

Paper #187

## Delay in Surgical Management of Multiligament Knee Injuries Is Associated with Cartilage and Meniscus Injury

**Alan Shamrock, MD, UNITED STATES**

James Hall, BS, UNITED STATES

Christina Hajewski, MD, UNITED STATES

Qiang An, MPH, UNITED STATES

Kyle R. Duchman, MD, UNITED STATES

University of Iowa

Iowa City, IA, UNITED STATES

### Summary:

Surgical reconstruction of multiligament knee injuries (MLKIs) delayed for more than 6 weeks was associated with increased meniscus and cartilage injury.

### Abstract:

### Introduction

Multiligament knee injuries (MLKIs) are potentially devastating injuries and can lead to significant functional impairment. Long-term outcomes and reconstructive options for MLKIs have been well described, however limited data exists on meniscus and chondral injuries in the setting of a multiligament deficient knee. The purpose of this study was to describe the pattern of meniscus and cartilage pathology in operative MLKIs and determine the relationship between surgical timing and degree of intra-articular injury.

### Methods

Consecutive patients with surgically treated MLKIs involving two or more ligaments (ACL, PCL, MCL, or PLC) over a 15-year period at a single large academic institution were retrospectively reviewed. Subjects were grouped based on their ligament injury pattern and the presence or absence of meniscus and chondral injury were recorded. Surgical intervention within 6 weeks of injury was deemed acute, while surgery occurring more than 6 weeks from injury was classified as delayed. Chi square and logistic regression were utilized for statistical analysis, with significance set at  $p < 0.05$ .

### Results

In the 15-year study period, 207 patients with MLKIs (age: 28.4 +/- 12.1 years; 74.9% male) were surgically treated at our institution. There were 104 meniscal (50.2%) and 70 chondral (33.8%) injuries in the cohort. The most common ligamentous injury pattern was ACL/MCL (n=47, 22.7%) and ACL/PCL (n=47, 22.7%), followed by ACL/PCL/MCL (n=35, 16.9%). Meniscectomy (n=52, 50.0%) was the most frequently performed procedure for meniscus injuries followed by meniscus repair (n=32, 30.8%). Compared to acutely managed patients, the delayed intervention group had significantly more meniscus pathology (57.1% vs 42.1%,  $p=0.03$ ) and were more likely to undergo meniscectomy compared to repair ( $p=0.002$ ). Of the 70 cartilage injuries, 11 (15.7%) required surgical debridement. Chondral pathology was more frequently present in the delayed intervention group compared to the acutely managed group ( $p=0.003$ ). Meniscus injury rates in MLKIs sustained during sporting activity did not differ from non-sporting injuries ( $p=0.59$ ) however, the non-sporting group had significantly more cartilage injuries (42.0% vs 18.1%,  $p < 0.001$ ).

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### Discussion

Surgical reconstruction of MLKIs delayed for more than 6 weeks was associated with increased meniscus and cartilage pathology. This may be the result of the severity of the initial injury, which may warrant surgical delay in more severe cases, or persistent knee instability placing the meniscus and chondral surface at risk for injury.