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Case Report

Spontaneous rupture of quadriceps tendon: A report of two cases and review of the literature

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ABSTRACT

Introduction: Spontaneous rupture of the quadriceps tendon is rare. A sudden snap in the knee and feeling of giving way and occasionally falling are associated with rupture of the tendon. Subsequently, the loss of extensor mechanism of the knee limits ambulation. The aim of this report is to highlight this rare entity and to demonstrate that simple tendon repair could also give good results.

Presentation of case: The two patients were middle aged who were apparently healthy with active lifestyles prior to their injuries. The first patient is a 61-year-old lady who was descending the staircase when she suddenly felt her knee gave way. She supported herself on the rail and subsequently started ambulating with a stick until presentation. The second patient is a 57-year-old male who was doing a pre-game work out in a lawn tennis court when he felt a sudden pull on his right knee and he slumped. After some weeks, his pain subsided but he noticed poor clearance during gait. A big defect, just above the patella was found in the usual position of the quadriceps tendon in each patient. Simple end-to-end tendon repairs were done for both patients with excellent restoration of the extensor mechanism.

Discussion: Spontaneous rupture of a strong tendon such as quadriceps is not common. The sudden episode of pain, knee swelling, a gap in the quadriceps and loss of knee extension make clinical diagnosis unmistakable. However, radiological exclusion of patella fracture is important.

Conclusion: Restoration of the extensor mechanism of the knee is a *sine qua non* for effective ambulation. The quadriceps pull would always create a gap in the tendon and healing is only possible by surgical apposition of the tendon ends and in our cases by direct suturing.

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1. Introduction

Spontaneous rupture of the quadriceps tendon is an uncommon injury¹⁻³ and it is most commonly reported in people who are above 50 years of age.⁴ In younger people, rupture of the

quadriceps tendon occur more commonly following severe trauma with or without fracture of the femur.⁵ Direct sharp cut with machete following assault or fall into a pile of shrapnel are other possible causes of partial or complete rupture of the tendon. Complete rupture of the quadriceps tendon results in the loss of knee extension and gait abnormality. The abnormal gait arises from the inability to clear the foot from the ground

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adequately and this makes the patient not to walk fast or even run.

The extensor mechanism of the knee includes the quadriceps muscles, the quadriceps tendon, the patella and the patella tendon. Patella fracture is frequently encountered in clinical practice and injuries to the extensor mechanism are also possible complications that could be encountered during knee surgeries like arthroplasty or ante-grade tibia nailing.^{6,7} On the other hand, spontaneous tendon rupture may be associated with gout, hyperparathyroidism, uremia, muscle weakness and attenuation that come with old age and repeated minor muscle injuries.^{4,8}

This report is about the rare cases of spontaneous rupture of the quadriceps tendons in apparently healthy middle-aged persons who presented late and yet had full recovery following end-to-end tenorrhaphy.

2. Presentation of case

A 62-year-old lady was descending the staircase in her home when she felt a sudden sharp pain and giving way of the right knee. She held onto the rail and managed to limp down to the bottom of the staircase. She visited the traditional bone setters and managed with the aid of a stick for 9 months until presentation. She walked with a limp and circumducts the right leg during gait. The right thigh was wasted with a visible defect just above the knee anteriorly (Fig. 1). She could not raise the leg off the examination couch actively. A gap was felt at the site of quadriceps tendon when compared to the contralateral limb. The passive range of motion of the knee was normal and there was no ligament laxity. All the investigations including full blood count, serum uric acid and calcium, blood sugar were normal. Plain radiograph of the knee and the thigh did not show any fracture and the patella was located in the intercondylar region of the femur. She had a knee exploration and an in-substance rupture of the tendon was observed



Fig. 1 – A clinical photo of ruptured right quadriceps tendon showing thigh muscle wasting and a supra-patella defect.



Fig. 2 – An intra-operative clinical photograph showing intra-substance tendon rupture with the proximal and distal ends freshened for repair.



Fig. 3 – An intra-operative clinical photograph showing end-to-end repair of the tendon after retinacular release.

(Fig. 2) and after freshening the edges, end-to-end repair was done with nylon 2 (Fig. 3). Plaster of Paris cylinder cast was applied and patient was discharged after 5 days. The cast was removed after 6 weeks. She had physiotherapy to regain quadriceps strength and restore range of movement to the knee. She attained full activities of daily living 13 months post operation.

The second patient is a 57-year-old male with muscular build who was seen limping with the aid of a stick in the outpatient-department following an incident in a lawn tennis court 5 weeks previously. He was doing the preliminary work up before a recreational game when he suddenly felt a snap on the right knee associated with sharp pain. An attempt to bear weight on the leg was very painful and he slumped but he later limped out of the court. He went to the traditional bone setters

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