Meniscus MRI

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Introduction: Historically, magnetic resonance imaging (MRI) results have been used to identify a meniscal tear, with the intra-operative findings dictating whether a meniscal repair could be performed. Our goal was to analyze whether MRI can be used to reliably predict if a meniscal tear is repairable, which would enhance patient care by managing treatment expectations pre-operatively.

Methods: We retrospectively identified patients who underwent a meniscectomy or meniscal repair and imaging at a UC Davis between 2010 and 2018 and in whom there was an MRI within 3 months of surgery. 193 patients (203 exams) were included in the analysis; imaging review was completed by three blinded reviewers – 2 musculoskeletal radiologists and 1 orthopedic surgeon. Previously validated arthroscopic criteria were used to score on MRI the repairability of a meniscal tear on a scale of zero to four, with one point awarded for each of the following – tear within 4 mm of the meniscosynovial junction, tear longer than 10 mm, intact inner meniscal segment, and a tear of >50% thickness. Tears with a score of 4 were predicted to be repairable.

Results: 134 underwent meniscectomies and 68 underwent meniscal repair. The radiologists (κ=0.08, κ=0.35), and orthopedic surgeon (κ=0.44) showed poor and moderate correlation, respectively, in identifying repairable meniscal tears. When analyzed independently, type and nature of tears did not increase the ability to predict repairability.

Conclusion: Using MRI based upon established arthroscopic criteria to predict the repairability of meniscal tears was not effective. Further investigation is needed.