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Case report

Rapid chondrolysis following an unoperated lateral meniscus tear in a young professional rugby player

M. Thaunat*, P. Archbold , J. Conteduca , R. Chatellard , B. Sonnery-Cottet

Centre orthopédique Santy, 24, avenue Paul-Santy, 69008 Lyon, France

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ABSTRACT

Rapid chondrolysis following a lateral meniscectomy is a rare complication. We present the first reported case of rapid chondrolysis of the lateral compartment, which developed 6 months after a meniscus tear that was not surgically treated in a young 18-year-old professional rugby player. The possible hypotheses to explain this complication are presented, and certain previously published causes were excluded (iatrogenic during surgery, undiagnosed increased rotatory instability, chondrotoxicity of bupivacaine). Overloading of the cartilage surface of the lateral compartment from meniscal extrusion can cause cartilage necrosis.

1. Introduction

Rapid chondrolysis of the knee following a lateral menisectomy is defined by:

- swelling in the joint and reduced active range of motion on clinical examination [1–4];
- narrowing of the lateral compartment on Schuss view X-rays [5];
- no clinical signs or results suggesting neurological, metabolic, endocrinological, inflammatory or infectious disorders.

We report the case of a professional rugby player who developed rapid chondrolysis of the lateral compartment of the knee following conservative treatment of a lateral meniscal tear. Our goal was to report the first case of chondrolysis following a lateral meniscus tear that was not surgically treated and to review the demographic data, the clinical picture, and the results of the literature to identify factors associated with this severe complication.

2. Clinical case

A professional 18-year-old rugby player presented with persistent effusion, of the left knee following an injury that had occurred 6 months earlier during a match. The MRI performed the week after the injury showed a deep radial tear of the middle segment of the lateral meniscus and the beginning of meniscal extrusion. There was no damage to the cruciate ligaments, or to the posterolateral corner angle. The patient was managed in another center immediately after the injury and conservative treatment was decided upon with gradual rehabilitation and return to play planned for 6 weeks after the accident. Despite this treatment, he was unable to return to sports because of persistent swelling of the knee. The patient did not improve even after he had reduced his sports activities, and he consulted in our hospital for follow-up management.

The clinical examination showed significant swelling of the joint, reduced flexion due to swelling and no anterior, posterior or mediolateral laxity. There was no redness or tenderness (including of the lateral joint space). The McMurray test was negative. A diagnosis of septic arthritis was excluded based on the clinical examination and the laboratory results.

The long-leg X-ray showed 2° valgus. The Schuss view showed 2 mm narrowing of the lateral compartment (Fig. 1). MRI showed effusion, with no subchondral edema, lateral tibiofemoral chondropathy that was predominantly on the tibial side and worsening of the meniscal extrusion to 5 mm (Fig. 2). This tibiofemoral chondropathy was not present on the first post-injury MRI. Because of the unsuccessful conservative treatment and persistent symptoms, arthroscopic lavage was decided upon. Exploratory arthroscopy showed extrusion of the middle segment of the lateral meniscus, cartilage damage extending to the tibial plateau with corresponding lesions on the femoral condyle that were less severe (Fig. 3).

The synovial membrane was inflammatory with numerous villosities. A biopsy of synovial tissue showed non-specific synovitis (infiltration of inflammatory cells, fibrobasts and lymphocytes) with hyperplasia and neovascularisation.

* Corresponding author.
E-mail address: mathieuthaunat@yahoo.fr (M. Thaunat).

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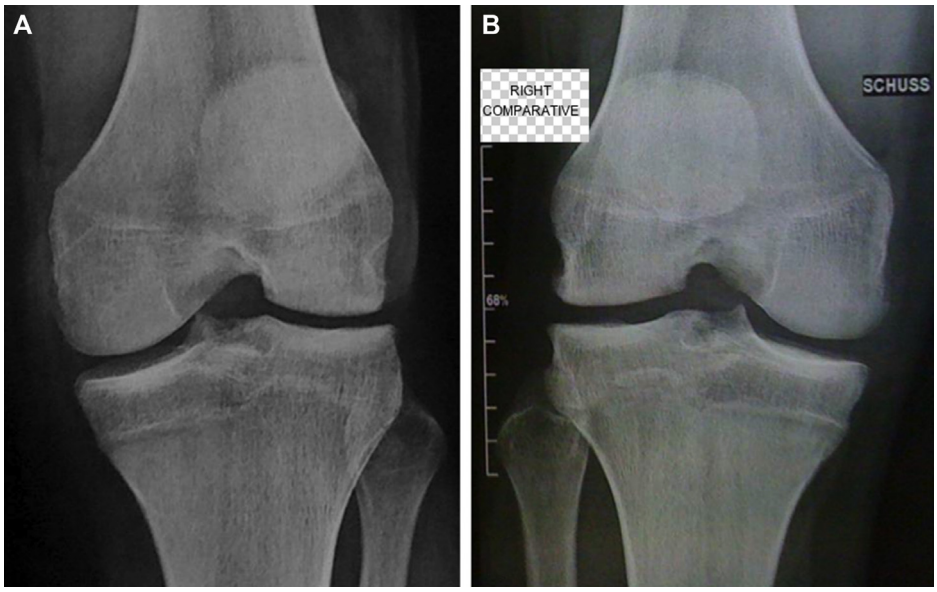

