

QUADRICEPS TENDON DELAMINATION TEAR. A CASE REPORT

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ABSTRACT

Partial quadriceps tendon ruptures are rare and they are usually managed non-operatively, provided that the extensor mechanism is intact. In case the extension mechanism is compromised, a more aggressive treatment is required, which includes surgical repair of the tendon. We present an extremely rare case of a 42 year old male lifter who sustained a quadriceps tendon delamination tear, after lifting weights. Careful clinical examination revealed a compromised extension mechanism of the knee. Proper imaging confirmed the diagnosis of partial, but significant rupture of the undersurface of the quadriceps tendon, which was treated operatively with a very good outcome.

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INTRODUCTION

Quadriceps tendon rupture is considered a rare injury, with an incidence of 1.37/100000 patients per year.

Complete quadriceps tendon ruptures are treated operatively, ideally within 2 weeks of injury. Partial ruptures can be treated conservatively depending on the extent of rupture as well as the resulting functional disability.

We present an extremely rare case of a 42 year old male lifter who sustained a partial quadriceps tendon delamination tear, after lifting weights

METHODS AND MATERIALS

A 42 year old male power lifter presented to the emergency department (ED) on a wheelchair after he had lifted 110kg using the “clean and jerk” technique at the gym. He mentioned a right sided acute above knee pain.

No palpable gap could be felt at the superior pole of the patella. An extension lag of 30 degrees was identified, indicating a compromised knee extension mechanism.

Magnetic resonance imaging (MRI) and ultrasound scan (US) revealed a complete tear of vastus lateralis, vastus medialis and vastus intermedius tendons, whereas the rectus femoris tendon was intact.

Surgical exploration confirmed the former imaging results. Operative treatment included transosseous tunnel repairing technique to secure the tendon to its attachment site.

RESULTS

Six months after the surgery the patient had established full range of motion of the knee and a quadricep muscle strength of 5/5 according to oxford muscle scale. At this point he had returned back to work, and he was able to perform recreational activities. On his final follow up one year postoperatively the patient was able to perform a full weight training program at the gym. The International Knee Documentation Committee (IKDC) score was calculated and was found to be 81.6 and 92.0 at 6 months and at one year post operation respectively.

