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CLINICAL REPORT

Chronic patellar tendon rupture reconstruction with a semitendinosus autograft

A.G. Nguene-Nyemb, D. Hutten, M. Ropars*

Department of Orthopaedic Surgery, Pontchaillou Hospital, Rennes Teaching Hospital Center,
2, rue Henri-Le-Guilloux, 35033 Rennes, France

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KEYWORDS

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Summary Chronic patellar tendon ruptures are somewhat rare, thus little work has been done in this area and their true incidence is not known. The management of a neglected, chronic patellar tendon rupture must address three difficulties: the proximally retracted patella, the reconstruction of the patellar tendon, finally, the temporary protection of this repair. By presenting a case of a chronic patellar tendon rupture, the advantages of reconstruction with an isolated semitendinosus tendon autograft, especially from an early rehabilitation perspective, are described.

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Introduction

Patellar tendon ruptures mostly occur in persons under 40 years of age [1–3], typically during a sporting activity [4–6]. The tendon is usually completely ruptured at the proximal insertion [7]. Treatment of acute patellar tendon ruptures involves direct tendon to tendon repair or transosseous sutures, usually combined with an additional procedure to temporarily protect the repair [1]. A rupture becomes chronic or neglected if not diagnosed. This is not a common injury [9]. No extensive case series have been published. Through a case report of a chronic patellar tendon rupture, the challenges and advantages of reconstruction

with an isolated semitendinosus tendon autograft followed by early rehabilitation are described.

Case report

The patient was a 49-year-old male carpenter, who routinely works on his knees and averages 3 h/week of sports participation. He ruptured his left patellar tendon at 28 years of age; the rupture was repaired by end-to-end suturing and protected with cerlage; the outcome was favorable. The patient did not have any systemic diseases or concurrent treatments that would have weakened the tendon.

While playing football, the patient felt a buckling of his right leg when landing from a jump, followed by pain in the anterior aspect and functional disability. At the emergency ward, the clinical examination revealed prominent pain in the medial patellar retinaculum and lateral radiographs

* Corresponding author.

E-mail address: mickael.ropars@chu-rennes.fr (M. Ropars).

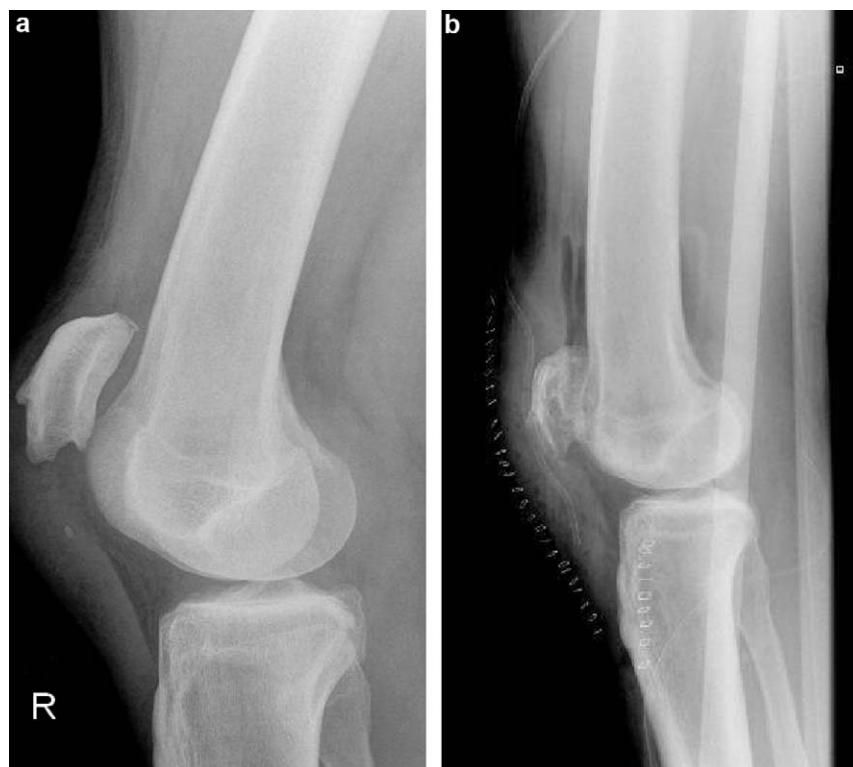


Figure 1 a: lateral X-ray after the initial injury shows a patella alta (Caton Deschamps index: 1.5); b: postoperative lateral view of the operated knee: patellar height is normal.

showed a patella alta (Caton Deschamps index = 1.5) with the patella having the typical overuse appearance for an athlete (Fig. 1a). A diagnosis of patellar instability was made. A splint was used to immobilize the injury site. After 1 month, rehabilitation sessions were initiated and there was a good progression. Four months after the injury, the patient described experiencing weakness and being unable to lock his knee when going down stairs over the previous 5 weeks and had the impression that the patella was moving upward, especially when seated. Clinical evaluation confirmed this proximal migration along with an infrapatellar void. However, the patient could actively extend his leg. Pushing down on the patella caused pain and the patellar femoral grinding test was positive. Ultrasonography confirmed the diagnosis of a chronic patellar tendon rupture with a background of chronic tendinopathy. A surgical intervention was warranted.

Using a mid-line incision, full exposure of the patellar tendon revealed that the tendon was not inserted on the pole of the patella. However, there was a continuum of fibres, which were sufficient to support active extension. After debridement and freshening of the pole of the patella, distal mobilization of the patella was performed. A horizontal tunnel was drilled with a 4.5-mm bit in the lower half of the patella, through which three non-resorbable Mersuture® 3/0 strands were passed; these were used to reinsert the patellar tendon on the patella. The semitendinosus tendon was harvested through a small incision over the *pes anserinus*. A tendon stripper was used to harvest the tendon, which was pulled through the main incision. The tibial insertion of the semitendinosus tendon was kept

intact. A second tunnel was drilled horizontally with a 6-mm auger into the upper half of the patella. The harvested tendon was passed through this tunnel from medial to lateral and then sutured to both sides of the patellar tendon in 30° of flexion. In this position, the length of the patellar tendon was equal to the height of the patella, according to the Insall-Salvati index. The autograft tension was set so that the length of the reconstructed tendon was approximately equal to the height of the patella, without requiring an intraoperative radiograph. No tibial tunnel was made. A cross mattress suture pattern was performed with a 4-metric, non-braided, resorbable suture (PDS®1). To obtain good patella to patellar tendon continuity and solidify the assembly, the quadriceps expansion was folded over to a 1.5-cm width and sutured to the patellar tendon using the same type of suture. An intraoperative flexion of 90° could be attained easily, without tension. Standard postoperative radiographs showed good restoration of the patellar height with a Caton Deschamps index of 1 (Fig. 1b).

Full weight bearing was allowed at Day 1 and protected with an extension splint between physiotherapy sessions. The initial rehabilitation aimed at restoring passive range of motion up to 90° of flexion during the first 45 days; no active extension was allowed. Starting in week 6, the range of motion was gradually increased and quadriceps strengthening initiated.

At a 2-year follow-up, full flexion could be achieved and was comparable to the contralateral side, quadriceps strength was marked as 5/5 and thigh girth at 10 cm above the patella was comparable to the left side (Fig. 2). The

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