, Bilateral patellar tendon rupture at different sites without predisposing systemic disease or steroid use. *The Iowa orthopaedic journal*, 2009. 29: p. 100.