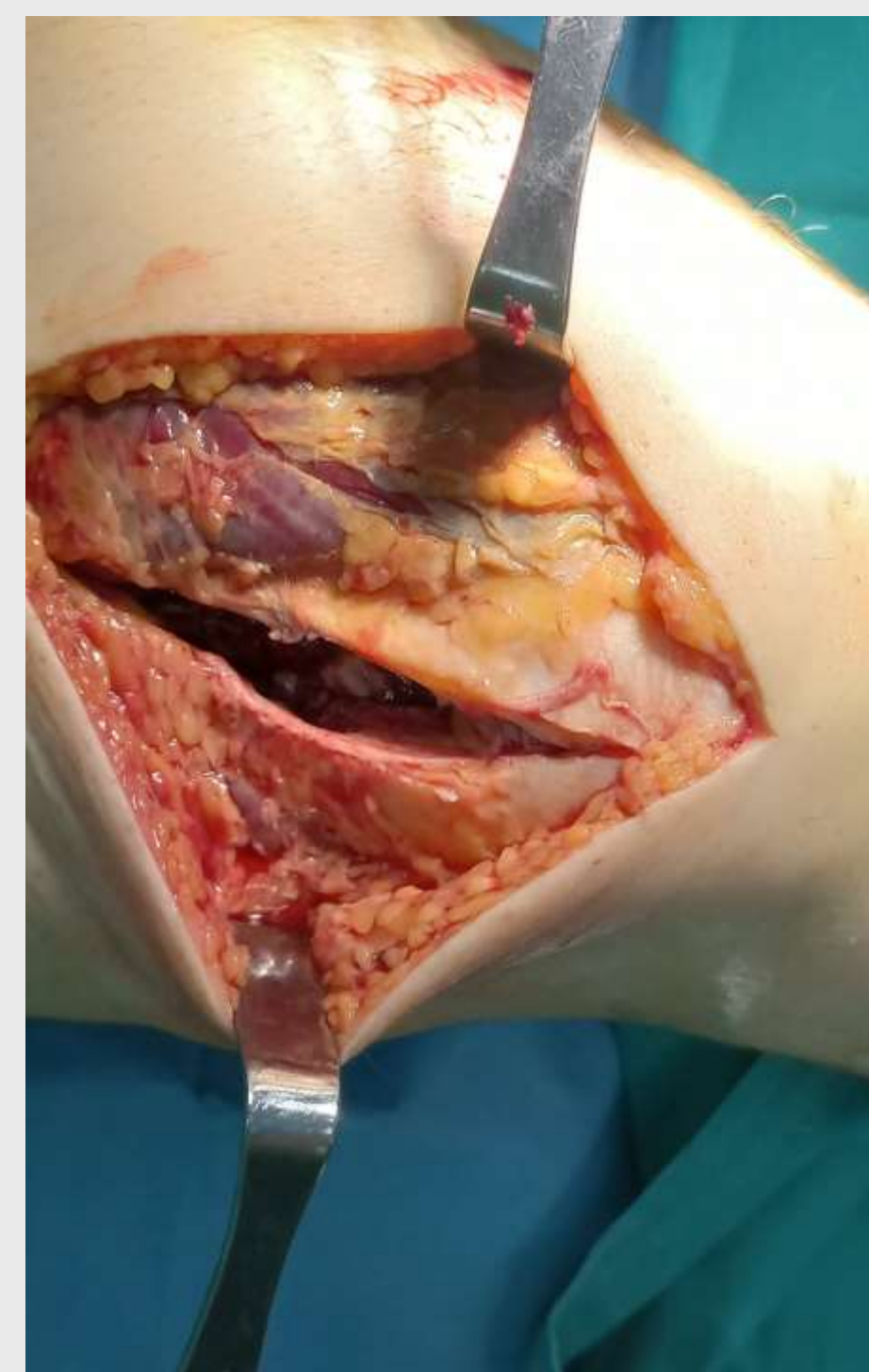


Figure 1. Intraoperative photograph showing rectus femoris longitudinal incision

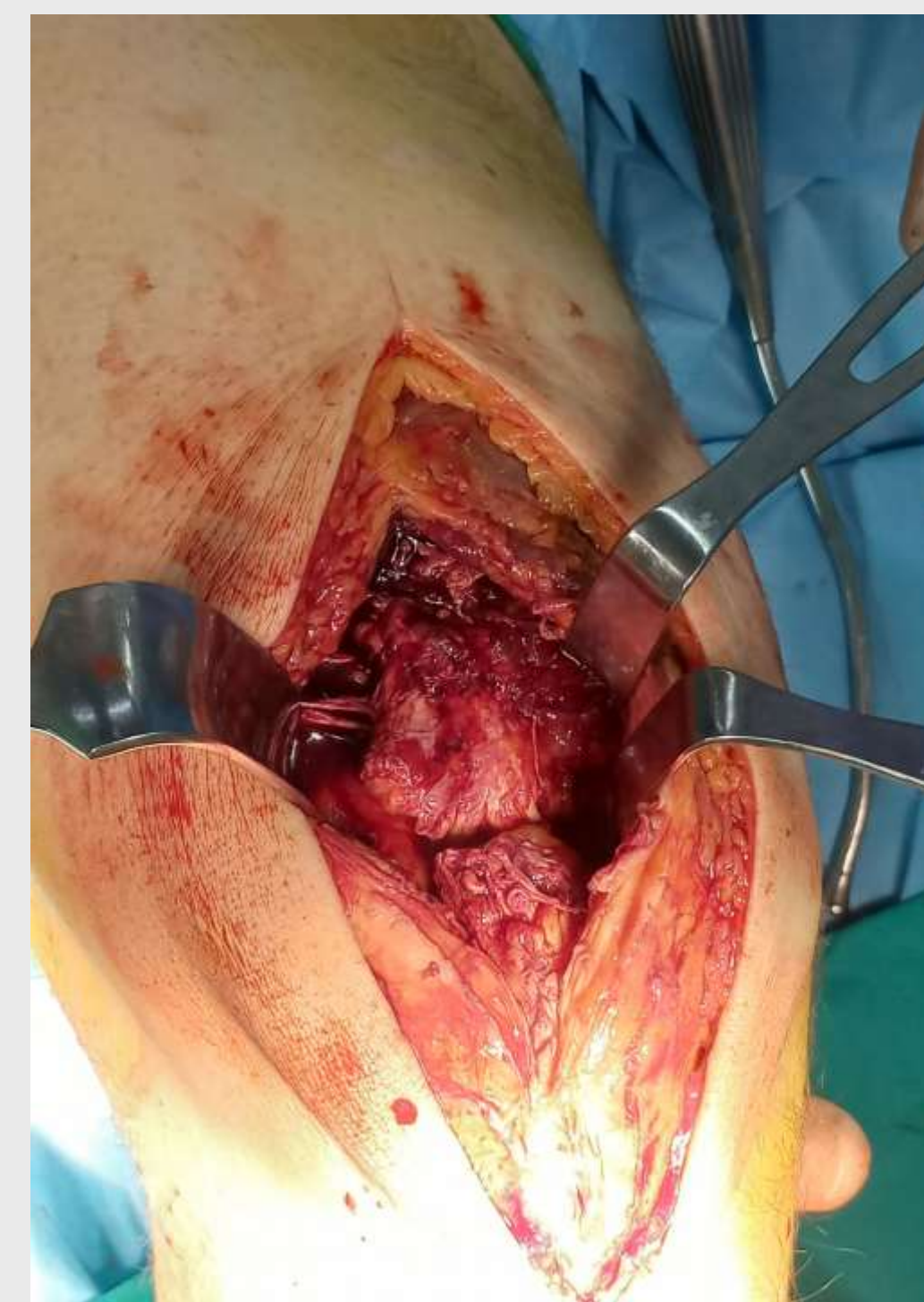


Figure 2 Intraoperative photograph showing the underface and deep tendon layers rupture



Figure 3. Intraoperative photograph post restoration of the tendon undersurface

DISCUSSION

Early diagnosis and treatment are crucial, as quadriceps muscle retraction and subsequent atrophy can be established rapidly, affecting the functional outcome significantly.

In our case the diagnosis could be easily missed, due to the absence of a palpable gap and the presence of a nearly complete active knee extension. Appropriate assessment and management of the patient led to a satisfactory clinical outcome.

To the best of our knowledge this is the second case of quadriceps tendon delamination described in the literature.

Loose et al in a retrospective analysis reported a mean IKDC score of 73.1 (38.0-87.0) from patients who received quadriceps tendon refixation following acute quadriceps tendon rupture.

CONCLUSIONS

Quadriceps tendon delamination tear is very rare and it can be easily missed. Our case highlights that proper examination and imaging are of paramount importance in order to provide the appropriate treatment and achieve a good outcome.

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