Fig. 1. Comparative Schuss view X-rays when rapid chondrolysis was diagnosed 6 months after the meniscal injury. There is 2 mm articular narrowing in the lateral femorotibial compartment of the left knee (A) compared to the right knee (B).

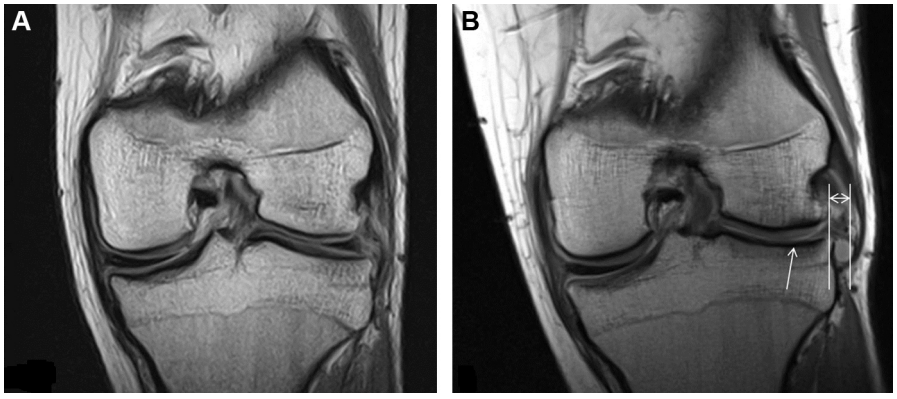

Fig. 2. T1-weighted coronal MRI slices of the left knee when the lateral meniscus injury occurred (A) which shows a deep radial tear of the middle segment of the lateral meniscus. Six months later (B) persistent swelling with no bone marrow edema, showing worsening of lateral meniscus extrusion. This is defined by the distance between the right angle of the limit of the tibial plateau and the peripheral rim of the meniscus (white line). The MRI confirms the rapid chondrolysis by showing the subchondral sclerosis of the lateral tibial plateau associated with thinning of the cartilage (white arrow).

The postoperative outcome was simple and followed by rehabilitation with partial weight-bearing on the knee. Six months later there was no swelling or pain in the knee, allowing unrestricted return to sports. At one year of follow-up, there were no swelling nor pain at clinical examination.

3. Discussion

This is the first reported case of rapid chondrolysis following an untreated radial lateral meniscus tear. There are only 12 published cases of chondrolysis of the knee following partial lateral

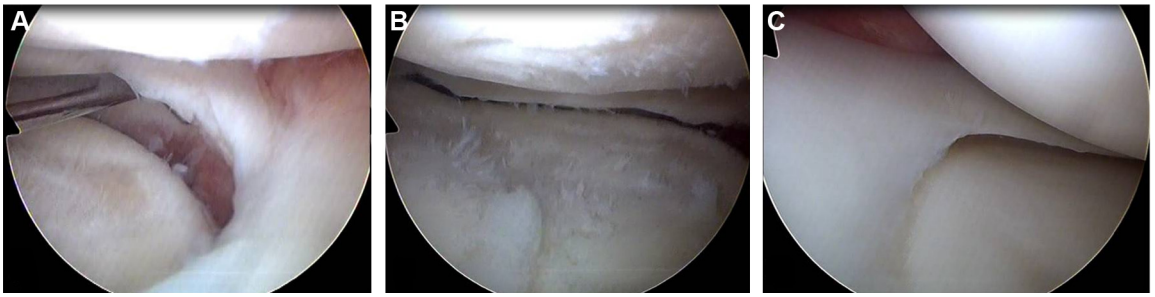

Fig. 3. Arthroscopic results of the intervention performed 6 months after the meniscal injury. A. The degenerative process involves the articular cartilage with meniscus extrusion. B. There is severe chondropathy, predominant on the lateral tibial plateau with a less severe corresponding lesion on the lateral femoral condyle. C. The medial compartment is normal.