



Case report

Spontaneous bilateral quadriceps rupture – A case report



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ABSTRACT

Bilateral simultaneous quadriceps rupture is a rare entity. Its occurrence without associated aetiology is even rarer. It has a bimodal age distribution, with majority of cases occurring in population older than 50 years. Its occurrence in younger population is unusual. Aetiology is trauma, long term steroid usage, fluoroquinolone injections at local site or associated co-morbidities such as chronic renal failure, diabetes, obesity, hyperparathyroidism, endocrine disorders and gout, which via different mechanism lead to weakening of tendon thereby predisposing it to rupture. Surgical repair is the treatment of choice; it ranges from direct repair using Bunnel or Krackow sutures in acute cases to repair via lengthening procedures in chronic cases as described by Scuderi and Codivilla. Distal fixation to patella is a matter of debate in today's time as suture anchors have emerged as an alternative to trans-osseous repair. Although various studies have demonstrated good outcomes with suture anchors, biomechanical studies comparing the two techniques have shown conflicting results. We present a case of spontaneous bilateral quadriceps rupture in a young female without associated identifiable pathology. Also, we attempt to describe the Codivilla repair technique and discuss recent trends in quadriceps repair.

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1. Introduction

Bilateral simultaneous quadriceps rupture is a rare entity. Several case reports and studies describing the similar condition that have been reported in the literature have occurred in patients with predisposing factors to tendinopathy. However, Tarazi et al.¹ has reported a case of bilateral patellar tendon rupture sustained by a patient following minimal trauma with no predisposing medical conditions. Its occurrence without any associated aetiology is even rarer.² It has a bimodal age distribution, with majority of cases occurring in population older than 50 years. Its occurrence in younger population is unusual.^{3–6} Aetiology is trauma, long term steroid usage, fluoroquinolone injections at local site or associated co-morbidities such as chronic renal failure, diabetes, obesity, hyperparathyroidism, endocrine disorders and gout, which via different mechanism lead to weakening of tendon thereby predisposing it to rupture.^{4,7,8}

Surgical repair is the treatment of choice; it ranges from direct repair⁹ using Bunnel or Krackow sutures in acute cases to repair via lengthening procedures in chronic cases as described by Scuderi

and Codivilla.¹⁰ Distal fixation to patella is a matter of debate in today's time as suture anchors have emerged as an alternative to trans-osseous repair.^{11,12} Although various studies have demonstrated good outcomes with suture anchors, biomechanical studies comparing the two techniques have shown conflicting results.^{13–15}

We present a case of spontaneous bilateral quadriceps rupture in a young female without associated identifiable pathology. Also, we attempt to describe the Codivilla repair technique and discuss recent trends in quadriceps repair.

2. Case report

A 21-year-old woman presented with difficulty in walking and pain in both knee for one year. There was history of sudden give way feeling at both knees while descending stairs one year back. No history of trauma was present. No history of long term steroid usage and fluoroquinolone injections at local site. Following the incident, an osteopath prescribed her treatment in form of bed rest and analgesics for one month after which she started ambulating on her own. Although she was ambulating independently, she had pain and difficulty while walking with inability to extend the knees completely.

Clinical examination revealed a palpable gap in supra-patellar region with some continuity of extensor mechanism maintained

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Fig. 1. Clinical photograph demonstrating the visible defect in supra-patellar region of both knees.



Fig. 2. Plain radiograph – lateral view of both knees showing patella baja.

via lateral retinaculum (Fig. 1). She had antalgic gait with extensor lag of 30° and active range of motion 30–130° although passive extension was possible.

Plain radiograph of both the knees revealed patella baja with loss of soft tissue contour in supra-patellar region (Fig. 2). Magnetic resonance imaging showed loss of continuity of quadriceps tendon in T2 weighted images (Fig. 3) confirming the clinical diagnosis of bilateral quadriceps tendon rupture.

Patient was thoroughly evaluated preoperatively with blood sugar level, renal function test, thyroid function test, serum parathyroid level, RA factor, anti-CCP, HLA B-27 level and serum uric acid level to rule out all predisposing medical conditions responsible for tendinopathy. However, no aetiology was found causing the pathology. As the patient had extensor lag and difficulty in walking she was planned for bilateral quadriceps repair.

3. Surgical technique

Patient was laid in supine position. After combined spinal epidural anaesthesia, part preparation and draping was done as per standard protocol. A 15 cm long midline, longitudinal incision was given over the anterior aspect of knee extending up to tibial tuberosity (Fig. 4a). Full thickness flaps were elevated on both



Fig. 3. MR imaging – T2 weighted images showing discontinuity at quadriceps insertion.

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