

Meniscal Surgery Markedly Increases Risk for Incident Osteoarthritis and Cartilage Loss in the Following Year

Thursday, 9:00-9:10 AM

Location: E451B

PARTICIPANTS:

Frank W Roemer MD (Presenter): Chief Medical Officer, Boston Imaging Core Lab LLC
Research Director, Boston Imaging Core Lab LLC Shareholder, Boston Imaging Core Lab LLC

Kent C Kwoh MD: Advisory Panel, Pfizer Inc Data Safety Monitoring Board, Novartis AG

Michael Hannon: Nothing to Disclose

Jason Grago: Nothing to Disclose

David J Hunter MD, PhD: Royalties, DJO Global, Inc

All Guermazi MD, PhD: President, Boston Imaging Core Lab, LLC Research Consultant,
Merck KGaA Research Consultant, Sanofi-Aventis Group Research Consultant, TissueGene, Inc

CITE THIS ABSTRACT

PURPOSE

To assess whether meniscal surgery increases risk for incident radiographic osteoarthritis (ROA) and cartilage loss in the following year.

METHOD AND MATERIALS

Participants were drawn from the Osteoarthritis Initiative (OAI) including 4796 participants with, or at risk of knee OA. We studied 355 knees that developed incident ROA before the 60 month visit that were matched with a control knee that did not develop incident ROA. Matching was done by gender, age within 5 years, and baseline Kellgren-Lawrence grading (KLG) of both, the index and collateral knees. MRIs were read for medial and lateral meniscal damage (including maceration) and for cartilage morphology using the MOAKS system at one year prior and at the case defining visit (KLG=2). Conditional logistic regression adjusted for BMI was applied to assess risk of incident ROA for knees that had surgery in the year prior to developing incident ROA, and for knees with prevalent meniscal damage. Logistic regression adjusted for BMI and the matching criteria was used to assess risk of cartilage loss.

RESULTS

Subjects were on average 60.2 years old (SD ± 8.6), predominantly female (66.5%) and overweight (mean BMI 28.3 SD ± 4.5). 31 (4.4%) knees underwent meniscal surgery during the year prior to the case defining visit. 238 (34.9%) knees had prevalent meniscal tears and 42 (6.2%) knees showed any meniscal maceration one year prior to the case-defining visit. All (n = 31, 100%) knees that had meniscal surgery and 58.9% (n = 165) of the knees with prevalent meniscal damage developed incident ROA (OR = 2.66, 95% CI [1.81, 3.89]). 39.5% (n = 107) of knees with meniscal damage and 80.8% (n = 21) of knees with surgery showed cartilage loss. Risk of cartilage loss was significantly increased for knees exhibiting any prevalent meniscal damage without surgery (OR = 1.5 95% confidence interval [CI] [1.1, 2.2]), and markedly further increased for knees that had surgery (OR = 13.1 95% CI [4.7, 36.3]).

CONCLUSION

In a cohort with risk factors for ROA, all knees undergoing meniscal surgery developed incident ROA. Furthermore, risk for cartilage loss is much higher for knees undergoing surgery compared to knees with prevalent meniscal damage.

CLINICAL RELEVANCE/APPLICATION

Meniscal surgery has deleterious effects on joint structure in knees without ROA, but at risk of developing ROA. The decision for meniscal surgery needs to be carefully considered in order to avoid accelerated disease onset.