Reminder of important clinical lesson

Simultaneous traumatic rupture of the patellar tendon and the contralateral quadriceps tendon in a healthy individual

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Correspondence to S Kumar, sujit75@doctors.org.uk**Summary**

A simultaneous traumatic complete rupture of the patellar tendon and the contralateral quadriceps tendon is reported to occur in patients with renal failure and other inflammatory diseases, but is extremely rare in a healthy individual because of the different contributory factors and mechanisms of injury. We present a rare case report of such a combination of injuries in a 48-year-old healthy man. To our knowledge only three such cases have been reported in the English literature. This is an unusual combination and hence there is potential for missed diagnosis leading to suboptimal treatment.

BACKGROUND

Rupture of the extensor mechanism of the knee is a serious injury requiring prompt diagnosis and early surgical treatment. It can occasionally occur bilaterally, presenting a diagnostic pitfall. Ruptures of bilateral patellar tendons or bilateral quadriceps following trauma have been described.^{1 2} However, the simultaneous rupture of a patellar tendon and the opposite quadriceps tendon is extremely rare in a previously fit individual as different mechanical, systemic and local factors are involved. The quadriceps rupture is more common in older subjects (>50 years) with associated systemic factors such as obesity, gout and local degenerative changes. Patellar tendon rupture is seen in young healthy people, with repeated micro trauma being the main causative factor.

After an extensive literature search we have found only three other similar cases.

This is an unusual combination and hence there is potential for missed diagnosis leading to suboptimal treatment.

CASE PRESENTATION

A 48-year-old fit and active man was involved in a fight while ejecting people from his nightclub. His knees suddenly gave way as someone jumped upon his back. He fell to the ground and was unable to bend his knees while trying to get up. He had an unremarkable past medical history, and had no history of steroid use.

On presentation the main complaint was of pain in both knees and examination showed bilateral knee effusions. The patient was unable to perform a straight leg raise on

Figure 1 Photograph of the left knee from the side showing a suprapatellar defect.

Figure 2 Photograph of both knees showing the different patella levels.

Figure 3 Radiographs: lateral views of both the knees showing patella alta of the right knee.

either side. A suprapatellar defect was noted on both inspection and palpation on the left side (figure 1). He had tenderness over the right patellar tendon and this patella was noticed to be lying higher compared to the left (figure 2). Clinically, a diagnosis of quadriceps tendon rupture on the left side and patellar tendon rupture on right side was made.

INVESTIGATIONS

Plain AP and lateral radiographs of the knees confirmed the patella alta on the right side and did not show any bony injuries or patellar spur (figures 3 and 4). An urgent ultrasound scan (USS) was performed, which was reported as a full

thickness mid substance complete rupture of the patellar tendon on the right side and a full thickness rupture of the quadriceps on the left side.

TREATMENT

The patient was taken to theatre the same day for bilateral exploration and repair of the ruptured tendons. On the left side the quadriceps tendon was found to be completely torn 1 cm proximal to the superior border of the patella. The tear extended up to the posterior margins of the extensor expansion (figure 5). On the right side the patellar tendon was found to be completely torn in the mid substance (figure 6).

Figure 4 Radiograph: AP views of both knees showing patella alta of the right knee.

Figure 5 Intraoperative photograph showing complete rupture of the quadriceps tendon of the left knee.

Figure 6 Intraoperative photograph showing complete rupture of the patellar tendon of the right knee.

The tendons were repaired primarily using No. 2 Ethibond with double Kessler's suture and reinforced with interrupted sutures. The patellar tendon repair was further protected with figure-of-eight absorbable sutures passed through the patella and tibial tuberosity using drill holes. Capsular and retinacular repair was achieved with No. 0 Vicryl. Minimal tendon debridement was carried out.

OUTCOME AND FOLLOW-UP

Intraoperatively, each knee had a range of flexion of up to 90° without tensioning the repair. The repair was protected in the post-operative period by hinged knee braces and 45° of flexion was allowed immediately to facilitate rehabilitation considering the bilateral nature of the injury. Increasing flexion was then allowed after 6 weeks reaching a maximum at 12 weeks.

The patient was last seen in clinic at 28 weeks after the operation, and as he had returned to normal function he was discharged. His knees were able to flex to 120° on the left and 115° on the right. There was no extensor lag.

DISCUSSION

Extensor mechanism disruptions of the knee are relatively uncommon but serious injuries. They are clinically diagnosed by the triad of swelling around the knee, palpable defect and inability to perform straight leg raise. The most common form of disruption is patellar fracture followed by rupture of the patellar tendon and the quadriceps tendon.³ A simultaneous rupture of a patellar tendon and the opposite quadriceps tendon is extremely rare in a previously fit individual as different mechanical, systemic and local factors are involved. The quadriceps rupture is more common in older subjects (>50 years) with associated systemic factors such as obesity, gout and local degenerative changes.⁴ Patellar tendon rupture is seen in young healthy people, with repeated micro trauma being the main causative factor.

Bilateral traumatic ruptures of extensor tendons are being increasingly reported and it is important to consider a bilateral pathology in cases presenting with traumatic rupture on one side. The commonest cause of bilateral simultaneous rupture appears to be sudden violent contraction of the quadriceps mechanism with the knees slightly flexed and feet firmly planted on the ground.¹ It is important to feel for tenderness and defects in both the suprapatellar and infrapatellar regions, as both ruptures can occur simultaneously in spite of the two having different pathogeneses.

This is the fourth reported case in the English literature of a simultaneous rupture of the two tendons in the same individual in the absence of any inflammatory disease.^{5–7} This patient had urgent surgery and early rehabilitation, which is the key to good functional outcome. This case, therefore, highlights the importance of developing awareness among treating physicians and physiotherapists of the possibility of this unusual combination even in healthy individuals.

Learning points

- ▶ A thorough and systematic examination is essential.
- ▶ Both knees should be examined even though the injury appears to be on one side only.
- ▶ Plain radiographs should be carefully studied for extensor mechanism injury.

Competing interests None.

Patient consent Obtained.

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