

Bilateral simultaneous spontaneous rupture of the quadriceps tendons

J F Noyez MD

Department of Surgery, H Hart Ziekenhuis, Roeselare, Belgium

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A case report is presented of a bilateral simultaneous rupture of the quadriceps tendons. The injury occurs most often in elderly people and delay in the diagnosis is not uncommon. Early operative repair is recommended. By using a metal wire passing through a transverse hole in the superior pole of the patella and through the tendon proximal to the repair site, early mobilisation is allowed, avoiding the need for external splintage.

Introduction

Bilateral simultaneous rupture of the quadriceps tendons is an uncommon injury. Until 1984, only six cases had been reported in the English medical literature. Mac Eachern and Plewes² described an additional five in 1984 and Keogh et al¹ reported another four in 1988. Isolated cases have been published by Mac Donald⁶, Norris and Levack⁹, Preston⁵, and Brotherton and Ball³. Most of the authors recommend surgical repair and emphasise

the need for six weeks postoperative immobilisation in a plaster cast.

This paper presents a patient treated with primary repair, in which no external immobilisation was used. A metal wire, protecting the repair, was employed and early knee flexion and quadriceps exercises were started.

It was concluded that in selected cases of bilateral simultaneous rupture of the quadriceps tendons, there is no need for external splintage, when the surgical repair is protected by a metal wire.

Case Report

An 82-year-old Caucasian slipped on the steps and fell forwards onto both knees. He was unable to walk afterwards and was brought to the University Teaching Hospital where radiographs were taken. These were interpreted as normal by the junior doctor on call and a diagnosis of a bilateral traumatic hemiarthrosis of the knees was made. Aspiration of the knees was done and a bandage applied. The patient felt better and an overnight stay in the hospital was arranged. Review the next day by the

author revealed obvious palpable gaps in the quadriceps tendons and absence of active knee extension despite quadriceps contractions.

Radiographs showed small avulsion fractures from the superior pole of both patellae (Fig 1).



FIG 1 Preoperative radiograph showing some avulsion fragments (arrows) from the superior pole of the patella.

Operation was carried out the same day. Both tendons were repaired using interrupted mattress Vicryl No 1 stitches. In addition, a metal wire in a figure of O, passing through the quadriceps tendon proximal to the repair site and through a transverse drill hole in the superior pole of the patella was used. At operation, no macroscopic degeneration of the tendon was seen. Some osteoarthritic changes of the patello-femoral joint with softening of articular surface of the patella were described.

No immobilisation in a plaster cast was given

postoperatively. Knee flexion exercises and quadriceps setting were started one week postoperatively under the supervision of a physiotherapist. Four weeks postoperatively, 60° of knee flexion in the left knee and 50° of knee flexion in the right knee was obtained. At that time the patient was able to perform active straight leg raising. The patient was mobile on crutches six weeks postoperatively and was discharged from hospital with 90° knee flexion and full extension of both knees. Three months postoperatively, no external support was needed, the patient did not experience any pain and a satisfactory range of motion was obtained. The further evolution was uneventful, except the development of a reactive synovitis with patellofemoral pain four months postoperatively after climbing four flights of stairs. This responded only partially to conservative treatment.

Overall result at one year was graded satisfactory. The patient was independent and required external support (1 crutch) only to walk outdoors. He had full range of motion of both knees but some patellofemoral pain and crepitus persisted.

Discussion

Bilateral quadriceps tendon rupture is an uncommon injury, most frequently occurring in elderly people. Only a few studies^{1,2} report more than a single case of bilateral quadriceps tendon rupture. The commonest cause of bilateral simultaneous rupture may be a sudden forceful contraction of the quadriceps tendon with the knee slightly flexed. In most studies or case reports, the patients are male and over 50 years of age. The patient reported was male and was an octogenarian.

Predisposing factors include mainly gout³, obesity, degenerative changes and hyperparathyroidism^{4,5}. Those aetiological factors were not significant for the patient in this case report.

There is often a delay in diagnosis. The diagnostic features on examination are as follows: a palpable suprapatella defect, swelling around the knee and the inability to lift the straight leg despite the presence of a contracting quadriceps muscle.

The radiograph may show an avulsion of fragments from the superior pole of the patella with an effusion in the suprapatella region and absence of the normal outline of the quadriceps tendon. Aprin and Broukhim⁶ recommend an arthrogram as a useful and easy method for early diagnosis of rupture of the quadriceps tendon.

Early surgical repair yields the best results. Previous reports stress the importance of six weeks immobilisation in a plaster cast^{1,2}. The patient presented in this study did not need any kind of external knee splintage and knee rehabilitation was started at a very early postoperative stage. However, a co-operative patient is mandatory and a longer stay in hospital may be necessary as in this elderly man.

It is concluded that, in selected cases, early mobilisation of the knee can be started after operative repair of a bilateral spontaneous rupture of the quadriceps tendons when the repair is protected by a metal wire. The patient presented in this report healed very satisfactorily without the need for any external splintage.

References.

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