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ORIGINAL ARTICLE

Patellar chondropathy prevalence at anterior cruciate ligament reconstruction: Analysis of 250 cases

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KEYWORDS

Chondral damage;
Patella;
Laxity;
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Summary

Introduction. – Anterior knee instability caused by anterior cruciate ligament (ACL) deficiency results in meniscal as well as chondral femorotibial and/or femoropatellar damages over a more or less long duration delay. This study's objectives were, in chronically deficient ACL patients, to assess onset delay for developing chondral patella lesions and also analyse these lesions characteristics in relation to laxity duration.

Hypothesis. – Chondral patellar lesions in ACL deficient knees get worse with time.

Material and methods. – We reviewed 250 charts of patients who had undergone arthroscopically assisted surgery for knee anterior laxity. The arthroscopic procedures were conducted between January 1995 and January 2005. Chondral damages were evaluated at surgery according both to International Cartilage Repair Society (ICRS) and Bauer and Jackson classifications. The data were analyzed using the Kruskal-Wallis test and the Fisher exact test.

Results. – Of the 250 analysed charts, 72 patients (28.8%) were found to present chondral patella lesions. The majority of these lesions were superficial and involved the lateral facet area. We observed a statistically significant ICRS worsening grade in relation to laxity duration.

Discussion. – Few publications in the literature report patellar involvement in anterior laxity of the knee. However, our results are comparable to those of the rare series found. The pathomechanics of these lesions has not yet been precisely identified and requires further biomechanical studies.

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Conclusion. – Patellar damage is frequent with anterior laxity (28.8% in our series) and duration is correlated with statistically significant aggravation of these lesions. Currently, the assessment of these patellar lesions is considered less important than meniscal and femorotibial lesions, even though the natural history of ACL disruption seems to be evolving toward degeneration of all the compartments of the knee, including the femoropatellar compartment. Level of evidence: level IV. Diagnostic study.

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Introduction

The natural history of anterior cruciate ligament (ACL) disruptions is characterized by the onset of meniscal and femorotibial lesions following a well-known evolutive process, but also by a process of patellar osteochondral lesions that are taken less seriously than these other lesions. The objective of this retrospective study was to evaluate the onset of patellar chondropathies in patients presenting ACL disruption and to study the severity of these lesions in relation to the duration of laxity.

Material and methods

We conducted a retrospective study of a continuous series of 250 files (all included) of patients who had undergone arthroscopic surgery performed by a single surgeon for anterior laxity of the knee between January 1995 and January 2005. All patients presented anterior laxity caused by disruption of the ACL with a positive Lachmann and Pivot shift test. None of them presented any other ligament damage. A standardized descriptive report on each lesion was made for every arthroscopic intervention (arthroscopic information, arthroscopic images, surgical reports). The International Cartilage Repair Society (ICRS) classification [1] (Fig. 1) and the Bauer and Jackson classification [2] (Fig. 2) were used to detail the type and topography of these lesions. We also analyzed any evidence of degenerative damage in the other knee compartments. The statistical analysis was based on the Kruskal-Wallis test and the Fisher exact test.

Results

Of the 250 patients presenting anterior laxity, 72 presented patellar chondral involvement (28.8%). These patients (57 males, 15 females) had a mean age of 32 years (range, 16–46 years). The circumstances of injury onset were for the most part pivot-contact sports (football, 27%; basketball, 13%; handball, 15%; skiing, 13%; other sports, 23%; traffic accident, 9%). The time between initial injury and surgery was a mean seven years (range, three months to 28 years), corresponding to chronic anterior laxity.

Location

The lateral side was involved in 41 patients (56.9%) (Fig. 3). The lateral facet only was involved in 13 patients (1%), the medial facet only in three patients (4.1%), the median border only in 20 patients (27.7%), the median border and

lateral facet in 22 patients (30.5%), the median border and medial facet in eight patients (11.1%) and finally, the entire patellar surface in six patients (8.3%). As for lesion extension, a mean 31% of the patellar surface was injured.

Grade

According to the Bauer and Jackson classification (Fig. 4), the lesions were stage 1 (linear) in ten patients (13.8%), stage 2 (stellate) in eight patients (11.1%), stage 3 (flap) in five patients (6.9%), stage 4 (crater) in one patient (1.3%), stage 5 (fibrillation) in 38 patients (52.7%), stage 6 (degrading) in ten patients (13.8%). According to the ICRS classification (Fig. 5), the lesions were grade 1 in 48 patients (66.6%), grade 2 in five patients (6.9%), grade 3 in eight patients (11.1%), and grade 4 in 11 patients (15.2%). On the whole, a majority of superficial lesions were noted (ICRS grade 1, Bauer and Jackson stages 1 and 5).

Statistical analysis

We found no correlation between the onset of damage and patient age or between lesion topography and type. On the other hand, the Kruskal-Wallis test demonstrated a statistically significant aggravation ($p=0.0016$) of the ICRS grade in relation to the duration of laxity. However, there was no correlation between lesion location and laxity duration.

Associated lesions

The medial meniscus was injured in 33 patients (45.8%), the lateral meniscus in ten patients (13.8%) and both menisci in 21 patients (29.1%). The medial femoral condyle was affected in 25 patients (34.7%) and the lateral femoral condyle in seven patients (9.7%). The medial tibial plateau was injured in seven patients (9.7%) and the lateral tibial plateau in three patients (4.1%). There was a trochlear groove lesion in 14 patients (19.4%). Seven knees (9.7%) presented no associated lesion.

We found no statistically significant correlation between patellar lesions and these associated meniscal or femorotibial lesions.

Discussion

This descriptive epidemiological study did not include clinical evaluation of the results. Several classifications of chondral lesions have been proposed: the Insall classification and the Outerbridge classification [3] in 1961, the classifi-

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