

Simultaneous Rupture of Bilateral Quadriceps Tendon and Rotator Cuff Tear A Case Report

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ABSTRACT

This is a case report of a patient who sustained both a bilateral quadriceps tendon rupture and a complete rotator cuff tear. Overuse is a known risk factor for rotator cuff tears, but this case suggests that it can also be a risk factor for quadriceps tendon rupture.

Keywords: Quadriceps, rotator cuff, tear

Ruptura Simultánea del Tendón Cuadriceps Bilateral y Desgarramiento del Manguito Rotador: Un Reporte de Caso

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RESUMEN

Este es un reporte de caso de un paciente que sufrió una ruptura del tendón cuadriceps bilateral y desgarramiento total del manguito rotador. El uso excesivo es un factor de riesgo conocido del desgarramiento del manguito rotador; pero el presente caso sugiere que también pueda ser un factor de riesgo para la ruptura de tendón cuadriceps.

Palabras claves: Desgarramiento, cuadriceps, manguito rotador

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INTRODUCTION

Bilateral quadriceps tendon rupture is an uncommon presentation usually secondary to an underlying predisposing condition. The most common of these conditions is chronic renal failure (1). Occupational or recreational activities are not generally considered true risk factors for the injury. We present a case of a patient with no known significant medical history who sustained simultaneous rupture of bilateral quadriceps tendons and left rotator cuff after using an elliptical machine daily for three months.

CASE REPORT

A 59-year old, previously well gentleman presented to a tertiary care centre with a three day history of bilateral knee and left shoulder pain and swelling. For the three months prior to his injury, he exercised daily on an elliptical machine

for three hours per day. The patient missed a step while going down a stairway and felt his right knee “pop”, resulting in a fall. Attempting to recover from his fall, he felt his left knee “pop” and he fell on his left outstretched arm.

The patient was taken by ambulance to a hospital for evaluation. X-rays were negative for fracture and he was discharged home on crutches. Unable to mobilize or perform activities of daily living at home, he presented to our facility for further evaluation.

Examination of the patient’s lower extremities was difficult secondary to diffuse pain and swelling. On inspection, he had bilateral effusion of the knees and quadriceps. There was no palpable suprapatellar gap or knee laxity with valgus or varus stress. Anterior drawer sign, posterior drawer sign and Lachman’s test were negative. On motor examination, strength was 2/5 bilaterally for hip flexion, 1/5 bilaterally for knee extension and 1/5 bilaterally for knee flexion.

Examination of the left shoulder revealed a positive cross arm adduction test, Neer’s test, Hawkin’s test, drop arm test and lift off test. On active range of motion, abduction was limited to 20 degrees, extension limited to 30 degrees and flexion limited to 30 degrees. Strength was 2/5 in the left deltoid, but was otherwise 5/5 in the other musculature.

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Initial X-ray imaging was negative for fractures. A magnetic resonance imaging (MRI) of the left shoulder and bilateral lower extremities demonstrated a complete rotator cuff tear and bilateral quadriceps tendon rupture (Figs. 1–3).

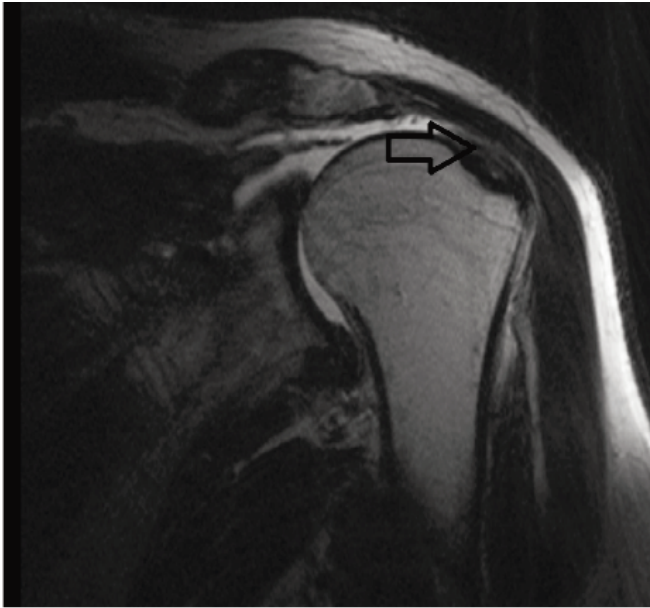


Fig. 1: Magnetic resonance imaging (MRI) of left shoulder. Arrow indicates complete rotator cuff tear.



Fig. 2: Magnetic resonance imaging of left knee showing bilateral quadriceps tendon rupture.



Fig. 3: Magnetic resonance imaging of right knee. Arrow indicates bilateral quadriceps tendon rupture.

Laboratory work-up was negative for renal failure, lupus, thyroid or parathyroid disease. The patient denied taking any antibiotics, steroids or statins.

After establishing the diagnosis, the patient was taken to the operating room for bilateral quadriceps tendon repair. The left rotator cuff tear repair was deferred by orthopaedic surgery. The patient was placed in bilateral knee immobilizers and granted an electric wheelchair. After immobilization for 12 weeks, he was admitted to the inpatient rehabilitation unit for aggressive physiotherapy. On discharge from the rehabilitation unit, the patient was ambulatory with a front wheel walker and independent with functional transfers.

DISCUSSION

Bilateral quadriceps tendon rupture is a rare but well-described condition (2). Presenting symptoms vary and it is often difficult to examine the patient due to pain and swelling, as in our case.

The classic presentation for bilateral quadriceps tendon rupture include: pain, inability to extend the knee, suprapatellar tendon gap, oedema, floating patella and absent

patellar reflexes. Diagnosis is often delayed or missed, with a reported diagnostic delay in 38.7% of patients and missed diagnosis in 50% of patients on initial evaluation (3, 4). The patient suffered a diagnostic delay of three days after being sent home by an outside hospital, which stresses the importance of consideration of tendon injury as a differential diagnosis.

Quadriceps rupture often presents with associated injuries. A previous review of the literature indicated that 67.9% of patients with bilateral quadriceps tendon rupture sustained an injury at an additional site (2). None of these reported patients presented with concurrent rotator cuff tear, and neither did the index patient.

There are documented risk factors for quadriceps tendon rupture, which include: obesity, age, metabolic disorders, renal failure, gout, lupus, steroid use, hyperparathyroidism, hypercholesterolaemia, quinolone and statin use. Chronic renal failure is considered to be the most common risk factor, with a reported rate of over 40% (1).

Occupational or recreational activities have been a known risk factor for rotator cuff tears, but are not generally considered true risk factors for quadriceps tendon rupture. Previous speculation regarding development of quadriceps

tendon lesions from overuse has been suggested by other researchers (5, 6).

In summary, the patient in this case report had a rare presentation of simultaneous rupture of bilateral quadriceps tendon and rotator cuff. He had none of the known risk factors that predispose to this presentation. His presentation suggests that chronic overuse of the tendon from intensive elliptical training resulting in microtrauma, may be a true risk factor for quadriceps tendon rupture. It also emphasizes the importance of considering bilateral quadriceps tendon rupture as a differential diagnosis.

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