

Simultaneous Bilateral Quadriceps Femoris Tendon Rupture: Case report

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Abstract

Introduction: Simultaneous bilateral quadriceps tendon rupture is a very rare injury that may be associated with systemic illnesses or drugs. We present a case of bilateral quadriceps tendon rupture in a patient with no identifiable risk factors.

Case: Sixty seven year old male patient presented to emergency room with bilateral knee pain after trip and fall from 2 steps on his knees. His physical exam revealed bilateral suprapatellar swelling and tenderness with palpation on both knees and he could not fully actively extend knees. Magnetic resonance imaging revealed bilateral quadriceps tendon rupture. Both knees were immobilized with long leg cast in full extension. Early operative treatment was offered.

Conclusion: Diagnosis may be delayed in bilateral quadriceps tendon rupture. Since it is a rare injury emergency medicine physicians should be familiar with symptoms and signs of it to diagnose it early and prevent disability.

Key Words: Quadriceps muscle, tendon injuries, emergency care

Introduction

Quadriceps tendon rupture is a rare injury that is more often seen in male patients after the age of 40¹. Most of the patients have an underlying risk factor including but not limited to previous repetitive injury, immobilization, obesity, chronic renal failure, hyperparathyroidism, gout, rheumatoid arthritis, systemic lupus erythematosus, infections, diabetes mellitus¹⁻³. Some drugs (steroid abuse, quinolones, statins, local and systemic corticosteroids) have also been associated with it³.

Simultaneous bilateral quadriceps tendon rupture is a very rare injury that may be misdiagnosed^{1,2}. Missed diagnoses up to 50% have been reported². If diagnosis is delayed, repair is more difficult and postoperative results may be compromised^{1,2}.

We present a case of bilateral quadriceps tendon rupture in a patient with no identifiable risk factors.

Case Report

Sixty seven year old male patient presented to emergency room with bilateral knee pain after trip and fall from 2 steps on his knees, 1 hour ago. He was in Turkey for a temporary

job of coaching. He was able to stand with help but he could not walk after the fall. He had no known history of a chronic disease. He was not on any medication. His body mass index was 27. He was a former athlete and an active trainer for football.

His physical exam revealed bilateral suprapatellar swelling and tenderness with palpation on both knees. He had a palpable gap on quadriceps tendons at the upper edge of both patellas bilaterally and could not fully actively extend knees. There were no obvious skin lesions or malalignment of his lower limbs.

His complete blood count and liver function tests, kidney function tests, electrolytes were within normal limits. No fractures were seen on bilateral knee plain radiographs. In ultrasonography of the knees, soft tissue swelling and tendon thickening was visualized but no tendon injuries were detected. Magnetic Resonance Imaging (MRI) revealed bilateral quadriceps tendon rupture. (Figure 1, 2) He was consulted to orthopedic surgeon. Early operative treatment was offered but the patient preferred to have surgery abroad in his home country. Both knees were immobilized with long leg cast in full extension. He flew on a commercial flight. He was given NSAIDs for pain relief and enoxaparin 6000 U for deep vein thrombosis prophylaxis before flight. He was transferred to airport by ambulance.

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Figure 1: T2 weighted magnetic resonance imaging of right knee (the site of tendon disruption is marked with white arrow)



Figure 2: T2 weighted magnetic resonance imaging of left knee (the site of tendon disruption is marked with white arrow)

Discussion

Quadriceps tendon ruptures usually happen during a rapid forceful contraction of the quadriceps muscle with partially flexed knee, due to fall or direct blow⁴. Bilateral quadriceps tendon rupture is a very rare injury, may be associated with systemic illnesses or drugs⁴. Thus patients with bilateral quadriceps tendon rupture should be evaluated for an underlying cause. Our patient did not have any described risk factors in his medical history.

After quadriceps tendon rupture, the most commonly observed symptoms are pain, swelling, inability to walk, and lack of extension of the knee^{1, 2}. Our patient had all three of these symptoms and was unable to bear weight. On physical exam painful swelling around the knee, suprapatellar gap in the tendon and loss of knee extension is the classic triad but only seen in 58% of the patients^{2, 4}. Our patient had all 3 of these findings.

Plain X-ray may show indirect signs of rupture like low-lying patella and should also be obtained to exclude fractures¹. Ultrasonography is cheap and can be easily done in emergency department but it is operator dependent⁴. MRI is the modality of choice if USG is inconclusive. MRI localizes the site and extent of tendon disruption⁴. In our patient USG did not help the diagnosis, and MRI was used to identify bilateral quadriceps tendon rupture.

Early surgical repair is indicated for acute, complete quadriceps tendon ruptures, therefore early diagnosis is very important². Partial tears may be treated conservatively with immobilization. Following surgery, knee joint is immobilized for 4-6 weeks^{1, 4}. Outcome is usually good.

In late diagnosed cases of quadriceps ruptures, loss of flexion is a common problem after treatment⁵. Diagnosis may be delayed in bilateral quadriceps tendon rupture because patients do not seek medical help, the patients not always present with classical symptoms, swelling or obesity may hide the suprapatellar gap in physical exam, the condition is rare and not included in differential diagnosis, comparison with an uninjured side is not possible^{2, 5}. It may be misdiagnosed as arthritis or a neurological condition². Elderly people are especially at risk for missed diagnosis².

Conclusion

As some of these patients will be initially examined in emergency departments an increasing awareness in respect to this entity may help to avoid delay in diagnosis and treatment. Since it is a rare injury emergency room doctors should be familiar with symptoms and signs of it to diagnose it early and prevent disability.

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